



# BAHRIA UNIVERSITY PROSPECTUS (FALL 2025)



**Bahria University**

Discovering Knowledge

A PROJECT OF PAKISTAN NAVY



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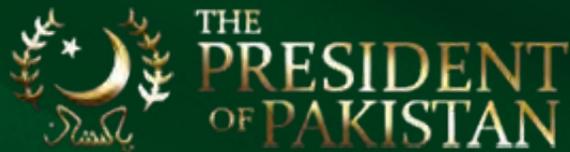
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**ASIF ALI ZARDARI**  
CHANCELLOR BAHRIA UNIVERISTY







# MESSAGE OF PRO CHANCELLOR

Bahria University is a flagship project of Pakistan Navy envisioned to promote the indispensable cause of quality and multidisciplinary Higher Education in country. The University has embarked on a remarkable journey from its inception. Just over the span of two decades, it stands among the reputable universities of Pakistan. It is heartening to note that the university has become a center of excellence for knowledge and research in multiple academic disciplines. The University has kept its custom of taking lead in adoption of modern teaching pedagogies and investing in facilities featuring dedicated modern infrastructure, equipped with cutting edge technologies to ensure conducive environment with the aim to become the benchmark of academic excellence. Pakistan Navy acknowledges the support of all stakeholders and I am delighted to share that Pakistan Navy is focused on building the future of motherland and will continue with high spirits.

The founding father of Pakistan – Muhammad Ali Jinnah (RA) considered youth as the greatest asset of nation and relentlessly emphasized on the education and development of youth for a promising future. To achieve Quaid's objective, Bahria University must focus on wholesome grooming of its students through personal and professional development along with delivery of quality education. The University Alumni's are distinguished with characteristics of Competency, Ethics, Morality and Subject Knowledge.

I would encourage the Youth of Pakistan to enroll for Higher Education to be a complete person, a responsible citizen and a valuable asset for the country.

**Admiral Naveed Ashraf NI (M), Tbt**

Pro - Chancellor Bahria University

Chief of the Naval Staff



# RECTOR'S MESSAGE

Over the history of mankind, universities have contributed to the development of humans and societies in making them more civil, social, and bringing a continuous ease in lives through knowledge creation and advancement in natural and social sciences. At Bahria University, we are keenly focused on larger goals of development and advancement of society with an aim to contribute towards a promising and prosperous global future.

I am pleased to share that the profound dedication of our faculty and management has helped us achieve significant milestones. Over a short span of time since its inception, Bahria University has emerged from a small institute to a federally chartered public sector university ranked as 2nd best in Pakistan and among 601 – 800 Universities worldwide by Times Higher Education World (THE) University Ranking 2022. The University has evolved into a comprehensive higher education institute offering over 80 degree programmes in 13 academic disciplines. All degree programmes of the university are recognized by local and international accreditation bodies. Likewise, the University is member of prominent global and regional Higher Education networks including Association of Commonwealth Universities, International Association of Universities, China Pakistan Economic Corridor Consortium of Universities and has working relations with over 45 International Universities.

At Bahria University, we continuously work towards the development of curriculum at par with international standards and ensure to incorporate right blend of academic and practical knowledge. Our student centric policies in combination with State-of-the Art facilities provide a conducive environment for learning and research thus enabling our scholars to get hold of subject knowledge and relevant expertise. We extensively strive towards inculcating and infusing values, ethos, honesty and building of strong character apart from learning & developing skills amongst students. Alhamdulillah, it is due to our dedication and measures that our graduate placement ratio is amongst highest in the country.

We look forward to grow further and keep contributing towards betterment of our homeland and globe at large. I welcome all our stakeholders to join hands with us in achieving our vision and mission of championing the larger cause of a promising global future.

**Vice Admiral (R) Asif Khaliq HI (M)**

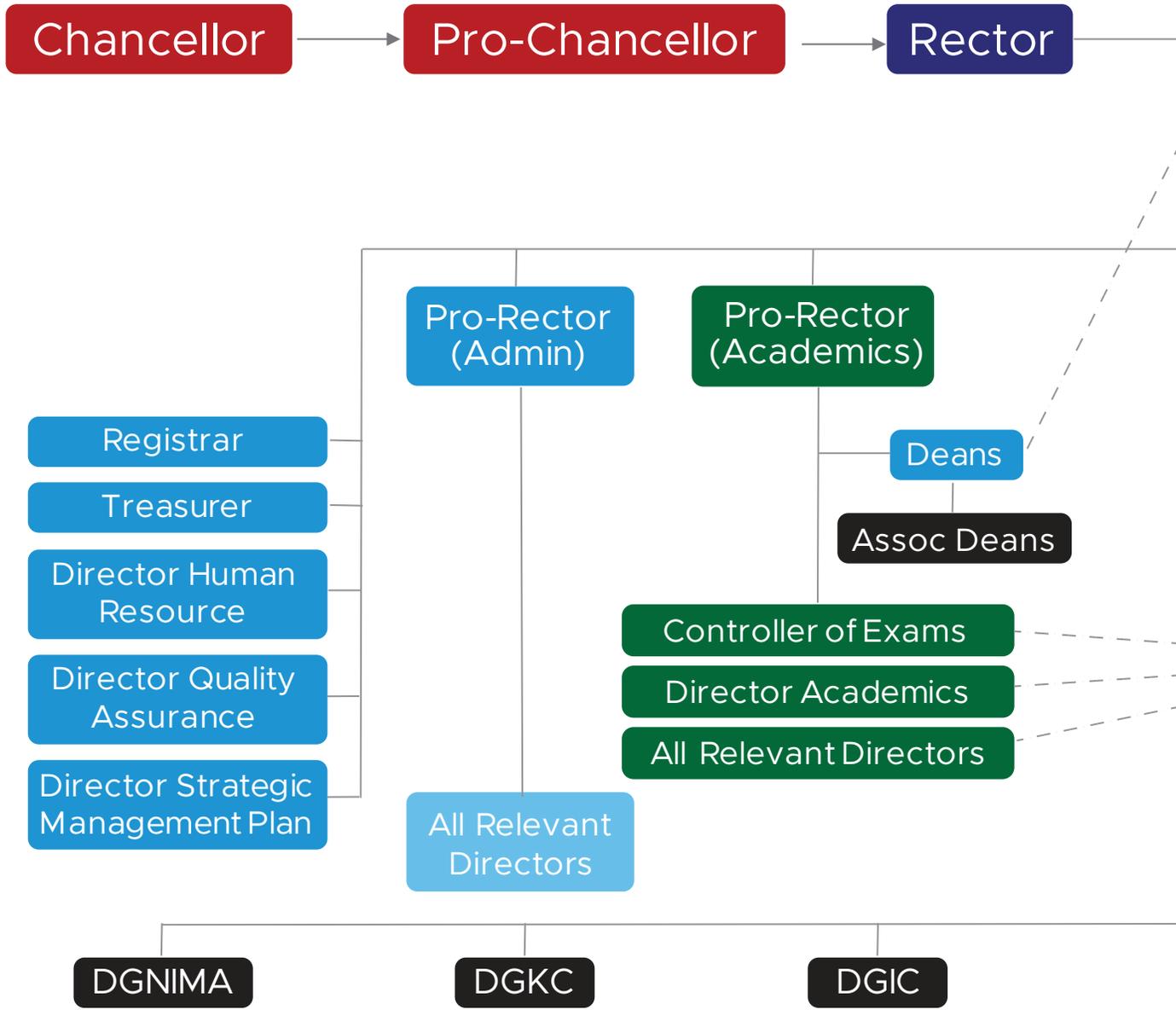
Rector Bahria University

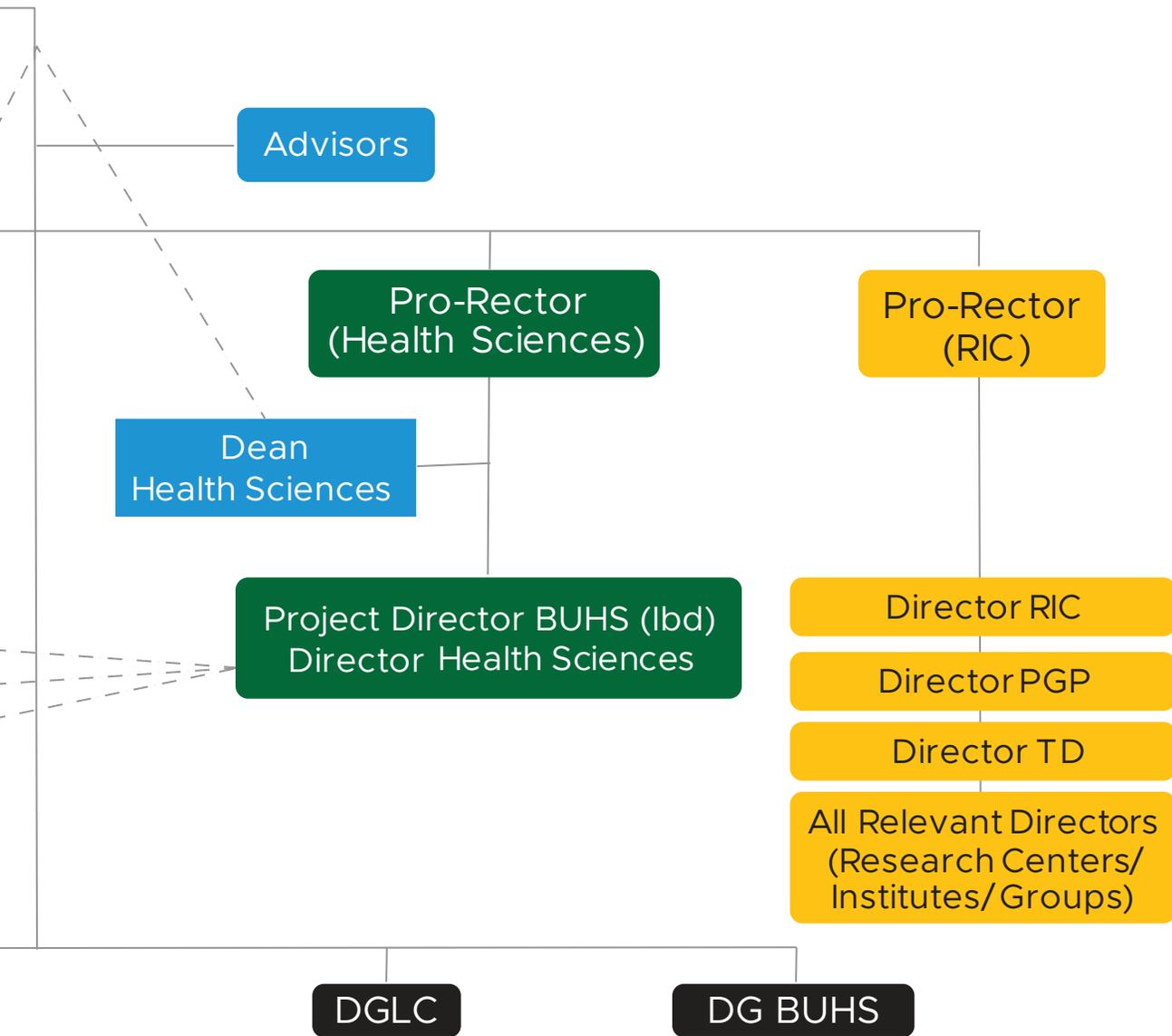


DISCOVERING  
**KNOWLEDGE**



# Bahria University Organogram





# BAHRIA AT A GLANCE

## About US

Bahria University is a Federally Chartered Public-Sector Non-Profitable institution established on 7th February 2000 through a Presidential Ordinance. Being a multi-campus (Isb/Lhr/Khi) institution of higher education, we aim to attain highest standards in teaching, learning and research that fall in accordance with global compatibility.





## VISION

To become a knowledge and creativity driven international university that contributes towards development of society.

## MISSION

To ensure academic excellence through deliverance of quality education and applied research in a collegiate environment having strong linkages with industry and international community to meet the societal challenges.

## CORE VALUES

Integrity  
Creativity  
Excellence  
Positivity  
Tolerance  
Humility  
Self-Discipline





## **Excellence in Education**

The aim is to offer students a transformational educational experience, encompassing both the academic and the co-curricular activities, which provides them with the opportunity to fulfill their potential as successful professionals in life.

## **Excellence in Research**

The aim is to develop and sustain an environment where research is viewed and practiced as a primary function that will subsequently contribute towards the vitalization of teaching, by discovery of new knowledge, and improving people's life in our country and abroad.

## **Excellence in Global Reach**

The aim is to thrive for a global presence by equipping students, staff and faculty with the global knowledge and expertise to become a world renowned university.

## **Engaging with Business/ Industry**

The aim is to maximize the impact of our excellence in education and research by engaging effectively with business/ industry in a way that benefits staff, students, faculty and alumni to provide sustainable growth in our income from government and non-government sources

## **Improving & Ensuring the University's Financial Security**

The aim is to enhance existing income streams and develop diversified means of income generation for the financial sustainability of the university.

## **Excellence in Social Integration**

The aim is to commit our self towards development of our local communities, and foster an environment where the staff, students and faculty see themselves as part of the larger, global community.

# Why BU

Highly Qualified &  
Experienced Faculty

Strong Industrial &  
International Academia  
Linkages

**45**  
International  
Linkages

Research  
Funding Over  
**PKR 240**  
Million



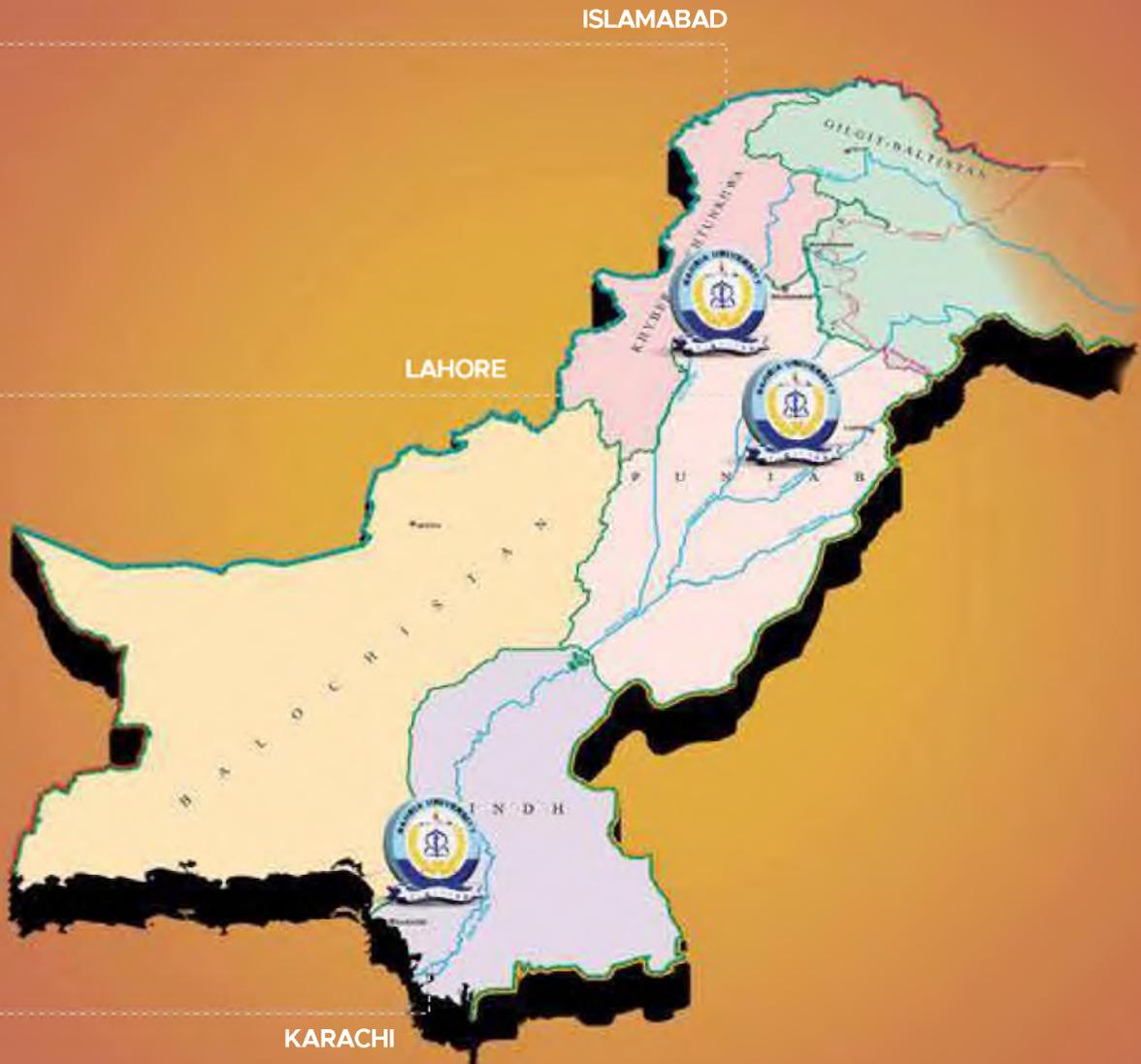
19000+  
Students

Scholarship  
Grants worth  
PKR 164+  
Million

# BAHRIA UNIVERSITY

Bahria University is a Federally Chartered Public Sector University which was established on 7th February 2000 through a Presidential Ordinance. It is a multi-campus institution of higher education, which is committed to attain the highest standards in teaching, learning and research, compatible with global requirements of practicing different professions. The University is widely recognized for preparing professionals, to assume roles as future leaders and to become good executives/ managers through development of their physical, mental, moral and professional competence. The enrollment of students has crossed 19,000+ in the campuses located in Islamabad, Karachi and Lahore.





ISLAMABAD

LAHORE

KARACHI





# ISLAMABAD CAMPUS

Bahria University Islamabad Campus (BUIC) is one of the most renowned institutions of higher education in Islamabad. Hosting over 7,000 students, BUIC provides access to higher education for promising students. There are two campuses at Islamabad. The old campus is situated at Sector E-8 Islamabad, whereas, the new campus has recently been built and commissioned at Sector H-11/4 (behind HQ NESCOM) imparting education & training to over 1600 students from Fall 2021 semester. The old Islamabad campus houses three schools; Bahria Business School (BBS), Bahria Humanities & Social Sciences School (BH3S), Bahria University Law School (BULS) and Department of Professional Psychology. The new campus at H-11 houses Bahria School of Engineering & Applied Sciences (BSEAS). Our vibrant Campuses in the heart of the city serves a rapidly-growing number of rural students from the immediate area and surrounding provinces. The changes taking place at the university continue to capture the imagination of people everywhere, including the international media, and our growing base of international universities. Inspiring excellence. Transforming lives. These objectives are the driving forces at the heart of BUIC. Through our Project, we are a university internationally recognized for human reconciliation and compassion as well as for excellence in academic achievement.

## Bahria Univeristy E-8 Campus

 Shangrilla Road, Sector E-8 Islamabad

 +92-51-111-111-028

 [info@bahria.edu.pk](mailto:info@bahria.edu.pk)

## Bahria University H-11 Campus

 BSEAS, BUIC (H-11) Sector H-11/4, Islamabad

 +92-51-9259503

 [info@bahria.edu.pk](mailto:info@bahria.edu.pk)





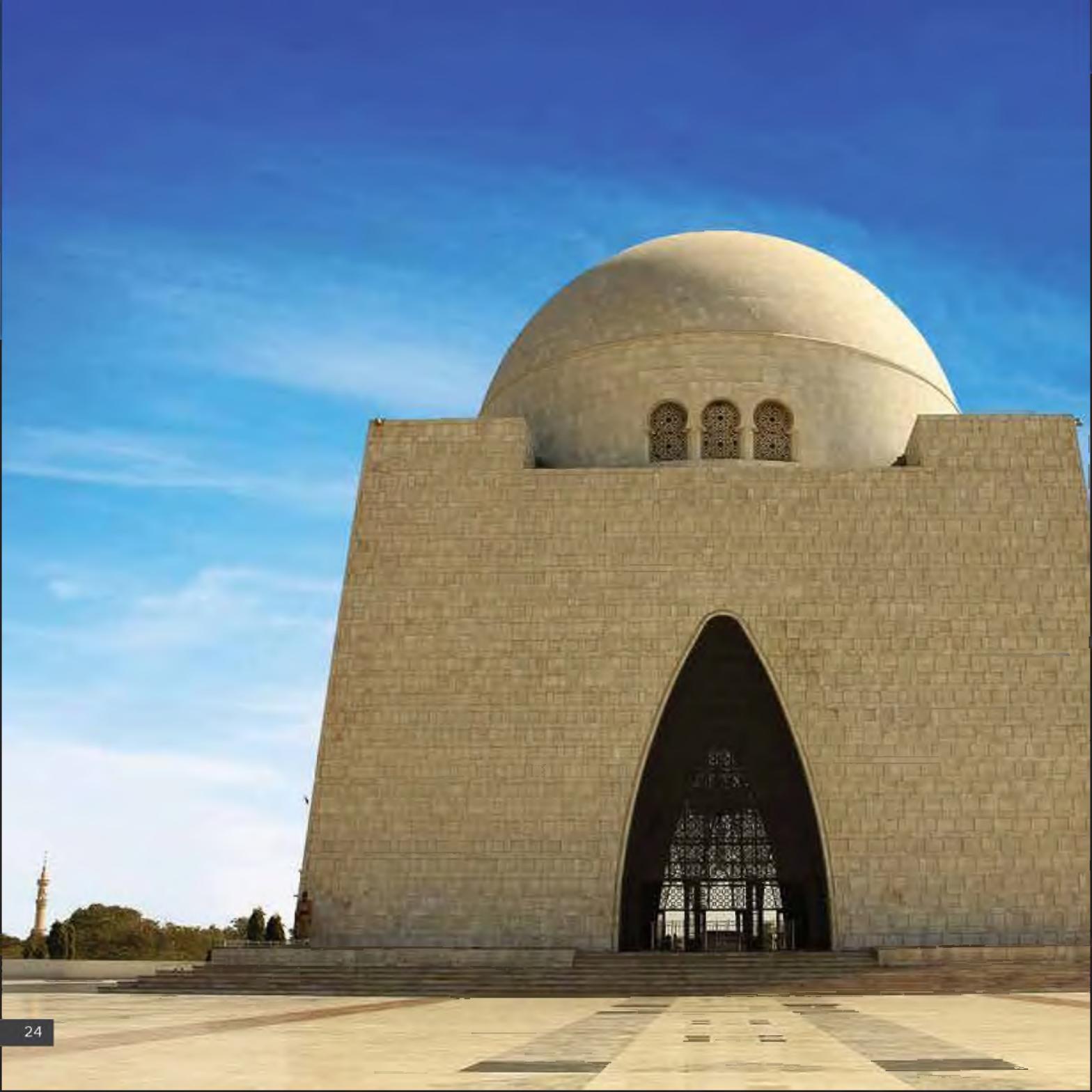


# LAHORE CAMPUS

Bahria University Lahore Campus (BULC) is a student-centered, globally-engaged public university committed to providing highly-valued undergraduate and graduate educational opportunities through superior teaching, research, creative activity and service for the people of Pakistan and the world. BULC is committed to being an outstanding teaching-intensive, research-driven university that emphasizes student engagement, scholarly and creative achievement, civic participation, and global perspectives. The Campus is widely recognized for its high quality of services, activities and programs for students. It has strong partnerships with faculty, student and community groups so that we may serve as primary advocates to meet the needs of our diverse student population. The core values of the institution includes Educational Opportunity, Excellence, Diversity integrity and service.

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 [info@bahria.edu.pk](mailto:info@bahria.edu.pk)





# KARACHI CAMPUS

## Bahria University Karachi Campus (BUKC)

Bahria University Karachi Campus (BUKC) was founded with a purpose: to create economic, societal and intellectual prosperity for the people of Karachi and the country. The campus houses three schools; Bahria Business School (BBS), Bahria School of Engineering & Applied Sciences (BSEAS) and, Bahria Humanities & Social Sciences School (BH3S). We began as an institution teaching wide range of subjects including Management Sciences, Computer Sciences, Software Engineering, Computer Engineering, Electrical Engineering and Media Studies. The Karachi campus has students, faculty and staff—take problems in hand and work with industry, and government to solve them. Our high-performing students apply what they learn in the real world by conducting research, working in internships and co-ops, and performing acts of world-changing service. That experiential education ensures they leave here ready to lead the workforce, confident in the knowledge that Bahria University consistently rates as one of the best values in higher education.



13 National Stadium Rd, Karachi



+92-21-111-111-028



info@bahria.edu.pk

## Bahria University Health Sciences (BUHS)

Bahria University Health Sciences (BUHS) Campus was established in 2008 with the induction of experienced and highly qualified faculty. The state-of-the-art 7-storey building houses 5 lecture halls each with a capacity of 150 seats and a beautiful auditorium with a seating capacity of 500. There are fully equipped laboratories, museums, dedicated teaching rooms for group teaching and a skills laboratory. BUHS strictly follows the curriculum specified by the Pakistan Medical and Dental Council.



Adjacent to PNS SHIFA, DHA Phase-II, Karachi



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info.bumdc@bahria.edu.pk





# KARACHI CAMPUS

## Institute of Professional Psychology

The Institute of Professional Psychology (IPP) at Bahria University functions as an educational establishment focused on the career development of its students. The Institute offers a range of specialized programs ranging from Bachelors till PhD programs. Undergraduate students are given basic and fundamental knowledge related to different aspects of psychology with the aim toward developing their thorough grounding in the field. On the other hand, students at the postgraduate level from MS/MPhil to PhD are provided with the unique opportunity to engage in experiential learning with supervised internships in the field settings along with gaining an enhanced outlook of professional psychology based on their selected specialization. Both students and faculty are also actively engaged in community work, aiming to benefit the community while fulfilling the experiential requirements for various courses. The Psychological Services Centre, Umeed-e-Nau, offers individualized assessments and a range of therapeutic plans tailored to the specific needs of each client. Beyond clinical practice, IPP provides consultancy services in assessment and counseling to various national and multinational organizations.



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# ISLAMABAD CAMPUS

## National Institute of Maritime Affairs (NIMA)

National Institute of Maritime Affairs (NIMA) had been set up at the Bahria University, Islamabad Campus with a view to encourage research in maritime matters. NIMA has accordingly developed linkages with various international universities and maritime research institutes. It has also hosted a number of international seminars, conferences and workshops, high-lighting various aspects of the maritime domain.



Bahria University E-8 Campus  
Shangrilla Road, Sector E-8 Islamabad



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# SCHOLARSHIPS/FEE CONCESSIONS/ WAIVERS/STUDENT LOANS

## Introduction

10.1.1 Bahria University offers various Scholarships for students with an aim to encourage excellence in studies through rewarding high academic achievers through various types of Advance Merit /Merit scholarships and also to support less privileged student(s) to attain their goals/target by offering purely Need Based Scholarships. BU believes that no one should be deprived of getting education merely on the grounds of inability to pay.

## Objectives

BU scholarships are offered with an objective to;

- a. Provide financial support to academically talented and less privileged students with an objective to empower them to acquire quality education at Higher Education level.
- b. Elevate the socio-economic status of the students by enabling them to get the modern education and career opportunities for their brighter future.
- c. To improve access to higher education, especially for those belonging from far flung areas of Pakistan

## Types of Scholarships Offered and their Eligibility Criteria

The eligibility criteria for different types of scholarships are as under:

**1. Advance Merit Scholarships – Types;** The University generally award Advanced Merit

Scholarships in the following five categories, in order to encourage and ensure that the most talented students join Bahria University.

- i. Advanced Merit Scholarship for Board Toppers;
- ii. Advanced Merit Scholarship for Top Rankers in University Merit Lists;
- iii. Advanced Merit Scholarship for Outstanding Performers in A-Levels;
- iv. Exemption of admission fee to Bahria university graduates/alumni for MBA/MS/MPhil/PhD program at Bahria university
- v. Incentive to attract High Achieving Candidates into PG Programs.

### **Advanced Merit Scholarship for Board Toppers (for undergraduate programs)**

Bahria University shall offer 100% total fee waiver/concession (including all other charges) for the first semester, to top three toppers of all Boards of Intermediate and Secondary Education (BISE).

**Note:** However, its continuation during the subsequent semesters will be subject to the condition that awardee must maintain his/her minimum GPA/CGPA of 3.50

### **Advanced Merit Scholarship for Top Rankers in University Merit Lists**

Top merit position holders in Bahria University admission merit list according to their respective discipline will be awarded scholarships/fee waiver



as per following criteria:

**a. Undergraduate Programs;** Top three student scoring at least 70% in the merit lists for Management and Business Studies (considered together), Engineering (all Engineering programmes considered together) and Computer Sciences, shall be eligible for award of scholarship in the form of Tuition Fee waiver as follows:

- **1st Position Holder      75% Tuition Fee waiver**
- **2nd Position Holder      50% Tuition Fee waiver**
- **3rd Position Holder      30% Tuition Fee waiver**

**Note:** The top-ranking student scoring at least 70% in the merit lists for Law, Earth & Environment Sciences, Media Studies, Humanities & Social Sciences and Psychology, shall be eligible for award of scholarship in the form of 75% Tuition Fee waiver.

**b. Post-Graduate Programs;** The top-ranking student scoring at least 70% in the merit list of MBA, MS, MPhil, or equivalent at each CU shall be eligible for award of 50% tuition fee waiver.

**Note:** For continuation of the scholarship in the subsequent semesters for the above categories the students will be required to achieve a GPA/CGPA of at least 3.50.

### **Advanced Merit Scholarship for Outstanding Performers in A-Levels**

Bahria University shall award scholarship 75% waiver/concession in tuition fee, to all students who have achieved minimum 03 A's in A Levels. Eligible students shall have to produce equivalence certificate issued from the Inter Board Committee of Chairmen (IBCC).

For continuation of scholarship in the subsequent semesters the students will be required to achieve a GPA/CGPA of at least 3.50

### **Exemption of Admission Fee to Bahria University Graduates/ Alumni for MBA/MS/MPhil/PhD Programs at Bahria University**

Bahria University Graduate/Alumni shall be given 100% Admission fee waiver for admission in MBA/MS/MPhil and PhD Programs.

### **Incentives to attract High Achieving Candidates into PG Programs**

The incentives to attract High Achieving Candidates into PG Programs will be as following:

#### **a. From Non-Engineering background;**

Candidates for PG programs (MBA/MS/MPhil/PhD) with 95% marks (in case of annual examination) or CGPA 3.75 from non-engineering programs in last degree from HEC recognized National & International Universities shall be offered 50% waiver in tuition fee.

**b. From Engineering background;** Candidates for PG programs (MBA/MS/MPhil/PhD) with 80 % marks (in case of Annual examination) CGPA 3.50 from engineering programs (in semester system), in last degree from HEC recognized National & International Universities shall be offered 50% waiver in tuition fee.

For continuation of scholarship in the subsequent semesters, the students will be required to achieve GPA/CGPA of at least 3.50 for Engineering and GPA/CGPA 3.75 for Non-Engineering program.

### **2. Merit Scholarships for Batch Toppers (For all semester based programs)**

The merit Scholarships for Batch Toppers for all semester based programs will be as following:

**a. For Undergraduate Programs;** Top scorer students from each batch, achieving first three (03) position in their Semester Examination shall

## SCHOLARSHIPS/FEE CONCESSIONS/ WAIVERS/STUDENT LOANS

be awarded Merit Scholarship as per following;

- 1st position Holder 70%
- 2nd Position Holder 40%
- 3rd Position Holder 30%

**b. For Post-Graduate Programs (MBA/MS/MPhil/PhD or Equivalent);** Top scorer students from each batch, achieving first two (02) position in their Semester Examination shall be awarded Merit Scholarship as per following;

- **1st position Holder 70%**
- **2nd Position Holder 40%**

**Eligibility Criteria;** The criteria to qualify for the Merit Scholarship will be as following;

a. The students of all programs are eligible for Merit Scholarship.

b. The Merit scholarship shall be offered to students on the basis of GPA of their previous semester & tuition fee of their current semester.

c. The students must achieve minimum GPA  $\geq$  3.75 in order to qualify for the award of Merit Scholarship for non-engineering program(s), in case of engineering & computing programs, student has to achieve minimum GPA  $\geq$  3.60 as per details mentioned above.

d. In case of a tie, the student with the higher percentage will get the Scholarship. In case of a double tie, all students will be awarded the Scholarship.

e. The student(s) have to follow the academic road map with regular course load for all type of Merit Based Scholarships.

f. Student availing Naval fee concession will also be eligible for Merit scholarship as per policy,

however they can only avail one benefit at a time (i.e. fee reduction or merit scholarship).

g. BU Faculty and administrative staff qualify for Merit scholarship shall not be considered for award of scholarship if availing already any fee concession.

h. Merit Scholarship shall not be provided for the Summer Semester, final semester (Graduating Batch).

i. A student in receipt of more than one scholarship/waiver shall be eligible to avail one scholarship as per student(s) discretion.

j. For MS/MPhil only for 02 years of program, for the purpose of award of Merit Scholarship, the GPA of course work shall only be considered in the 3rd semester.

### 3. Financial Assistance Scholarship (FAS)

Financial Assistance Scholarship shall be offered to the needy and financially weak students in order to partially or fully support them. New intake after becoming bona-fide students and already enrolled students can apply subject to fulfilling the eligibility criteria. The scholarship once granted in this category remains available to the students for the entire degree program provided their performance shall not fall below GPA/CGPA 2.50.

**Eligibility criteria for award of Financial Assistance scholarships;** Following shall be the eligibility criteria to apply for Financial Assistance Scholarship Program:

a. Financial Assistance Scholarship shall mainly focus on to support students from low-income background.

b. Students of all programs are eligible for

Financial Assistance Scholarship subject to the condition he/she finds financial constraints to cope with educational expenses.

c. For fresh intake, results of their Matric, FA/FSc., O & A levels or equivalent be considered for award of scholarship

d. For the students enrolled in 2nd semester onwards shall be eligible to apply if he/she has a minimum 2.50 GPA/CGPA in the previous semester and for continuation at least 2.50 GPA/CGPA has to be maintained in the subsequent semesters. If the students fail to maintain 2.50 GPA/CGPA in the previous semester, then their scholarship shall be withheld till the time he/she improves academic grades to 2.50 GPA/CGPA.

e. Students with any physical disability shall be preferred

f. Students belonging to less developed areas (as identified by GoP) shall be preferred if fall under FAS eligibility criteria.

g. Students mentioning income and expenditure details has to justify with supporting documents.

#### **4. Merit Scholarships at BUMDC (For Annual based Examinations)**

For MBBS & BDS programs, merit scholarships for batch toppers shall be awarded on the basis of the result of annual examination except the final professional examination. The award shall be a lump sum amount for the year following the annual examination, as follows:

#### **A. MBBS Students**

| Merit in Annual Exam | Scholarship Amount |
|----------------------|--------------------|
| 1 <sup>st</sup>      | Rs 100,000         |
| 2 <sup>nd</sup>      | Rs 75,000          |
| 3 <sup>rd</sup>      | Rs 50,000          |

#### **B. BDS Students**

| Merit in Annual Exam | Scholarship Amount |
|----------------------|--------------------|
| 1 <sup>st</sup>      | Rs 100,000         |
| 2 <sup>nd</sup>      | Rs 75,000          |

For all semester-based programs at BUMDC, general scholarship policy of BU shall be implemented i.e. Merit & Need based both (except Advance merit categories)

#### **5. Study Loan/ Revolving Fund**

A newly inducted student whose academic progress is impeded by the lack of financial resources to pay the fee(s), shall be eligible for financial support through the Study Loan. The loan will be interest-free and available to the students of all degree programs except MBBS and BDS, though the preference shall be given to UG students.

To apply for the loan, a student shall first secure admission and get the fee voucher. A student (only 1st semester intake) can request for the loan against the total 1st semester fee. The loan shall be processed through the Central Scholarship Committee with recommendations of the Head of the CU. Final approval shall be accorded by the Rector. Following rules shall apply:

a. The parents/guardians (spouse in case of a married student) shall be the joint borrower(s)/guarantors (irrespective of their



## SCHOLARSHIPS/FEE CONCESSIONS/ WAIVERS/STUDENT LOANS

means and age of the student).

b. There shall be no security deposit by the applicant (student). A bond shall be signed between the applicant (student), his/her guarantor and BU, mentioning also the repayment schedule.

c. The final transcript or degree shall not be issued prior clearance of all payable loans by the student.

### General Rules for Award of BU Scholarships

Eligibility of students for scholarship shall be subject to following conditions:

a. Student(s) of Bahria University in any semester are eligible, subject to the conditions as indicated with respect to their respective category.

b. The student(s) has to follow the academic road map with regular course load for all type of Merit Based Scholarships.

c. Student(s) already in receipt of one scholarship/fee concession from university or external resources are ineligible to apply for any other scholarship.

d. Progress of Financial Assistance and all Merit Based Scholarships will be reviewed every semester.

Any International student falling under Merit Scholarship category shall be awarded as per the policy. However, for Need Based scholarships, special approval shall be sought from Honorable Rector.

### 6. Sponsor a Student Scheme

Sponsor a Student Scholarship Scheme is introduced at Bahria University with an objective

to financially support students from less privileged class of society. For this specific program, University shall approach well off individuals/corporate companies'/donor agencies to financially support fully or partially the needy student(s). Interested sponsors shall be requested to bear the educational, expenses of the student(s) along with boarding/meal/books allowance as per sponsors willingness. Award of scholarship under this category shall be purely on Need based grounds, keeping in view the financial background of the applicant's family. This program shall be launched for all programs at UG and PG level both.

### 7. Interest Free Laptop Loan Scheme

Investment in youth has been recognized as the best long-term speculation for prosperous future of any nation. Bahria University facilitate its students in different ways to fulfill their dream of becoming successful graduates so as to perform exceptionally good in their practical life. Laptop is now an important gadget for students to perform their academic and research activities. In this information age, personal computing devices, like a laptop, is a must especially for students at Higher Education level. Keeping this reality in consideration and realizing its importance BU has launched its Loan policy for Laptop procurement w.e.f. Fiscal year 2020-21. This scheme shall support financially underprivileged students at UG Level to buy laptops as per their academic requirements.

**Eligibility Criteria;** Following shall be the eligibility criteria;

a. Loan for laptop procurement shall be offered to the students from 2nd semester to 6th

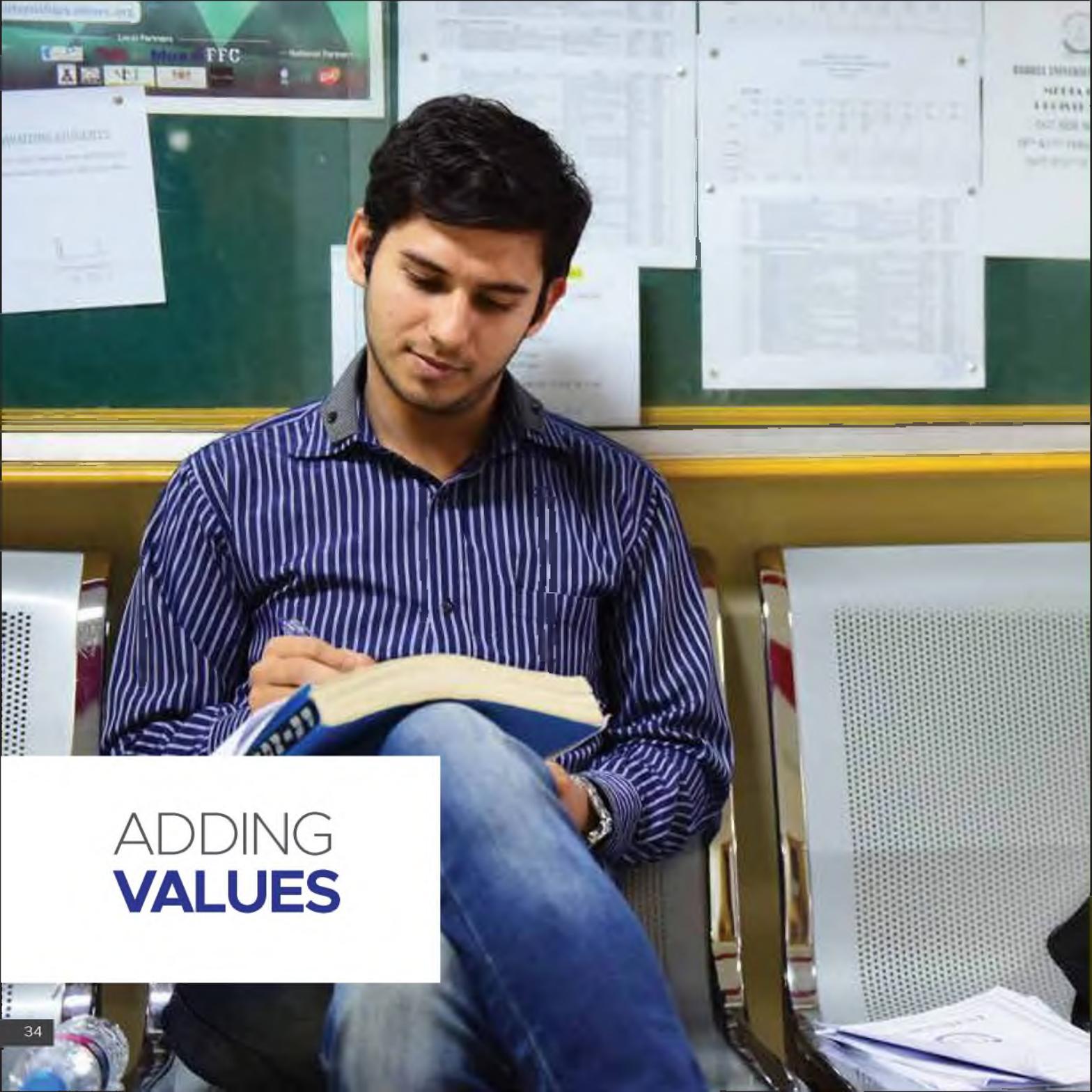


semester students holding minimum CGPA of 2.5 at UG level and in case of annual system student of 2nd year/3rd year with 50% Marks can apply/avail the facility.

b. Selection shall be made based on need assessment of students i.e. those students who cannot afford to buy laptops for their academic use shall be eligible to apply.

c. Two committees one at Campus Level and other at Head Office will evaluate the individual cases and put up the recommendation to Honorable Rector for final approval.





# ADDING **VALUES**

## Learning & Teaching Methods:

Today Bahria University is considered to be one of Pakistan's 21st century, business-facing university. We are committed to giving our students the skills they need to succeed in the global marketplace.

We strive to develop the qualities of confidence, self-worth and high employable skills with in our students so that they can excel in the field they choose to work in We strive to achieve this by:

**One of our aims is to bring higher education to a wider audience. We provide flexible learning opportunities for local residents and businesses, including:**

Combining traditional teaching methods by top academic staff with digital resources.

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Teaching courses that are all designed with the input of business and professional bodies.

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Giving students the change to learn about employability through listening to the experience of our alumni.

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Organizing networking events where staff, students and graduates can meet.

---

Offering a vibrant multicultural campus.

---

Giving students the option of studying at one of our partner universities overseas.

---

Offering students valuable work experience in research, business or industry before their final academic year.

---

Evening classes, summer schools and short courses at community venues

---

Public lectures and workshops

---

Part-time study, continuing education program, and new foundation degrees.



## Career Office

Bahria University remains committed in providing not only quality academic services but also offers career services that include employment opportunities, professional grooming and counseling to its students and alumni. The Office of Student Affairs and Career Services keeps on strengthening academic linkages with industry in order to provide the market with our talented and skilled graduates as valuable workforce. Dedicated staff has been appointed in all BU Campuses to facilitate students and Alumni in best possible way. A very efficient mechanism is followed where the students and alumni are assisted in choosing the

right career paths and future goals. BU strive hard to meet the very dynamic requirements of job market and graduates by creating innovative ways of bridging the gap of academic world and industry. The Office of Student Affairs and Career Services acts as a central hub for its students and alumni and apart from routine job alerts, it organizes various training programs, seminars and workshops by inviting market professionals who share their expert opinion and experiences which helps the students in building a deep insight of the corporate world.

### Career Counseling can help you:

- discuss your interest /profession
- discover what you can do along with your major
- learn the way to investigate profession fields, industries, and employers
- discover what an internship is, why you want one, and the way to get one
- Critique your resume
- develop networking talents

### Getting Professional:

Professionalism, Evaluation & Learning Professionalism is a cornerstone of any organization and is essential to achieving excellence in research, education, clinical care and university and community service. It requires an ongoing commitment to honesty, integrity, respect, altruism, accountability, compassion, empathy and self-improvement. Bahria University reaffirms this commitment to a climate of respect, civility and cooperation among students, interns, residents, faculty, administrators, staff and society. Programs

and services offered by Bahria University support and enhance the goals to educate and oversee student's personal and professional accountability as well as to ensure academic success. These include

- Faculty-student mentoring programs
- Course and instructor evaluations
- Administration of the Learning Resource Center
- Academic enrichment intervention strategies,
- Supervision of exam proctors,
- Academic enhancement workshops.

### Interactive Approach:

Interactive learning is a hands-on approach to help students become more engaged and retain more material. With or without a form of technology, interactive learning helps students strengthen problem solving and critical thinking skills,

# ADDING VALUES



# ADDING VALUES



## 1. Brainstorming

Interactive brainstorming is typically performed in group sessions. The process is useful for generating creative thoughts and ideas. Brainstorming helps students learn to pull together. Types of interactive brainstorming include:

- Structured and unstructured
- Reverse or negative thinking
- Nominal group relationships
- Online interaction such as chat, forums and email
- Team-idea mapping
- Individual brainstorming

## 2. Think, Pair and Share

Establish a problem or a question. Pair the students. Give each pair sufficient time to form a conclusion. Permit each participant to define the conclusion in his or her personal voice. You can also request that one student explain a concept while the other student evaluates what is being learned. Apply different variations of the process.

## 3. Buzz session

Participants come together in session groups that focus on a single topic. Within each group, every student contributes thoughts and ideas. Encourage discussion and collaboration among the students within each group. Everyone should learn from one another's input and experiences.

## 4. Incident process

This teaching style involves a case study format, but the process is not as rigid as a full case study training session. The focus is on learning how to solve real problems that involve real people. Small groups of participants are provided details from actual incidents and then asked to develop a workable solution.

### Personality Grooming:

Bahria University places strong emphasis on personality development of its graduates to improve their employability skills. In this regard a hybrid student grooming programme is in place focusing on both academic and non-academic activities. In terms of personality development through academic means, eight learning dimensions have been identified, that are covered in various subjects offered in the degree programmes at BU. This includes IT skills, numeracy skills, oral communication and public speaking skills, business communication skills, self-management, psychological & emotional development, career exploring and management and corporate skills. Understanding the importance of co-curricular activities, the university has also identified six personality dimensions that are focused for development in a student through various co-curricular activities including civic education, intellectual development, physical education, internationalization, social & emotional development and aesthetic development. So whether it is attending guest lectures by renowned speakers, participating in arts, dramatics, sports or music activities, they are all managed and planned in a way to ensure overall development of students' personality!

# Facilities

## Business Incubation Centre

Bahria Universities Business Incubation Centre (BIC) is dedicated to help students explore different spheres of research which include human needs, emerging technology and social trends. It seeks to create new ideas and businesses that are intuitive and enriching without losing sight of the experience and encounter. BIC tries to find a new sensibility that allows it to create products that focus on the augmentation of human capability and to further examine the boundaries between physical and mental limitations. Through projects that are self-initiated or developed in collaboration with industry, the Centre aims to experiment with and develop new design methods.

## E- News Paper

The Bahria University Tribune, now published from Islamabad, is a try at your hand at journalistic writing or find out what it's like to work in the newspaper business? Students submit their articles on a weekly basis at The Tribune run by students. No matter what majors are, your participation is always welcomed.

## FM Radio

Bahria University has the privilege to be among the few institutes in Pakistan to have its own FM Radio Channel. Functioning at the frequency of 106, the FM Radio provides an excellent opportunity for the students of Media Studies to get hands on experience in running and managing radio programs.

## BU Media House

Bahria Media House is the project of BU to provide a platform for its students to showcase their talent and skills to the outer world through the medium of Web TV, FM Radio and Online Newspaper. The Media house equipped with State of the art facilities is the idyllic place for the pupils to pursue their dreams in the world of digitalization. Bahria University is creating artwork in a range of applications that include prospectuses/ catalogues and brochures and magazines.

## BUTV

BUTV is Bahria University's student-operated media production network. Live-streamed programming is available at [bahria.edu.pk](http://bahria.edu.pk) and on campus television channel. BUTV produces an array of news, information, sports and variety programming. Open to any BU student is its annual membership. BUTV productions and administrative departments are based at the Bahria University Media House and Media Studies Department.

## Networking Partners



# Libraries

The Bahria University libraries aim to encourage and support academic and research activities of university researchers, faculty, staff and students. They provide a full range of services, including books loans, online information searching, reference services, photocopying, access to digital resources, CD searching and research support services, i.e. Endnote training and APA style manual, etc. The libraries are managed by qualified and experienced staff, dedicated to provide quality services for its users.





# INTERNATIONAL LINKAGES

Internationalization is functioning at the heart of BU. Our University is one of the first few universities of the country that has a formal International Office setup to look after academic linkages and ties with international universities. The journey of internationalization of BU is now over a decade old with number academic partnerships in countries such as UK, USA, Australia, Canada, China, Turkey, Netherlands, Italy, Malaysia, Bangladesh, Iran & Thailand. There are several opportunities for the students of Bahria University to avail international experience through guest lectures by foreign speakers, short study tours to partner

### UNITED KINGDOM

- University of Plymouth
- University of Bedfordshire
- University of Greenwich
- University of Leicester
- University of Nottingham
- University of Northampton
- York St. John University
- Corbett Cent – King’s College
- Southampton Solent University
- Brunel University

### UNITED STATES OF AMERICA

- MIT (Resource Sharing)
- University of Idaho
- Valparaiso University

### NETHERLANDS

- Amsterdam University of Applied Sciences

### CANADA

- Dalhousie University

### CHINA

- Hangzhou Dianzi University
- Shanghai Lixin University
- Beijing Technology & Business University

### BANGLADESH

- International University of Business, Agricultural & Technology

### IRAN

- Chabahar Maritime University
- Damghan University

### ITALY

- Trieste University

### AUSTRALIA

- Griffith University
- Macquarie University
- Edith Cowan University

### MALAYSIA

- AIMST University

### THAILAND

- Burapha University

### TURKEY

- Izmir University of Economics
- Istanbul Kemerburgaz University
- Istanbul Aydin University
- Dogus University
- Yasar University
- Erzurum Technical University
- Hakkari University
- University of Sirnak

Universities, participation in international conferences, attending international internships programmes, exchange of students for a semester with universities in Turkey, Australia & UK, credit transfer opportunities to selected partner universities on a 3+1 and 2+2 articulation arrangements, international summer school programmes and many more. To view list of existing partner universities of BU, please visit the University website. All international opportunities are advertised through International Office online portal available at [www.bahria.edu.pk/internationalopportunities](http://www.bahria.edu.pk/internationalopportunities).

# Research at Bahria University

Exploring the new trends and new facets of higher education and research has assumed added significance in the globalized world of the twenty-first century. Since the strength of today's economies is increasingly based on how well they can harness knowledge and expertise, the role of the higher education system has become crucial in international competition. BU undergraduates pursue independent research through personal Research Consultations and administration of competitive research grants. Bahria University as one of the Pakistan's leading universities, has a broad array of faculty conducting cutting-edge research in all disciplines. BU undergraduates become involved in research by identifying

resources, narrowing search, and shaping initial inquiries. Increase in international mobility in tertiary education, gave rise to new modes of competition within higher education and research. This situation stems from the technological revolution in communications, developments in science, as well as the very nature of knowledge, which now operates via accumulation and paradigm shift. Economic competition, Competition amongst academic and research institution and diversification & modernization are the three major trends that impose the importance of Research at Bahria University.





# Life at Bahria

# The BU Experience

Want to know what it's really like to be a student at Bahria University?

Bahria University focuses on strong academic grooming of the students along with emphasis on individual development by engaging them in various curricular & co-curricular activities. Bahria support individuals to achieve their goals and make them move forward their professional life. These are the opportunities which everybody is looking forward to enhance their knowledge base & soft skills.

Student life & Engagement is dedicated to offering modern programs to help students get involved on campus giving vast opportunities to expand leadership skills and pursue their future goals. The university works in close liaison with international partner universities to provide international exposure to our students.

# Sports at BU

The importance of sports in the life of students is invaluable and plays a pivotal role in their overall development. With this perspective in view, the university provides many opportunities and facilities to its students to participate in international, national and university level sports.

A state of the art Gymnasium having wide range of indoor games facilities: courts for basketball, volley ball, badminton, a fitness room equipped with the latest machines is available at Islamabad Campus.





# Music at BU

Extra-curricular activities including music are an integral part of life on the campus. Undergraduates, postgraduates, alumni and staff all contribute to the rich musical life of the University. Music Club is a student-run body comprising of a number of talented students of the university. The main objective of the music club is to expose and nurture the hidden talent of the students and giving the confidence to represent them nationwide as proud BU students. We are proud of this music heritage of the university that has produced world class singers such as Umair Jaswal, Uzair Jaswal and Shamir Aziz Quidwai. Groups and individuals are open to express their talent anytime.

# Dramatics at Bahria University

Dramatic Arts education is an important means of stimulating creativity in problem solving. It can challenge student's perception, about their world and about themselves. Dramatic exploration can provide students with an outlet for emotions, thoughts, and dreams that they might not otherwise have means to express. A student can, if only for a few moments, become another, explore a new role, try out and experiment with various personal choices and solutions to very real problems from their own life, or problems faced by characters in literature or historical figures. This is perhaps the most important reason for Dramatic Arts in schools. Theater and Drama has also been a major part of our culture since the very beginning. BU has always provided means by which students can actively participate in the activities and express their different personalities.

Bahria University's Dramatics club is the Centre of attention. The club enables the students to polish their hidden talent performing live and is thus helping students to promote the culture in a positive manner. A huge body of students interested in performing live in theatres is encouraged by the administration of the university. Plays are being arranged in which students express themselves by performing on the most sensitive societal issues. It is not a 'traditional' drama society in the sense, but is made up of a committee which meets every week to discuss funding for shows and to make decisions which improve opportunities for drama across the University.





# **Bahria University Psychological Services Centres**

Trauma Therapy Unit (TTU)

The Psychological Services Centres across Bahria University are committed to providing the best mental health services to all in need of assessment, counseling, and/or psychotherapy. High-quality, problem-focused, and ethical services are ensured. The Centres offer support to all enrolled students, faculty, staff and general public experiencing distress arising from various emotional issues.



# Student Support Centre (SSC)

SSC is the hub of all non-academic activities and student centered services to maximize student potential by polishing student talents and skills, developing them into all-rounders with grooming interventions, self-help resources, interactive workshops and participation outside university. The Student Support Centre has a system under which it operates and provide support to students through following three wings:

- The Student Facilitation Centre
- Community Support Program
- Students Resource Centre





**Bahria University**  
Discovering Knowledge

**Institute of  
Professional  
Psychology  
(IPP)**

**Bahria  
University  
Health  
Sciences  
(BUHS)**

# **Programmes Offered**

**Islamabad  
Campus**

**Karachi  
Campus**

**Lahore  
Campus**



# Rules and Regulations

## Academic Rules

Bahria University is committed to fulfilling its core academic mission of educating students. At the same time the University must be prepared to respond to provide a framework that will guide the University in enhancing its ability to fulfill its academic mission in the face of potential threats to academic continuity. It is intended to apply to circumstances and events that are potential threats to the continuity of the academic operations of the University and relates entirely to the principles and processes that should guide the University in this context.

## Code of Behavior on Academic Matters

The Academic Council of the University has approved a Code of Behavior on Academic Matters applying to members of the University. The Code of Behavior on Academic Matters addresses the responsibilities of all parties to the integrity of the teaching and learning experience. It concerns the accountability of faculty members and students as they cooperate in all phases of this relationship. Honesty and fairness must inform these activities, the foundation of which is mutual respect for the aims of education and for those ethical principles which characterize the pursuit and transmission of knowledge within the University.

## Code of Student Conduct

Students have an obligation to make legal and responsible decisions concerning their conduct. The University has no general responsibility for the moral and social behavior of its students. In the exercise of its disciplinary authority and

responsibility, the University recognizes that students are free to organize their own personal lives, behavior, and associations subject only to the law and to University regulations that are necessary to protect the integrity and safety of University activities, the peaceful and safe enjoyment of University housing by residents and neighbors, or the freedom of members of the University to participate reasonably in the programs of the University and in activities in or on the University's premises.

## Dress Code

### Male Students

1. Dress/casual trousers
2. Jeans (plain blue) without any images graphics and writeups
3. Dress/casual shirts (jhalf/full sleeves)
4. T-shirts without any images, messages, graphics and writeups.
5. Dress/casual shoes or joggers with socks. (no sandals)
6. Shalwar qameez with shoes (only on friday)
7. Suit/combinaton
8. Coat/pullover/sweater/jacket in winter.

### Female Students

1. Shalwar qameez (no sleeveless)
2. Hijaab, abaya, chaddar
3. Full length jeans/trousers with long shirt/kurta (knee length) (no tights)
4. Light jewellery and light make up
5. Shoes, sandals and jogers
6. Duppatta/scarf compulsory with all dresses.

**Note:** BUHS students should wear white coat with colour coded (collar/sleeves) as appropriate

## LIST OF OFFERED PROGRAMS

### Business Studies

- ADP-Business Administration
- BBA
- MBA 1.5 & 2 Years
- MBA- Pharmaceuticals & Health Management

(BUKC)  
(BUIC E-8, BULC, BUKC)  
(BUIC E-8, BULC, BUKC)  
(BUKC)

### Computer Science

- ADP-Computer Science
- BS-Computer Science
- BS-Information Technology
- BS-Artificial Intelligence
- MS-Artificial Intelligence
- MS-Computer Science
- MS-Data Science
- MS- Information Security
- MS-Mathematics
- PhD-Computer Science
- PhD-Mathematics

(BUIC H-11, BUKC, BULC)  
(BUIC E-8, BUIC H-11, BULC, BUKC)  
(BUIC E-8, BULC, BUKC)  
(BUIC E-8, BUIC H-11, BUKC)  
(BUIC H-11, BUKC, BULC)  
(BUIC E-8, BULC, BUKC)  
(BUIC E-8)  
(BUIC E-8)  
(BUIC E-8)  
(BUIC E-8, BULC, BUKC)  
(BUIC E-8)

### Humanities & Social Sciences

- BSS
- BS-Development Studies
- BS-English
- BS-International Relations
- BS-Public Health
- MS-Applied Anthropology
- MS-Government Public Policy
- MS-International Relations
- MS-English Linguistic
- PhD-International Relations

(BUKC)  
(BUIC E-8)  
(BUIC E-8, BULC, BUKC)  
(BUIC E-8)  
(BUIC E-8, BUKC)  
(BUIC E-8)  
(BUIC E-8)  
(BUIC E-8)  
(BUIC E-8, BUKC)  
(BUIC E-8)

### Islamic Studies

- MS-Islamic Studies (Islam & Life)
- PhD-Islamic Studies

(BUIC E-8, BUKC)  
(BUIC E-8, BUKC)

### Law

- LLB
- LLM
- PhD-International & Maritime Law

(BUIC E-8)  
(BUIC E-8)  
(BUIC E-8)

### Management Studies

- BS-Accounting & Finance
- BS-Economics
- BS-Supply Chain Management
- BS-Business Analytics

(BUIC E-8, BUKC)  
(BUIC E-8)  
(BUIC E-8, BUKC)  
(BUKC)

- BS-Business & Information Technology (BULC)
- MS-Business Analytics (BUIC E-8)
- MS-Finance (BUIC E-8)
- MS-Marketing & Sales (BUIC E-8)
- MS-Management Sciences (BUIC E-8, BULC)
- MS-Project Management (BUIC E-8, BULC, BUKC)
- MS-Supply Chain Management (BUIC E-8)
- MS-HRM & Organizational Psychology (BUKC)
- PhD-Economics (BUIC E-8)
- PhD-Management Science (BUIC E-8, BULC, BUKC)

### Media Studies

- BS-Media Studies (BUIC E-8, BUKC)
- BS-TV Broadcasting & Digital Media (BUIC E-8)
- MS-Media Studies (BUIC E-8, BUKC)
- PhD-Media Studies (BUIC E-8)

### Psychology

- AD- Infant, Child & Adolescent Mental Health) (BUIC H-11)
- BS-Psychology (BUIC E-8, BUIC H-11, IPP-Karachi)
- BS-Psychology (Clinical Psychology) (BUIC E-8, BUIC H-11, BULC & IPP)
  
- MPhil-Professional Psychology (BUIC E-8, IPP-Karachi)
- MS-Clinical Psychology (BUIC E-8, BUIC H-11, BULC, IPP)
  
- PhD-Professional Psychology (IPP-Karachi)
  - Clinical Psychology
  - Educational Psychology
  - Organizational Psychology

### Computer Engineering

- BCE (BUIC H-11, BUKC)
- MS-Computer Engineering (BUIC H-11)
- PhD-Computer Engineering (BUIC H-11)

### Earth & Environmental Sciences

- BS-Environmental Sciences (BUIC H-11, BUKC)
- BS-Geology (BUIC H-11)
- BS-Geo Physics (BUIC H-11)
- BS-Remote Sensing & GIS (BUIC H-11, BUKC)
- MS-Environmental Science (BUIC H-11, BUKC)
- MS-Geology (BUIC H-11)
- MS-Geo Physics (BUIC H-11)
- PhD-Environmental Sciences (BUIC H-11)
- PhD-Geology (BUIC H-11)
- PhD-Geo Physics (BUIC H-11)

## Electrical Engineering

- BEE (BUIC H-11, BUKC)
- BS-Robotics Intelligence Systems (BUIC H-11, BUKC)
- MS-Electrical Engineering (BUIC H-11, BUKC)
- PhD-Electrical Engineering (BUIC H-11, BUKC)

## Software Engineering

- BSE (BUIC H-11, BUKC)
- MS-Software Engineering (BUIC H-11, BUKC)
- PhD-Software Engineering (BUIC H-11, BUKC)

## Maritime Sciences

- BS-Maritime & Business Management 2 Years (BUKC)
- BS-Maritime & Business Management 4 Years (BUKC)
- MS-Maritime Ports & Shipping Management (BUKC)
- MS-Maritime Trade & Logistics (BUKC)

## Health Sciences

- MS-MLS (BUHS-KC)
- MPhil-Anatomy (BUHS-KC)
- MPhil-Biochemistry (BUHS-KC)
- MPhil-Pharmacology (BUHS-KC)
- MPhil-Physiology (BUHS-KC)
- MPhil-Pathology (BUHS-KC)
- PhD-Health Sciences (BUHS-KC)

## Hospitality Management

- BS- Hospitality & Tourism Management (BU-HSHM)

## Associate Degree in Business Administration

**Program Title:** Associate Degree in Business Administration

**Duration:** 2 Years

**Eligibility Criteria:** Intermediate or it's equivalent with a minimum of 50% marks (excluding NCC) in any discipline

### Road Map of AD-BA

### Semester 1

| S. No | Course Code | Course Title                           | Credit Hours |
|-------|-------------|--|--------------|
| 1     | ENG 101     | Functional English                     | 3            |
| 2     | MKT 110     | Principle of Marketing                 | 3            |
| 3     | MGT 111     | Principles of Management               | 3            |
| 4     | QTM 122     | Business Mathematics & Numeracy Skills | 3            |
| 6     | MIS 161     | IT in Business (word, excel)           | 3            |
| 6     | PAK 109     | Ideology and Constitution of Pakistan  | 2            |
| 7     | ISL 107     | Tajweed                                | 0            |

### Semester 2

| Sr. No. | Prerequisite Courses | Course Code | Course Title                                   | Credit Hours |
|---------|----------------------|-------------|--|--------------|
| 1       | ENG 101              | EN G 102    | English Writing Skills                         | 3            |
| 2       | None                 | SOC 212     | Critical and Logical Thinking                  | 3            |
| 3       | None                 | ECO 110     | Microeconomics                                 | 3            |
| 4       | None                 | ENV 120     | Introduction to Environment and Sustainability | 3            |
| 5       | None                 | QT M 110    | Business Statistics                            | 3            |
| 6       | None                 | ACC 101     | Principles of Accounting                       | 3            |
| 7       |                      | ISL 203     | Fehmu e Quran I                                | 1            |

**\*For non-Muslim:** Any University approved 02 (or more) credit hours of Interdisciplinary Course

### Semester 3

| Sr. No. | Pre-requisite Courses | Course Code      | Course Title                                    | Credit Hours |
|---------|-----------------------|------------------|---|--------------|
| 1       | ENG 102               | ENG 213          | Oral Communication and Presentation Skills      | 3            |
| 2       | QTM 110               | QTM 205          | Statistical Inference and Quantitative Research | 3            |
| 3       | ACC 101               | ACC 102          | Financial Accounting                            | 3            |
| 4       | ECO 110               | ECO 121          | Macroeconomics                                  | 3            |
| 5       |                       | HSS 219          | Civic and Community Engagement                  | 2            |
| 6       |                       | ISL 101/ ETH 102 | Islamic Studies/Ethics                          | 2            |
| 7       |                       | PAK 105          | Pakistan Studies                                | 2            |

### Semester 4

| Sr. No.                   | Pre-requisite Courses | Course Code | Course Title                       | Credit Hours |
|---------------------------|-----------------------|-------------|------------------------------------|--------------|
| 1                         |                       | HSS 301     | Social & Psychological Development | 3            |
| 2                         | MKT 110               | MKT 231     | Marketing Management               | 3            |
| 3                         | MGT 111               | MGT 242     | Organizational Theory & Behavior   | 3            |
| 4                         | MGT 111               | MGT 363     | Entrepreneurship                   | 3            |
| 5                         | ACC 102               | FIN 201     | Fundamentals of Finance            | 3            |
| 6                         |                       | MIS 461     | Advanced Application of IT         | 3            |
| 7                         |                       | ISL 204     | *Fehm-e-Quran – II                 | 1            |
| <b>Total Credit Hours</b> |                       |             |                                    | <b>19</b>    |

\*For non-Muslim: Any University approved 02 (or more) credit hours of Interdisciplinary Course

### Field Experience / Internship

| Sr. No. | Pre requisite Courses | Course Code    | Course Title                   | Credit Hours |
|---------|-----------------------|----------------|--------------------------------|--------------|
| 1       |                       | <b>SDW 498</b> | Field Experience / Internship* | 3            |

- ❖ 6 weeks Internship.
- ❖ Honors, Awards, & Scholarships will be calculated on the basis of coursework only, excluding internship credit hours.
- ❖ The Quran and Seerah program is optional for the Non-Muslim students.

### **List of Social Sciences Courses**

| <b>Course Code</b> | <b>Course Title</b> | <b>Credit Hours</b> |
|--------------------|---------------------|---------------------|
| HSS 109            | Arabic              | 2                   |
| HSS 163            | Chinese             | 2                   |
| HSS 160            | French              | 2                   |
| HSS 164            | German              | 2                   |
| HSS 161            | Russian             | 2                   |
| HSS 162            | Spanish             | 2                   |
| HSS 214            | Turkish             | 2                   |

## Bachelor in Business Administration

**Program Title:** Bachelor in Business Administration  
**Duration:** 4 Years Total  
**Eligibility Criteria:** Intermediate or it's equivalent with a minimum of 50% marks (excluding NCC) in any discipline

### Roadmap of BBA

#### Semester 1

| Sr. No. | Course Code | Course Title                           | Credit Hours |
|---------|-------------|--|--------------|
| 1       | ENG 101     | Functional English                     | 3            |
| 2       | MKT 110     | Principle of Marketing                 | 3            |
| 3       | MGT 111     | Principles of Management               | 3            |
| 4       | QTM 122     | Business Mathematics & Numeracy Skills | 3            |
| 5       | MIS 161     | IT in Business (word, excel)           | 3            |
| 6       | PAK 109     | Ideology and Constitution of Pakistan  | 2            |
| 7       | ISL 107     | Tajweed                                | 0            |

#### Semester 2

| Sr. No. | Prerequisite Courses | Course Code      | Course Title                                   | Credit Hours |
|---------|----------------------|------------------|--|--------------|
| 1       | ENG 101              | ENG 102          | English Writing Skills                         | 3            |
| 2       |                      | ISL 101 /ETH 102 | Islamic Studies/Ethics                         | 2            |
| 3       |                      | ECO 110          | Microeconomics                                 | 3            |
| 4       |                      | ENV 120          | Introduction to Environment and Sustainability | 3            |
| 5       |                      | QTM 110          | Business Statistics                            | 3            |
| 6       |                      | ACC 101          | Principles of Accounting                       | 3            |
| 7       |                      | ISL 203          | *Fehm-e-Quran – I                              | 1            |

**\*For non-Muslim:** Any University approved 02 (or more) credit hours of Interdisciplinary Course

#### Semester 3

| Sr. No. | Pre-requisite Courses | Course Code | Course Title                               | Credit Hours |
|---------|-----------------------|-------------|--|--------------|
| 1       | ENG 102               | ENG 213     | Oral Communication and Presentation Skills | 3            |

|   |         |         |   |   |
|---|---------|---------|---|---|
| 2 | QTM 110 | QTM 205 | Statistical Inference and Quantitative Research | 3 |
| 3 | ACC 101 | ACC 102 | Financial Accounting                            | 3 |
| 4 | ECO 110 | ECO 121 | Macroeconomics                                  | 3 |
| 5 |         | SOC 212 | Critical and Logical Thinking                   | 3 |
| 6 | PAK 109 | PAK 105 | Pakistan Studies                                | 2 |

#### Semester 4

| Sr. No. | Pre-requisite Courses | Course Code | Course Title                       | Credit Hours |
|---------|-----------------------|-------------|------------------------------------|--------------|
| 1       |                       | HSS 301     | Social & Psychological Development | 3            |
| 2       | MKT 110               | MKT 231     | Marketing Management               | 3            |
| 3       | MGT 111               | MGT 242     | Organizational Theory & Behaviour  | 3            |
| 4       | MGT 111               | MGT 363     | Entrepreneurship                   | 3            |
| 5       | ACC 102               | FIN 201     | Fundamentals of Finance            | 3            |
| 6       |                       | HSS 219     | Civic and Community Engagement     | 2            |
| 7       |                       | ISL 204     | *Fehm-e-Quran – I I                | 1            |

\*For non-Muslim: Any University approved 02 (or more) credit hours of Interdisciplinary Course

#### Semester 5

| Sr. No. | Prerequisite Courses | Course Code | Course Title                | Credit Hours |
|---------|----------------------|-------------|-----------------------------|--------------|
| 1       | ENG 213              | ENG 214     | Business Communication      | 3            |
| 2       | ACC 102              | ACC 203     | Cost Accounting             | 3            |
| 3       | FIN 201              | FIN 202     | Financial Management        | 3            |
| 4       |                      | MGT 311     | Career Exploring Management | 3            |
| 5       | MGT 111              | SCM 360     | Supply Chain Management     | 3            |
| 6       | MGT 242              | HRM 253     | Human Resource Management   | 3            |

#### Semester 6

| Sr. No. | Prerequisite Courses | Course Code | Course Title | Credit Hours |
|---------|----------------------|-------------|--------------|--------------|
|---------|----------------------|-------------|--------------|--------------|

|   |         |         |                             |   |
|---|---------|---------|-----------------------------|---|
| 1 | ACC 203 | ACC 304 | Managerial Accounting       | 3 |
| 2 |         | MIS 461 | Advanced Application of IT  | 3 |
| 3 | QTM 122 | OPM 360 | Operation & Production Mgt. | 3 |
| 4 |         | MGT 301 | Business Law                | 3 |
| 5 |         | SOC 350 | Business Ethics             | 3 |
| 6 | FIN 201 | FIN 649 | Islamic Banking and Finance | 3 |

### **Semester 7**

| Sr. No. | Prerequisite Courses | Course Code | Course Title                  | Credit Hours |
|---------|----------------------|-------------|-------------------------------|--------------|
| 1       | MGT 111              | MGT 487     | Change Management             | 3            |
| 2       |                      | MIS 460     | E-Commerce                    | 3            |
| 3       |                      | MGT 435     | Project Management            | 3            |
| 4       | QTM 205              | RMT 240     | Research Methods & Techniques | 3            |
| 5       |                      |             | Specialization-I              | 3            |
| 6       |                      |             | Specialization-II             | 3            |
| 7       |                      | ISL 113     | Seerah – I                    | 0            |

### **Semester 8**

| Sr. No. | Prerequisite Courses | Course Code | Course Title       | Credit Hours |
|---------|----------------------|-------------|--------------------|--------------|
| 1       |                      | MGT 643     | Corporate Skills   | 3            |
| 2       |                      |             | Specialization-III | 3            |
| 3       |                      |             | Specialization-IV  | 3            |
| 4       |                      |             | Capstone Project   | 3            |
| 5       |                      | ISL 114     | Seerah – II        | 0            |

### **Field Experience / Internship**

| Sr. No. | Prerequisite Courses | Course Code | Course Title                   | Credit Hours |
|---------|----------------------|-------------|--------------------------------|--------------|
| 1       |                      | SDW 498     | Field Experience / Internship* | 3            |

- 6 weeks Internship after 4th Semester in the Summer semester, preferably.
- Honours, Awards, & scholarships will be calculated on the basis of coursework only, excluding internship credit hours.
- The Quran and Seerah program are optional for non-Muslim students.

### BBA (ELECTIVES LIST)

#### Marketing

| Course Code | Course Title                                | Credit Hours | HEC Category | UN SDGs       |
|-------------|---|--------------|--------------|---------------|
| MKT 610     | International Marketing                     | 3            | Electives    | SDG 4         |
| MKT 655     | Services Marketing                          | 3            | Electives    | SDG 9, 17     |
| MKT 660     | Strategic Marketing                         | 3            | Electives    | SDG 8, 17     |
| MKT 665     | Cases in Marketing                          | 3            | Electives    | SDG 9, 10     |
| MKT 635     | New Product Development                     | 3            | Electives    | SDG 4,7 and 8 |
| MKT 662     | Brand Management                            | 3            | Electives    | SDG 12,9      |
| MKT 688     | Social Media Marketing                      | 3            | Electives    | SDG 2,17      |
| MKT 699     | Consumer Behaviour and Psychology           | 3            | Electives    | SDG 10        |
| MKT 690     | Integrated Marketing Communication          | 3            | Electives    | SDG 10, 17    |
| MKT 650     | Sales Management                            | 3            | Electives    |               |
| MKT 620     | Marketing Research                          | 3            | Electives    | SDG 9         |
| MKT 693     | B to B and Personal Selling                 | 3            | Electives    | SDG 12        |
| MKT 663     | Promotion and Advertising Management        | 3            | Electives    | SDG 4,17      |
| MKT 689     | Digital Marketing                           | 3            | Electives    | SDG 4, 7      |
| MKT 691     | Retail and Sales Management                 | 3            | Electives    | SDG 8         |
| MKT 692     | Export Marketing                            | 3            | Electives    | SDG 9,17      |
| MKT 693     | Marketing Issues in Pakistan                | 3            | Electives    | SDG 4, 12     |
| MKT 694     | Public Rationing and Relationship Marketing | 3            | Electives    | SDG 4,17      |
| MKT 695     | Agriculture Marketing                       | 3            | Electives    | SDG 1,4       |
| MKT 603     | Product Management                          | 3            | Electives    | SDG 12        |
| MKT 604     | Distribution Management                     | 3            | Electives    | SDG 8         |
| MKT 605     | Digital Analytics                           | 3            | Electives    | SDG 9,12      |

|         |   |   |           |          |
|---------|---|---|-----------|----------|
| MKT 606 | Electronic CRM                                | 3 | Electives | SDG 7,17 |
| MKT 697 | Social Marketing                              | 3 | Electives | SDG 4,8  |
| MKT 681 | Copywriting Concepts, Protocols and Practices | 3 | Electives | SDG 4    |

### Human Resource Management

| Course Code | Course Title  | Credit Hours | HEC Category | UN SDGs |
|-------------|---|--------------|--------------|---------|
| HRM 666     | Negotiations and Conflict Management                  | 3            | Electives    | SDG 16  |
| HRM 648     | Organizational Development                            | 3            | Electives    | SDG 10  |
| HRM 676     | International Human Resource Management               | 3            | Electives    | SDG 4   |
| HRM 677     | Seminars In HRM                                       | 3            | Electives    | SDG 4   |
| HRM 689     | Recruitment and Selection                             | 3            | Electives    | SDG 10  |
| HRM 679     | Performance Management                                | 3            | Electives    | SDG 10  |
| HRM 690     | HRM and HRD   | 3            | Electives    | SDG 4   |
| HRM 691     | Career Planning and Strategic Compensation Management | 3            | Electives    | SDG 4   |
| HRM 660     | Training and Development                              | 3            | Electives    | SDG 8   |
| HRM 670     | HR Planning   | 3            | Electives    | SDG 4   |
| HRM 664     | Job Analysis and Design                               | 3            | Electives    |         |
| HRM 649     | HR Research Methods                                   | 3            | Electives    | SDG 8   |
| HRM 682     | Industrial Relations and Employment Laws              | 3            | Electives    | SDG 8   |
| HRM 671     | HR Information Systems                                | 3            | Electives    | SDG 9   |
| HRM 681     | Strategic HRM   | 3            | Electives    | SDG 10  |
| HRM 665     | HR Theory and Practice                                | 3            | Electives    | SDG 10  |
| HRM 692     | Organizational Psychology                             | 3            | Electives    | SDG 10  |
| HRM 695     | HR Analytics  | 3            | Electives    | SDG 9   |

### Finance

| Course Code | Course Title                     | Credit Hours | HEC Category | UNSDGs |
|-------------|----------------------------------|--------------|--------------|--------|
| FIN 690     | Financial Modelling              | 3            | Electives    | SDG 4  |
| FIN 698     | Strategic Finance                | 3            | Electives    | SDG 4  |
| FIN 612     | Analysis of Financial Statements | 3            | Electives    | SDG 4  |

|         |  |   |           |          |
|---------|--|---|-----------|----------|
| FIN 619 | Financial Derivatives                                | 3 | Electives | SDG 8    |
| FIN 611 | Corporate Finance                                    | 3 | Electives | SDG 4    |
| FIN 692 | Financial Markets and Institutions                   | 3 | Electives | SDG 10   |
| FIN 693 | Cases in Corporate Finance                           | 3 | Electives | SDG 4    |
| FIN 523 | FinTech  | 3 | Electives | SDG 10   |
| FIN 695 | Investment Analysis and Portfolio Management         | 3 | Electives | SDG 4    |
| FIN 635 | Management Corporate Turnaround                      | 3 | Electives | SDG 4    |
| FIN 696 | Financial Reporting                                  | 3 | Electives | SDG 4, 8 |
| FIN 697 | Taxation and Auditing                                | 3 | Electives | SDG 10   |
| ACC 622 | Accounting Information Systems                       | 3 | Electives | SDG 9    |
| FIN 682 | Corporate Restructuring                              | 3 | Electives | SDG 9    |
| FIN 688 | Islamic Finance Theory and Practices                 | 3 | Electives |          |
| ACC 608 | Advanced Corporate Reporting                         | 3 | Electives | SDG 4    |
| FIN 616 | Management of Financial Institutions                 | 3 | Electives | SDG 4    |
| FIN 600 | Entrepreneurial Finance                              | 3 | Electives | SDG 4, 8 |
| FIN 601 | Debt Capital Markets                                 | 3 | Electives | SDG 4    |
| FIN 608 | Mutual and Pension Funds                             | 3 | Electives | SDG 4, 9 |
| FIN 604 | Equity Capital Markets                               | 3 | Electives | SDG 4,8  |
| FIN 665 | Behavioural Finance & Wealth Management              | 3 | Electives | SDG 4, 9 |
| FIN 625 | Commodities and Derivatives Markets                  | 3 | Electives | SDG 8    |
| FIN 461 | Fundamentals of Behavioural Finance                  | 3 | Electives | SDG 8, 4 |
| FIN 522 | SAP Financial Data Analytics                         | 3 | Electives | SDG 4    |
| FIN 524 | Shariah Standards for Islamic Financial Institutions | 3 | Electives | SDG 9    |
| FIN 684 | Financial Engineering                                | 3 | Electives | SDG 8, 4 |
| FIN 685 | Business Intelligence                                | 3 | Electives | SDG 4    |

## Entrepreneurship

| Course Code | Course Title                                 | Credit Hours | HEC Category | UNSDGs   |
|-------------|--|--------------|--------------|----------|
| ENT 602     | Cases in Entrepreneurship                    | 3            | Electives    | SDG 8    |
| ENT 603     | Developing New Products and Services         | 3            | Electives    | SDG 4, 8 |
| ENT 620     | Entrepreneurial Strategy in Emerging Markets | 3            | Electives    | SDG 4, 9 |
| ENT 606     | Innovation s and Entrepreneurship            | 3            | Electives    | SDG 4,8  |
| ENT 607     | Managing Entrepreneurial Firms               | 3            | Electives    | SDG 4    |
| ENT 608     | Social Responsibility and Entrepreneurship   | 3            | Electives    | SDG 4, 8 |
| ENT 622     | Business Growth and Entrepreneurial Finance  | 3            | Electives    | SDG 9    |
| ENT 612     | Entrepreneurial Marketing                    | 3            | Electives    | SDG 4    |
| ENT 613     | Organizations and Leading Change             | 3            | Electives    | SDG 4,9  |
| ENT 614     | Economic of Location and Transportation      | 3            | Electives    | SDG 4,17 |
| ENT 621     | Retailing and International Entrepreneurship | 3            | Electives    | SDG 4,9  |
| ENT 617     | Corporate Entrepreneurship                   | 3            | Electives    | SDG 4,8  |
| ENT 619     | Technology Entrepreneurship                  | 3            | Electives    | SDG 4,9  |

## Supply Chain Management

| Course Code | Course Title                          | Credit Hours | HEC Category | UNSDGs |
|-------------|---------------------------------------|--------------|--------------|--------|
| SCM 619     | Strategic SCM                         | 3            | Electives    | SDG 9  |
| OPM 611     | Operations and Production Management  | 3            | Electives    | SDG 12 |
| SCM 650     | Total Quality Management              | 3            | Electives    | SDG 4  |
| SCM 600     | Inventory Management                  | 3            | Electives    | SDG 4  |
| SCM 614     | Strategic Operation Management        | 3            | Electives    | SDG 4  |
| SCM 615     | Sourcing and Logistics Management     | 3            | Electives    | SDG 4  |
| SCM 616     | Supply Chain Modelling                | 3            | Electives    | SDG 12 |
| SCM 617     | Demand Forecasting                    | 3            | Electives    | SDG 12 |
| SCM 618     | Pricing In SCM                        | 3            | Electives    | SDG 4  |
| SCM 520     | Purchasing                            | 3            | Electives    | SDG 12 |
| SCM 630     | Strategic Procurement in Supply Chain | 3            | Electives    | SDG 12 |

|         |  |   |           |        |
|---------|--|---|-----------|--------|
| SCM 631 | Operational Planning in Supply Chain         | 3 | Electives | SDG 4  |
| SCM 632 | Execution and Control of Operations in SCM   | 3 | Electives | SDG 12 |
| SCM 633 | Master Planning of Resources in SCM          | 3 | Electives | SDG 12 |
| SCM 634 | Detailed Scheduling and Planning In SCM      | 3 | Electives | SDG 12 |
| SCM 635 | Strategic Management of Resources In SCM     | 3 | Electives | SDG 12 |
| SCM 636 | Green Supply Chain Management – GSCM         | 3 | Electives | SDG 14 |
| SCM 637 | Shipping in SCM                              | 3 | Electives | SDG 14 |
| SCM 639 | Operational Planning in Supply Chain         | 3 | Electives | SDG 4  |
| SCM 638 | Supply Chain Strategy, Design and Compliance | 3 | Electives | SDG 12 |
| SCM 640 | Supply Chain Implementation and Operations   | 3 | Electives | SDG 12 |
| SCM 641 | Fundamentals of Supply Chain Management      | 3 | Electives | SDG 4  |
| SCM 621 | Operations Research                          | 3 | Electives | SDG 4  |

### Management Information System

| Course Code | Course Title                                      | Credit Hours | HEC Category | UNSDGs    |
|-------------|---|--------------|--------------|-----------|
| MIS 655     | Database Management System                        | 3            | Electives    | SDG 9     |
| MIS 620     | System Analysis and Design                        | 3            | Electives    | SDG 8,7   |
| MIS 679     | Enterprise Resource Planning (ERP) Implementation | 3            | Electives    | SGD 8,4   |
| MIS 672     | Web Application Development                       | 3            | Electives    | SDG 9     |
| MIS 625     | Business Process Re-Engineering                   | 3            | Electives    | SDG 9,7   |
| MIS 680     | Data Communication and Networking                 | 3            | Electives    | SDG 17,9  |
| MIS 681     | Information Security and System Auditing          | 3            | Electives    | SDG 9, 12 |
| MIS 657     | Knowledge Management Systems and Technologies     | 3            | Electives    | SDG 8, 9  |
| MIS 658     | Business Intelligence and Decisions Support       | 3            | Electives    | SDG 9,4   |
| MIS 608     | Digital Analytics                                 | 3            | Electives    | SDG 9,7   |
| MKT 607     | Electronic CRM                                    | 3            | Electives    | SDG 17,4  |

### Maritime

| Course Code | Course | Cr Hr. | HEC Category | SDG |
|-------------|--------|--------|--------------|-----|
|-------------|--------|--------|--------------|-----|

|         |  |   |           |        |
|---------|--|---|-----------|--------|
| MTM 101 | Introduction to Maritime Industry                                  | 3 | Electives | SDG 4  |
| MTM 230 | Introduction to Maritime Law and International Maritime Convention | 3 | Electives | SDG 16 |
| MTM202  | Economics of Sea Transport & International Trade                   | 3 | Electives | SDG 14 |
| MTM 222 | Introduction to Coastal Zone Management                            | 3 | Electives | SDG 14 |
| MTM 304 | Port Operations and Management                                     | 3 | Electives | SDG 4  |
| MTM 306 | Shipping Operations and Management                                 | 3 | Electives | SDG 4  |
| MTM 322 | Fisheries Resources & Management                                   | 3 | Electives | SDG 14 |
| MTM 401 | Coastal Eco-Tourism Development and Management                     | 3 | Electives | SDG 14 |
| MTM 403 | Maritime Innovation & Entrepreneurship                             | 3 | Electives | SDG 9  |
| MTM 501 | Maritime Business: China Pakistan Perspective under CPEC           | 3 | Electives | SDG 4  |
| MTM 521 | Maritime Business and HRM  |   | Electives | SDG 10 |
| MTM 504 | Maritime Management: Concept and Applications                      | 3 | Electives | SDG 10 |
| MTM 505 | Contemporary Issues of Maritime Management                         | 3 | Electives | SDG 16 |
| MTM 506 | Maritime Management in Pakistan: Past, Present and Future          | 3 | Electives | SDG 16 |
| HRM 508 | Marine Environments and Administration                             | 3 | Electives | SDG 13 |
| ECO-363 | Introduction to Blue and Green Economy                             | 3 | Electives | SDG 13 |

### List of Social Sciences Courses

| Course Code | Course Title | Credit Hours |
|-------------|--------------|--------------|
| HSS 109     | Arabic       | 2            |
| HSS 163     | Chinese      | 2            |
| HSS 160     | French       | 2            |
| HSS 164     | German       | 2            |
| HSS 161     | Russian      | 2            |
| HSS 162     | Spanish      | 2            |
| HSS 214     | Turkish      | 2            |

## Masters of Business Administration

**Program Title:** Masters of Business Administration

**Duration:** 2 Years

**Eligibility Criteria:** 16 years of education (Business / Non Business) with minimum CGPA of 2.0/4 (Semester System) or 50% marks (Annual System).

### Semester 1

| Sr. No. | Prerequisite Courses | Course Code | Course Title                         | Credit Hours |
|---------|----------------------|-------------|--------------------------------------|--------------|
| 1       |                      | MKT         | Business Communication               | 3            |
| 2       |                      | ACC 501     | Financial Accounting                 | 3            |
| 3       |                      | MGT 501     | Supply Chain Management              | 3            |
| 4       |                      | BCM 512     | Principles of Marketing              | 3            |
| 5       |                      | QTM 504     | Theories and Practices of Management | 3            |

### Semester 2

| Sr. No. | Prerequisite Courses | Course Code | Course Title                   | Credit Hours |
|---------|----------------------|-------------|--------------------------------|--------------|
| 1       |                      | HRM 533     | Human Resource Management      | 3            |
| 2       | ACC 702              | ACC 502     | Cost and Managerial Accounting | 3            |
| 3       | MGT 731              | ECO 520     | Economics                      | 3            |
| 4       | ACC 501              | FIN 502     | Financial Management           | 3            |
| 5       |                      | RMT 620     | Methods in Business Research   | 3            |

### Semester 3

| Sr. No. | Pre requisite Courses | Course Code | Course Title                        | Credit Hours |
|---------|-----------------------|-------------|-------------------------------------|--------------|
| 1       |                       | MGT 501     | Strategic Management                | 3            |
| 2       |                       | FIN 502     | Corporate Finance                   | 3            |
| 3       |                       | THS 799     | Dissertation (Proposal Development) | 3            |
| 4       |                       |             | Specialization I                    | 3            |
| 5       |                       |             | Specialization II                   | 3            |
| 6       |                       | ISL 203     | *Fehm-e-Quran – I                   | 1            |

### Semester 4

| Sr. No. | Pre requisite Courses | Course Code | Course Title                    | Credit Hours |
|---------|-----------------------|-------------|---------------------------------|--------------|
| 1       |                       | MGT 749     | Corporate Leadership Skills     | 3            |
| 2       |                       | MGT 702     | Contemporary Issues in Business | 3            |
| 3       |                       | THS 799     | Thesis Write-up and Defense     | 3            |
| 4       |                       |             | Specialization III              | 3            |
| 5       |                       |             | Specialization IV               | 3            |
| 6       |                       | ISL 204     | *Fehm-e-Quran – II              | 1            |

### List of Specialization Courses

| Course Codes     | Course Title                       | Credit Hours | Category | SDGs          |
|------------------|------------------------------------|--------------|----------|---------------|
| <b>MARKETING</b> |                                    |              |          |               |
| MKT 710          | International Marketing            | 3            | Elective | SDG 4         |
| MKT 711          | Services Marketing                 | 3            | Elective | SDG 9, 17     |
| MKT 712          | Strategic Marketing                | 3            | Elective | SDG 8, 17     |
| MKT 713          | Cases in Marketing                 | 3            | Elective | SDG 9, 10     |
| MKT 714          | New Product Development            | 3            | Elective | SDG 4,7 and 8 |
| MKT 718          | Consumer Behavior and Psychology   | 4            | Elective | SDG 11        |
| MKT 719          | Integrated Marketing Communication | 3            | Elective | SDG 10, 17    |
| MKT 724          | Digital Marketing                  | 3            | Elective | SDG 4, 7      |
| MKT 726          | Export Marketing                   | 3            | Elective | SDG 9,17      |
| MKT 727          | Marketing Issues in Pakistan       | 3            | Elective | SDG 4, 12     |
| MKT 731          | Distribution Management            | 3            | Elective | SDG 8         |
| MKT 732          | Digital Analytics                  | 3            | Elective | SDG 9,12      |
| MKT 733          | Electronic CRM                     | 3            | Elective | SDG 7,17      |
| MKT 734          | Social Marketing                   | 3            | Elective | SDG 4,8       |
| MKT 736          | Marketing Analytics                | 3            | Elective | SDG 4, 7      |
| MKT 737          | Pricing Models and Strategies      | 3            | Elective |               |
| MKT 738          | Marketing of Financial Services    | 3            | Elective |               |
| MKT 739          | Industrial Marketing               | 3            | Elective |               |

|                                  |  |   |          |          |
|----------------------------------|--|---|----------|----------|
| MKT 740                          | Marketing Channels                           | 3 | Elective |          |
| <b>HUMAN RESOURCE MANAGEMENT</b> |  |   |          |          |
| HRM 703                          | International Human Resource Management      | 3 | Elective | SDG 4    |
| HRM 704                          | Seminars In HRM                              | 3 | Elective | SDG 4    |
| HRM 705                          | Recruitment and Selection                    | 3 | Elective | SDG 10   |
| HRM 706                          | Performance Management                       | 3 | Elective | SDG 10   |
| HRM 707                          | HRM and HRD                                  | 3 | Elective | SDG 4    |
| HRM 714                          | HR Information Systems                       | 3 | Elective | SDG 9    |
| HRM 715                          | Strategic HRM                                | 3 | Elective | SDG 10   |
| HRM 716                          | HR Theory and Practice                       | 3 | Elective | SDG 10   |
| HRM 710                          | HR Planning                                  | 3 | Elective | SDG 4    |
| <b>FINANCE</b>                   |  |   |          |          |
| FIN 701                          | Financial Modeling                           | 3 | Elective | SDG 4    |
| FIN 702                          | Strategic Finance                            | 3 | Elective | SDG 4    |
| FIN 706                          | Financial Markets and Institutions           | 3 | Elective | SDG 10   |
| FIN 707                          | Cases in Corporate Finance                   | 3 | Elective | SDG 4    |
| FIN 708                          | Money and Banking                            | 3 | Elective | SDG 10   |
| FIN 709                          | Investment Analysis and Portfolio Management | 3 | Elective | SDG 4    |
| FIN 713                          | Taxation and Auditing                        | 4 | Elective | SDG 11   |
| FIN 713                          | Corporate Restructuring                      | 3 | Elective | SDG 9    |
| FIN 714                          | Islamic Finance Theory and Practices         | 3 | Elective | SDG 9    |
| FIN 724                          | Advanced Corporate Reporting                 | 3 | Elective | SDG 4    |
| FIN 716                          | Management of Financial Institutions         | 3 | Elective | SDG 4    |
| FIN 717                          | Entrepreneurial Finance                      | 3 | Elective | SDG 4, 8 |
| FIN 718                          | Debt Capital Markets                         | 3 | Elective | SDG 4    |
| FIN 719                          | Mutual and Pension Funds                     | 3 | Elective | SDG 4, 9 |
| FIN 720                          | Equity Capital Markets                       | 3 | Elective | SDG 4, 8 |
| FIN 721                          | Behavioral Finance & Wealth Management       | 3 | Elective | SDG 4, 9 |
| FIN 722                          | Commodities and Derivatives Markets          | 3 | Elective | SDG 8    |
| FIN 736                          | Accounting Information Systems               | 3 | Elective | SDG 9    |

|                         |   |   |          |          |
|-------------------------|---|---|----------|----------|
| FIN 725                 | Investment Banking and Security Analysis        | 3 | Elective |          |
| FIN 726                 | Asset and Liability Management                  | 3 | Elective |          |
| FIN 727                 | SME and Micro-Financing                         | 3 | Elective |          |
| FIN 728                 | Mergers, Acquisitions and Restructuring         | 3 | Elective |          |
| FIN 729                 | Enterprise Risk Management                      | 3 | Elective |          |
| FIN 730                 | Islamic Financial Services Marketing            | 3 | Elective |          |
| FIN 731                 | Islamic Capital Markets                         | 3 | Elective |          |
| FIN 732                 | International Islamic Finance Standards         | 3 | Elective |          |
| FIN 733                 | Takaful and Risk Management in Islamic Products | 3 | Elective |          |
| FIN 734                 | Financial Risk Management                       | 3 | Elective |          |
| FIN 735                 | International Finance                           | 3 | Elective |          |
|                         | AI and Data Science for Business                | 3 | Elective | SDG 4, 9 |
| <b>ENTREPRENEURSHIP</b> |   |   |          |          |
| ENT 702                 | Cases in Entrepreneurship                       | 3 | Elective | SDG 8    |
| ENT 704                 | Entrepreneurial Strategy in Emerging Markets    | 3 | Elective | SDG 4, 9 |
| ENT 705                 | Innovations and Entrepreneurship                | 3 | Elective | SDG 4,8  |
| ENT 706                 | Managing Entrepreneurial Firms                  | 3 | Elective | SDG 4    |
| ENT 709                 | Entrepreneurial Marketing                       | 3 | Elective | SDG 4    |
| ENT 711                 | Economic of Location and Transportation         | 3 | Elective | SDG 4,17 |
| ENT 712                 | Retailing and International Entrepreneurship    | 3 | Elective | SDG 4,9  |
| ENT 715                 | Competitive Strategies for Startup              | 3 | Elective |          |
| ENT 716                 | Technology Support for Small Business           | 3 | Elective |          |
| ENT 717                 | Innovative Internet Based Business Models       | 3 | Elective |          |
| ENT 718                 | Guerrilla Strategies in Business                | 3 | Elective |          |
| ENT 719                 | Affordable Design and Frugal Innovation         | 3 | Elective |          |
| ENT 720                 | Commercializing and Monetizing Ideas            | 3 | Elective |          |
| ENT 721                 | Building and Managing Start-Up Teams            | 3 | Elective |          |
| ENT 722                 | New Venture Finance                             | 3 | Elective |          |

|                                |  |   |          |          |
|--------------------------------|--|---|----------|----------|
| ENT 723                        | Managing Family Business   | 3 | Elective |          |
| ENT 724                        | Growth Hacking Strategies  | 3 | Elective |          |
| ENT 725                        | Design Thinking and Strategy   | 3 | Elective |          |
| <b>MIS</b>                     |  |   |          |          |
| MIS 704                        | Enterprise Resource Planning (ERP) Implementation                        | 3 | Elective | SGD 8,4  |
| MIS 705                        | Web Application Development  | 3 | Elective | SDG 9    |
| MIS 706                        | Business Process Re-Engineering  | 3 | Elective | SDG 9,7  |
| MIS 710                        | Business Intelligence and Decisions Support                              | 3 | Elective | SDG 9,4  |
| MIS 711                        | Digital Analytics  | 3 | Elective | SDG 9,7  |
| MIS 712                        | Electronic CRM   | 3 | Elective | SDG 17,4 |
| MIS 713                        | Business Analytics with Data for Non-Coders                              | 3 | Elective | SDG 8    |
| MIS 714                        | Applied Data Analysis  | 3 | Elective | SDG 8,7  |
| MIS 715                        | Big Data, Big Responsibilities: The Law and Ethics of Business Analytics | 3 | Elective | SDG 8    |
| MIS 716                        | Intro to Python for Data Science   | 3 | Elective | SDG 9    |
| MIS717                         | Applied Machine Learning in Business                                     | 3 | Elective | SDG 17   |
| MIS 718                        | Data visualization   | 3 | Elective | SDG 7    |
| <b>SUPPLY CHAIN MANAGEMENT</b> |  |   |          |          |
| SCM 735                        | Operations and Production Management                                     | 3 | Elective | SDG 12   |
| SCM 736                        | Total Quality Management   | 3 | Elective | SDG 4    |
| SCM 738                        | Strategic Operation Management   | 3 | Elective | SDG 4    |
| SCM 740                        | Supply Chain Modeling  | 3 | Elective | SDG 12   |
| SCM 742                        | Purchasing   | 3 | Elective | SDG 12   |
| SCM 713                        | Operational Planning in Supply Chain                                     | 3 | Elective | SDG 4    |
| SCM 714                        | Execution and Control of Operations in SCM                               | 3 | Elective | SDG 12   |
| SCM 715                        | Master Planning of Resources in SCM                                      | 3 | Elective | SDG 12   |
| SCM 716                        | Detailed Scheduling and Planning in SCM                                  | 3 | Elective | SDG 12   |
| SCM 717                        | Strategic Management of Resources in SCM                                 | 3 | Elective | SDG 12   |
| SCM 718                        | Green Supply Chain Management – GSCM                                     | 3 | Elective | SDG 14   |

|                 |  |   |           |        |
|-----------------|--|---|-----------|--------|
| SCM 720         | Operational Planning in Supply Chain                               | 3 | Elective  | SDG 4  |
| SCM 743         | Supply Chain Strategy, Design and Compliance                       | 3 | Elective  | SDG 12 |
| SCM 744         | Supply Chain Implementation and Operations                         | 3 | Elective  | SDG 12 |
| SCM 747         | Quantitative Methods in Production and Logistics                   | 3 | Elective  | SDG 4  |
| SCM 748         | Business Process Mgmt. in Supply Chain & Logistics                 | 3 | Elective  | SDG 4  |
| SCM 749         | IT Applications in Logistics                                       | 3 | Elective  | SDG 12 |
| SCM 750         | Packaging Design and Environmental Aspects                         | 3 | Elective  | SDG 12 |
| SCM 751         | ERP Systems Design and Implementation                              | 3 | Elective  | SDG 4  |
| SCM 752         | Strategic Supply Chain Management                                  | 3 | Elective  | SDG 12 |
| SCM 753         | Procurement and Inventory Management                               | 3 | Elective  | SDG 4  |
| SCM 754         | Storage and Warehouse Techniques                                   | 3 | Elective  | SDG 14 |
| SCM 755         | Transportation Techniques and Management                           | 3 | Elective  | SDG 4  |
| SCM 756         | Sustainability & Env. Aspects in Managing Supply Chains            | 3 | Elective  | SDG 12 |
| SCM 757         | Risk Management in Supply Networks                                 | 3 | Elective  | SDG 4  |
| SCM 758         | Innovation Management in Supply Chain and Logistics                | 3 | Elective  | SDG 4  |
| SCM 759         | Corporate Consultancy Project in Logistics                         | 3 | Elective  | SDG 12 |
| SCM 760         | Contract Management for Supply Chain & Negotiations                | 3 | Elective  | SDG 4  |
| SCM 761         | Life Cycle Enterprise Asset Management                             | 3 | Elective  | SDG 4  |
| SCM 762         | Mobile Commerce and Mobile Logistics                               | 3 | Elective  | SDG 12 |
| SCM 763         | Supply Chain Finance   | 3 | Elective  | SDG 3  |
| SCM 764         | Warehouse and Inventory Management                                 | 3 | Elective  | SDG 4  |
| SCM 765         | Supply Chain Digitization  | 3 | Elective  | SDG 12 |
| <b>Maritime</b> |  |   |           |        |
|                 | Introduction to Maritime Industry                                  | 3 | Electives | SDG 4  |
|                 | Introduction to Maritime Law and International Maritime Convention | 3 | Electives | SDG 16 |
|                 | Economics of Sea Transport & International Trade                   | 3 | Electives | SDG 14 |
|                 | Introduction to Coastal Zone Management                            | 3 | Electives | SDG 14 |
|                 | Port Operations and Management                                     | 3 | Electives | SDG 4  |

|  |   |   |           |        |
|--|---|---|-----------|--------|
|  | Shipping Operations and Management                        | 3 | Electives | SDG 4  |
|  | Fisheries Resources & Management                          | 3 | Electives | SDG 14 |
|  | Coastal Eco-Tourism Development and Management            | 3 | Electives | SDG 14 |
|  | Maritime Innovation & Entrepreneurship                    | 3 | Electives | SDG 9  |
|  | Maritime Business: China Pakistan Perspective under CPEC  | 3 | Electives | SDG 4  |
|  | Maritime Business and HRM                                 |   | Electives | SDG 10 |
|  | Maritime Management: Concept and Applications             | 3 | Electives | SDG 10 |
|  | Contemporary Issues of Maritime Management                | 3 | Electives | SDG 16 |
|  | Maritime Management in Pakistan: Past, Present and Future | 3 | Electives | SDG 16 |
|  | Marine Environments and Administration                    | 3 | Electives | SDG 13 |
|  | Introduction to Blue and Green Economy                    | 3 | Electives | SDG 13 |

#### **List of Social Sciences Courses**

| <b>Course Code</b> | <b>Course Title</b> | <b>Credit Hours</b> |
|--------------------|---------------------|---------------------|
| HSS 109            | Arabic              | 2                   |
| HSS 163            | Chinese             | 2                   |
| HSS 160            | French              | 2                   |
| HSS 164            | German              | 2                   |
| HSS 161            | Russian             | 2                   |
| HSS 162            | Spanish             | 2                   |
| HSS 214            | Turkish             | 2                   |

**MBA (Pharmaceuticals and Health Management)**

**Program Title :** MBA (Pharmaceuticals and Health Management)

**Duration :** 2 Years Total

**Eligibility Criteria:** 16 years of education (Business / Non Business) with minimum CGPA of 2.0/4 (Semester System) or 50% marks (Annual System).

**Roadmap of MBA (P&HM)**

**Semester 1**

| Sr. No. | Prerequisite Courses | Course Code | Course Title                         | Credit Hours |
|---------|----------------------|-------------|--------------------------------------|--------------|
| 1       |                      | BCM 701     | Business Communication               | 3            |
| 2       |                      | ACC 702     | Financial Accounting                 | 3            |
| 3       |                      | SCM 767     | Supply Chain Management              | 3            |
| 4       |                      | MKT 741     | Principles of Marketing              | 3            |
| 5       |                      | MGT 731     | Theories and Practices of Management | 3            |
| 6       |                      | ISL 203     | *Fehm-e-Quran – I                    | 1            |

**Semester 2**

| Sr. No. | Prerequisite Courses | Course Code | Course Title                 | Credit Hours |
|---------|----------------------|-------------|------------------------------|--------------|
| 1       |                      | QTM 720     | Bio Statistics               | 3            |
| 2       | ACC 702              | FIN 701     | Financial Management         | 3            |
| 3       | MGT 731              | MGT 732     | Human Resource Management    | 3            |
| 4       |                      | RMT 701     | Methods In Business Research | 3            |
| 5       |                      | MGT 744     | Project Management           | 3            |
| 6       |                      | ISL 204     | *Fehm-e-Quran – II           | 1            |

**\*For non-Muslim:** Any University approved 02 (or more) credit hours of Interdisciplinary Course

**Semester 3**

| Sr. No. | Pre requisite Courses | Course Code | Course Title                                     | Credit Hours |
|---------|-----------------------|-------------|--|--------------|
| 1       |                       | MGT 745     | Corporate Leadership and Social Responsibilities | 3            |
| 2       |                       | PBM 730     | MIS in Health Care Management                    | 3            |
| 3       |                       | HBM 715     | Principles of Health Care Management             | 3            |
| 4       | MGT 731               | MGT 733     | Strategic Management                             | 3            |
| 5       |                       |             | Elective I                                       | 3            |

**Semester 4**

| Sr. No. | Pre requisite Courses | Course Code | Course Title  | Credit Hours |
|---------|-----------------------|-------------|---|--------------|
| 1       |                       | PBM 735     | Pharmaceutical Business Development & Global Business Environment | 3            |
| 2       |                       | PBM 726     | Regularity Affairs & Health Care Ethics                           | 3            |
| 3       |                       | THS 799     | Project / Thesis  | 3            |
| 4       |                       |             | Elective II   | 3            |
| 5       |                       |             | Elective III  | 3            |

**ELECTIVES**

| Course Codes | Course Title  | Credit Hours |
|--------------|---|--------------|
| PBM 701      | Pharmaceutical Brand Management and E-Marketing Marketing | 3            |
| PBM 702      | Pharmaceutical sales Management                           | 3            |
| PBM 703      | Pharmaceutical Marketing and Quality Assurance            | 3            |
| PBM 704      | Economics and Management of Pharmaceutical Industry       | 3            |
| PBM 705      | Pharmaceutical Product Management                         | 3            |
| PBM 706      | Financial Applications in Pharmaceutical Marketing        | 3            |
| PBM 707      | Pharmaceutical Business Strategy                          | 3            |
| PBM 708      | Marketing of Bio-Technology Products                      | 3            |
| PBM 709      | Consumerism and Public Health                             | 3            |
| PBM 710      | Basics of Medical Affairs                                 | 3            |
| PBM 712      | Health Management   | 3            |
| PBM 713      | Financial services of Health Services                     | 3            |
| PBM 714      | Strategic Management of Health Services                   | 3            |
| PBM 715      | Concepts of Primary Health Care                           | 3            |
| PBM 716      | Managing Professional Health Care                         | 3            |
| PBM 717      | Marketing Health Care Services                            | 3            |

| Course Code | Course   | Cr Hr |
|-------------|--|-------|
| MTM 101     | Introduction to Maritime Industry                                  | 3     |
| MTM 230     | Introduction to Maritime Law and International Maritime Convention | 3     |
| MTM202      | Economics of Sea Transport & International Trade                   | 3     |
| MTM 222     | Introduction to Coastal Zone Management                            | 3     |
| MTM 304     | Port Operations and Management                                     | 3     |
| MTM 306     | Shipping Operations and Management                                 | 3     |
| MTM 322     | Fisheries Resources & Management                                   | 3     |
| MTM 401     | Coastal Eco-Tourism Development and Management                     | 3     |
| MTM 403     | Maritime Innovation & Entrepreneurship                             | 3     |
| MTM 501     | Maritime Business: China Pakistan Perspective under CPEC           | 3     |
| MTM 521     | Maritime Business and HRM  |       |
| MTM 504     | Maritime Management: Concept and Applications                      | 3     |
| MTM 505     | Contemporary Issues of Maritime Management                         | 3     |
| MTM 506     | Maritime Management in Pakistan: Past, Present and Future          | 3     |
| HRM 508     | Marine Environments and Administration                             | 3     |
| ECO-363     | Introduction to Blue and Green Economy                             | 3     |

## ASSOCIATE DEGREE PROGRAM (CS)

**Program Title:** Associate Degree Program (CS)

**Duration:** 2 Years

**Eligibility Criteria:** 50% Marks in HSSC or equivalent.

**Campus:** BUIC (H-11), BUKC & BULC

### Semester Wise Roadmap

#### Semester 1

| Sr. No.                   | Pre-requisite Course Code | Course Code | Course Title   | Credit Hours |
|---------------------------|---------------------------|-------------|--|--------------|
| 1.                        | None                      | GSC 114     | Applied Physics  | 2            |
| 2.                        | None                      | GSL 113     | Applied Physics Lab  | 1            |
| 3.                        | None                      | CSC 114     | Introduction to Information & Communication Technology     | 2            |
| 4.                        | None                      | CSL 114     | Introduction to Information & Communication Technology Lab | 1            |
| 5.                        | None                      | CSC 113     | Computer Programming                                       | 3            |
| 6.                        | None                      | CSL 113     | Computer Programming Lab                                   | 1            |
| 7.                        | None                      | GSC 221     | Discrete Mathematics                                       | 3            |
| 8.                        | None                      | ISL 101     | Islamic Studies/Ethics                                     | 2            |
| 9.                        | None                      | CSC 308     | Professional Practices & Ethics                            | 2            |
| 10.                       | None                      | ISL 107     | Tajweed  | 0            |
| <b>Total Credit Hours</b> |                           |             |  | <b>17</b>    |

#### Semester 2

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                    | Credit Hours |
|---------|---------------------------|-------------|---------------------------------|--------------|
| 1.      | None                      | GSC 122     | Probability and Statistics      | 3            |
| 2.      | CSC 113                   | CSC 210     | Object Oriented Programming     | 3            |
| 3.      | CSC 113                   | CSL 210     | Object Oriented Programming Lab | 1            |

|                           |         |         |  |           |
|---------------------------|---------|---------|--|-----------|
| 4.                        | GSC 114 | CEN 122 | Digital Design                           | 2         |
| 5.                        | GSC 114 | CEL 122 | Digital Design Lab                       | 1         |
| 6.                        | None    | GSC 110 | Applied Calculus and Analytical Geometry | 3         |
| 7.                        | None    | ENG 101 | Functional English                       | 3         |
| 8.                        | None    | PAK 105 | Pakistan Studies                         | 2         |
| 9.                        |         | ISL 108 | Understanding Quran-I                    | 0         |
| <b>Total Credit Hours</b> |         |         |  | <b>18</b> |

### Semester 3

| Sr. No.                   | Pre-requisite Course Code | Course Code | Course Title                          | Credit Hours |
|---------------------------|---------------------------|-------------|---------------------------------------|--------------|
| 1.                        | None                      | HSS 219     | Civic and Community Engagement        | 2            |
| 2.                        | None                      | GSC 121     | Linear Algebra                        | 3            |
| 3.                        | GSC 110                   | GSC 211     | Multivariable Calculus                | 3            |
| 4.                        | None                      | CEN 223     | Computer Communication & Networks     | 3            |
| 5.                        | None                      | CEL 223     | Computer Communication & Networks Lab | 1            |
| 6.                        | CSC 113                   | CSC 221     | Data Structure & Algorithm            | 3            |
| 7.                        | CSC 113                   | CSL 221     | Data Structure & Algorithm Lab        | 1            |
| 8.                        | None                      | ENG 134     | Communication Skills                  | 2            |
| 9.                        |                           | ISL 109     | Understanding Quran-II                | 0            |
| <b>Total Credit Hours</b> |                           |             |                                       | <b>18</b>    |

### Semester 4

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                                  | Credit Hours |
|---------|---------------------------|-------------|---|--------------|
| 1.      | None                      | -           | Social Sciences Elective                      | 3            |
| 2.      | CEN 122                   | CEN 323     | Computer Organization and Assembly Language   | 2            |
| 3.      | CEN 122                   | CEL 323     | Computer Organization & Assembly Language Lab | 1            |
| 4.      | None                      | ENG 123     | Expository Writing                            | 3            |
| 5.      | None                      | CSC 220     | Database Management Systems                   | 3            |
| 6.      | None                      | CSL 220     | Database Management Systems Lab               | 1            |

|                           |      |         |                                     |           |
|---------------------------|------|---------|-------------------------------------|-----------|
| 7.                        | None | HSS 423 | Entrepreneurship                    | 2         |
| 8.                        | None | PAK 109 | Ideology & Constitution of Pakistan | 2         |
| 9.                        |      | ISL 110 | Understanding Quran – III           | 0         |
| <b>Total Credit Hours</b> |      |         |                                     | <b>17</b> |

## **BS (Computer Science)**

**Program Title:** BS Computer Science

**Duration:** 4 Years

**Eligibility Criteria:** Minimum 50% marks in Intermediate (HSSC) examination (\*Pre-Medical/Pre-Engg.) or equivalent qualification with Mathematics certified by IBCC. \*Pre-Medical students are required to pass 02 deficiency courses of mathematics during the first year of degree program. Students with Pre-medical background must furnish an undertaking that they must pass deficiency courses of Mathematics of 6 credit hours within one year of their regular studies. Failure to do so will result in cancellation of admission without any fee refund.

### **Programme Educational Objectives (PEOs)**

**PEO 1:** Apply computing knowledge and skills to design and develop effective solutions for complex real-life problems.

**PEO 2:** Demonstrate ethical and moral conduct in professional practices.

**PEO 3:** Manifest life-long learning and inter-personal skills for sustainable career development and professional growth.

### **Programme Learning Outcomes (PLOs)**

**PLO1 Academic Education:** To prepare graduates as computing professionals.

**PLO2 Knowledge for Solving Computing Problems:** Apply knowledge of computing fundamentals, knowledge of a computing specialization, and mathematics, science, and domain knowledge appropriate for the computing specialization to the 16 abstraction and conceptualization of computing models from defined problems and requirements.

**PLO3 Problem Analysis:** Identify, formulate, research literature, and solve complex computing problems reaching substantiated conclusions using fundamental principles of mathematics, computing sciences, and relevant domain disciplines.

**PLO4 Design/ Development of Solutions:** Design and evaluate solutions for complex computing problems, and design and evaluate systems, components, or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.

**PLO5 Modern Tool Usage:** Create, select, adapt and apply appropriate techniques, resources, and modern computing tools to complex computing activities, with an understanding of the limitations.

**PLO6 Individual and Teamwork:** Function effectively as an individual and as a member or leader in diverse teams and in multi-disciplinary settings.

**PLO7 Communication:** Communicate effectively with the computing community and with society at large about complex computing activities by being able to comprehend and write effective

reports, design documentation, make effective presentations, and give and understand clear instructions.

**PLO8 Computing Professionalism and Society:** Understand and assess societal, health, safety, legal, and cultural issues within local and global contexts, and the consequential responsibilities relevant to professional computing practice.

**PLO9 Ethics:** Understand and commit to professional ethics, responsibilities, and norms of professional computing practice.

**PLO10 Life-long Learning:** Recognize the need, and have the ability, to engage in independent learning for continual development as a computing professional.

### Semester-wise Roadmap of BS-CS

#### Semester 1

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title   | Credit Hours |
|---------|---------------------------|-------------|--|--------------|
| 1.      | None                      | GSC 114     | Applied Physics  | 2            |
| 2.      | None                      | GSL 113     | Applied Physics Lab  | 1            |
| 3.      | None                      | CSC 114     | Introduction to Information & Communication Technology     | 2            |
| 4.      | None                      | CSL 114     | Introduction to Information & Communication Technology Lab | 1            |
| 5.      | None                      | CSC 113     | Computer Programming                                       | 3            |
| 6.      | None                      | CSL 113     | Computer Programming Lab                                   | 1            |
| 7.      | None                      | GSC 221     | Discrete Mathematics                                       | 3            |
| 8.      | None                      | ISL 101     | Islamic Studies/Ethics                                     | 2            |
| 9.      | None                      | CSC 308     | Professional Practices & Ethics                            | 2            |
| 10.     | None                      | ISL 107     | Tajweed  | 0            |

#### Semester 2

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                    | Credit Hours |
|---------|---------------------------|-------------|---------------------------------|--------------|
| 1.      | None                      | GSC 122     | Probability and Statistics      | 3            |
| 2.      | CSC 113                   | CSC 210     | Object Oriented Programming     | 3            |
| 3.      | CSC 113                   | CSL 210     | Object Oriented Programming Lab | 1            |
| 4.      | GSC 114                   | CEN 122     | Digital Design                  | 2            |
| 5.      | GSC 114                   | CEL 122     | Digital Design Lab              | 1            |
| 6.      | None                      | GSC 110     | Applied Calculus and Analytical | 3            |

|    |      |         |                       |   |
|----|------|---------|-----------------------|---|
|    |      |         | Geometry              |   |
| 7. | None | ENG 101 | Functional English    | 3 |
| 8. | None | PAK 105 | Pakistan Studies      | 2 |
| 9. |      | ISL 108 | Understanding Quran-I | 0 |

### **Semester 3**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                          | Credit Hours |
|---------|---------------------------|-------------|---------------------------------------|--------------|
| 1.      | None                      | HSS 219     | Civic and Community Engagement        | 2            |
| 2.      | None                      | GSC 121     | Linear Algebra                        | 3            |
| 3.      | GSC 110                   | GSC 211     | Multivariable Calculus                | 3            |
| 4.      | None                      | CEN 223     | Computer Communication & Networks     | 3            |
| 5.      | None                      | CEL 223     | Computer Communication & Networks Lab | 1            |
| 6.      | CSC 113                   | CSC 221     | Data Structure & Algorithm            | 3            |
| 7.      | CSC 113                   | CSL 221     | Data Structure & Algorithm Lab        | 1            |
| 8.      | None                      | ENG 134     | Communication Skills                  | 2            |
| 9.      |                           | ISL 109     | Understanding Quran-II                | 0            |

### **Semester 4**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                                  | Credit Hours |
|---------|---------------------------|-------------|---|--------------|
| 1.      | None                      | -           | Social Sciences Elective                      | 3            |
| 2.      | CEN 122                   | CEN 323     | Computer Organization and Assembly Language   | 2            |
| 3.      | CEN 122                   | CEL 323     | Computer Organization & Assembly Language Lab | 1            |
| 4.      | None                      | ENG 123     | Expository Writing                            | 3            |
| 5.      | None                      | CSC 220     | Database Management Systems                   | 3            |
| 6.      | None                      | CSL 220     | Database Management Systems Lab               | 1            |
| 7.      | None                      | HSS 423     | Entrepreneurship                              | 2            |

|    |      |         |                                     |   |
|----|------|---------|-------------------------------------|---|
| 8. | None | PAK 109 | Ideology & Constitution of Pakistan | 2 |
| 9. |      | ISL 110 | Understanding Quran – III           | 0 |

### **Semester 5**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                      | Credit Hours |
|---------|---------------------------|-------------|-----------------------------------|--------------|
| 1.      | CSC 221                   | CSC 320     | Operating Systems                 | 3            |
| 2.      | CSC 221                   | CSL 320     | Operating Systems Lab             | 1            |
| 3.      | None                      | SEN 220     | Software Engineering              | 3            |
| 4.      | CSC 221                   | CSC 321     | Design and Analysis of Algorithms | 3            |
| 5.      | CEN 323                   | CSC 327     | Computer Architecture             | 2            |
| 6.      | CEN 323                   | CSL 327     | Computer Architecture Lab         | 1            |
| 7.      | None                      | CSC 412     | Artificial Intelligence           | 3            |
| 8.      | None                      | CSL 411     | Artificial Intelligence Lab       | 1            |
| 9.      |                           | ISL 111     | Understanding Quran – IV          | 0            |

### **Semester 6**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                   | Credit Hours |
|---------|---------------------------|-------------|--------------------------------|--------------|
| 1.      | CSC 220                   | CSC 470     | Advance Database               | 2            |
| 2.      | CSL 220                   | CSL 470     | Advance Database Lab           | 1            |
| 3.      |                           |             | Elective 1 (2+1)               | 2            |
| 4.      |                           |             | Elective 1 Lab                 | 1            |
| 5.      |                           |             | Elective 2 (2+1)               | 2            |
| 6.      |                           |             | Elective 2 Lab                 | 1            |
| 7.      |                           |             | Elective 3 (3+0 or 2+1)        | 3            |
| 8.      | SEN 220                   | SEN 321     | Human Computer Interaction     | 2            |
| 9.      | SEN 220                   | SEN 320     | Human Computer Interaction Lab | 1            |
| 10.     |                           | CSC 315     | Theory of Automata             | 3            |
| 11.     |                           | ISL 112     | Understanding Quran – V        | 0            |

### **Semester 7**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title               | Credit Hours |
|---------|---------------------------|-------------|----------------------------|--------------|
| 1.      | None                      | FYP 400     | Final Year Project         | 3            |
| 2.      | CSC 315                   | CSC 323     | Compiler Construction      | 2            |
| 3.      | CSC 315                   | CSL 323     | Compiler Construction Lab  | 1            |
| 4.      |                           |             | Elective Supporting Course | 3            |

|    |  |         |                  |   |
|----|--|---------|------------------|---|
| 5. |  |         | Elective 4 (2+1) | 2 |
| 6. |  |         | Elective 4 Lab   | 1 |
| 7. |  |         | Elective 5 (2+1) | 2 |
| 8. |  |         | Elective 5 Lab   | 1 |
| 9. |  | ISL 113 | Seerah-I         | 0 |

### **Semester 8**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                         | Credit Hours |
|---------|---------------------------|-------------|--------------------------------------|--------------|
| 1.      | None                      | FYP 400     | Final Year Project                   | 3            |
| 2.      | None                      | CSC 407     | Information Security                 | 3            |
| 3.      | CSC 320                   | AIC 302     | Parallel & Distributed Computing     | 2            |
| 4.      | CSC 320                   | AIL 302     | Parallel & Distributed Computing Lab | 1            |
| 5.      |                           |             | Elective 6 (2+1)                     | 2            |
| 6.      |                           |             | Elective 6 Lab                       | 1            |
| 7.      |                           |             | Elective 7 (3+0 or 2+1)              | 3/2          |
| 8.      |                           | ISL 114     | Seerah –II                           | 0            |

\*Only for Muslim students

### **List of Elective Courses (21 credit hours)**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                              | Credit Hours |
|---------|---------------------------|-------------|---|--------------|
| 1.      | CSC 321                   | CSC 521     | Advanced Design and Analysis of Algorithm | 3            |
| 2.      | CEN 223                   | CEN 451     | Data Encryption and Security              | 3            |
| 3.      | CSC 220                   | CSC 452     | Data Mining                               | 3            |
| 4.      | CSC 220                   | CSC 454     | Data Warehousing                          | 3            |
| 5.      | CSC 220                   | CSC 490     | Introduction to Cloud Computing           | 3            |
| 6.      | CSC 325                   | SEN 455     | Knowledge Based Management System         | 3            |
| 7.      | SEN 220                   | CSC 458     | Management Information System             | 3            |
| 8.      | CSC 325                   | CSC 441     | Natural Language Processing               | 3            |
| 9.      | CSC 325                   | CSC 449     | Neural Networks & Fuzzy Logic             | 3            |
| 10.     | CSC 113                   | SEN 422     | Semantic Computing                        | 3            |
| 11.     | SEN 220                   | SEN 458     | Software Requirement Engineering          | 3            |
| 12.     | CSC 323                   | CSC 451     | Theory of Programming Languages           | 3            |
| 13.     | SEN 220                   | SEN 456     | Usability Engineering                     | 3            |
| 14.     | CEN 223                   | CSC 489     | Ubiquitous Computing                      | 3            |

|     |         |         |  |   |
|-----|---------|---------|--|---|
| 15. | SEN 220 | SEN 410 | Software Project Management                | 3 |
| 16. | SEN 220 | SEN 420 | Software Quality Assurance                 | 3 |
| 17. | SEN 220 | SEN 447 | Software Testing                           | 3 |
| 18. | CEN 223 | ITC 411 | Cyber Security                             | 3 |
| 19. | CSC 325 | CSC 464 | Computer Vision                            | 3 |
| 20. | CSC 221 | CSC 404 | Blockchain Technologies                    | 3 |
| 21. | CSC 325 | CSC 448 | Introduction to Bioinformatics             | 3 |
| 22. | CEN 223 | CEN 449 | Internet of Things                         | 3 |
| 23. | CSC 220 | CSC 488 | Big Data Analytics                         | 2 |
| 24. | CSC 220 | CSL 488 | Big Data Analytics Lab                     | 1 |
| 25. | CSC 210 | CSC 444 | Computer Graphics                          | 2 |
| 26. | CSC 210 | CSL 444 | Computer Graphics Lab                      | 1 |
| 27. | None    | CSC 484 | Content Management                         | 2 |
| 28. | None    | CSL 484 | Content Management Lab                     | 1 |
| 29. | CSC 210 | CEN 444 | Digital Image Processing                   | 2 |
| 30. | CSC 210 | CEL 444 | Digital Image Processing Lab               | 1 |
| 31. | CSC 210 | CSC 319 | Game Development and Design                | 2 |
| 32. | CSC 210 | CSL 319 | Game Development and Design Lab            | 1 |
| 33. | CSC 325 | CSC 466 | Introduction to Biometrics                 | 2 |
| 34. | CSC 325 | CSL 466 | Introduction to Biometrics Lab             | 1 |
| 35. | CSC 220 | CSC 487 | Introduction to Data Science               | 2 |
| 36. | CSC 220 | CSL 487 | Introduction to Data Science Lab           | 1 |
| 37. | CSC 210 | CSC 341 | Mobile Application Development             | 2 |
| 38. | CSC 210 | CSL 341 | Mobile Application Development Lab         | 1 |
| 39. | None    | SEN 493 | Multimedia Systems                         | 2 |
| 40. | None    | SEL 493 | Multimedia Systems Lab                     | 1 |
| 41. | CSC 325 | CEN 458 | Robotics                                   | 2 |
| 42. | CSC 325 | CEL 458 | Robotics Lab                               | 1 |
| 43. | CSC 210 | SEN 448 | Software Application for Mobile Device     | 2 |
| 44. | CSC 210 | SEL 448 | Software Application for Mobile Device Lab | 1 |
| 45. | SEN 220 | SEN 457 | Software Design and Architecture           | 2 |
| 46. | SEN 220 | SEL 457 | Software Design and Architecture Lab       | 1 |
| 47. | CSC 210 | CSC 313 | Visual Programming                         | 2 |
| 48. | CSC 210 | CSL 313 | Visual Programming Lab                     | 1 |

|     |         |         |                       |   |
|-----|---------|---------|-----------------------|---|
| 49. | CSC 113 | SEN 310 | Web Engineering       | 2 |
| 50. | CSC 113 | SEL 310 | Web Engineering Lab   | 1 |
| 51. | CSC 325 | AIC 301 | Machine Learning      | 2 |
| 52. | CSC 325 | AIL 301 | Machine Learning Lab  | 1 |
| 53. | CSC 325 | AIC 401 | Deep Learning         | 2 |
| 54. | CSC 325 | AIL 401 | Deep Learning Lab     | 1 |
| 55. | None    | CSC 400 | Quantum Computing     | 2 |
| 56. | None    | CSL 400 | Quantum Computing Lab | 1 |

### **List of Social Sciences Courses**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                  | Credit Hours |
|---------|---------------------------|-------------|-------------------------------|--------------|
| 1.      | None                      | HSS 107     | Introduction to Psychology    | 3            |
| 2.      | None                      | HSS 115     | Introduction to Media studies | 3            |
| 3.      | None                      | BES 103     | Critical Thinking             | 3            |

### **List of Elective Supporting Courses (3 credit hours)**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                       | Credit Hours |
|---------|---------------------------|-------------|------------------------------------|--------------|
| 1.      | None                      | MKT 110     | Principles of Marketing            | 3            |
| 2.      | None                      | FIN 201     | Fundamentals of Finance            | 3            |
| 3.      | None                      | MGT 111     | Principles of Management           | 3            |
| 4.      | None                      | MGT 242     | Organizational Theory and Behavior | 3            |

## **BS (Information Technology)**

**Program Title:** BS Information Technology

**Duration:** 4 Years

**Eligibility Criteria:** Minimum 50% marks in Intermediate (HSSC) examination (\*Pre-Medical/Pre-Engg.) or equivalent qualification with Mathematics certified by IBCC. \*Pre-Medical students are required to pass 02 deficiency courses of mathematics during the first year of degree program. Students with Pre-medical background must furnish an undertaking that they must pass deficiency courses of Mathematics of 6 credit hours within one year of their regular studies. Failure to do so will result in cancellation of admission without any fee refund.

### **Mission of the BS Computer Science Programme**

To produce graduates having good problem-solving skills and knowledge to use computers creatively and effectively along with team building and professional skills

**PEO 1:** Apply principle and practices of information technology and computing knowledge to solve challenging problems in relevant profession

**PEO 2:** Demonstrate the ability to use modern tools learnt during degree Programme to design and develop effective solutions

**PEO 3:** Exhibit managerial capabilities with ethical and moral values Programme Educational Objectives (PEOs)

**PLO1** Academic Education: To prepare graduates as computing professionals.

**PLO2** Knowledge for Solving Computing Problems: Apply knowledge of computing fundamentals, knowledge of a computing specialization, and mathematics, science, and domain knowledge appropriate for the computing specialization to the 16 abstraction and conceptualization of computing models from defined problems and requirements.

**PLO3** Problem Analysis: Identify, formulate, research literature, and solve complex computing problems reaching substantiated conclusions using fundamental principles of mathematics, computing sciences, and relevant domain disciplines.

**PLO4** Design/ Development of Solutions: Design and evaluate solutions for complex computing problems, and design and evaluate systems, components, or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.

**PLO5** Modern Tool Usage: Create, select, adapt and apply appropriate techniques, resources, and modern computing tools to complex computing activities, with an understanding of the limitations.

**PLO6** Individual and Teamwork: Function effectively as an individual and as a member or leader in diverse teams and in multi-disciplinary settings.

**PLO7** Communication: Communicate effectively with the computing community and with society at large about complex computing activities by being able to comprehend and write effective reports, design documentation, make effective presentations, and give and understand clear instructions.

**PLO8** Computing Professionalism and Society: Understand and assess societal, health, safety, legal, and cultural issues within local and global contexts, and the consequential responsibilities relevant to professional computing practice.

**PLO9** Ethics: Understand and commit to professional ethics, responsibilities, and norms of professional computing practice.

**PLO10** Life-long Learning: Recognize the need, and have the ability, to engage in independent learning for continual development as a computing professional.

### **Semester-wise Roadmap of BS-IT**

#### **Semester 1**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title   | Credit Hours |
|---------|---------------------------|-------------|--|--------------|
| 1.      | None                      | CSC 114     | Introduction to Information & Communication Technology     | 2            |
| 2.      | None                      | CSL 114     | Introduction to Information & Communication Technology Lab | 1            |
| 3.      | None                      | CSC 113     | Computer Programming                                       | 3            |
| 4.      | None                      | CSL 113     | Computer Programming Lab                                   | 1            |
| 5.      | None                      | GSC 114     | Applied Physics  | 2            |
| 6.      | None                      | GSL 113     | Applied Physics Lab  | 1            |
| 7.      | None                      | ISL 101     | Islamic Studies / Ethics                                   | 2            |
| 8.      | None                      | GSC 221     | Discrete Mathematics                                       | 3            |
| 9.      | None                      | CSC 308     | Professional Practices and Ethics                          | 2            |
| 10.     | None                      | ISL 107     | Tajweed  | 0            |

#### **Semester 2**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                             | Credit Hours |
|---------|---------------------------|-------------|--|--------------|
| 1.      | CSC 113                   | CSC 210     | Object Oriented Programming              | 3            |
| 2.      | CSC 113                   | CSL 210     | Object Oriented Programming Lab          | 1            |
| 3.      | GSC 114                   | CEN 122     | Digital Design                           | 2            |
| 4.      | GSC 114                   | CEL 122     | Digital Design Lab                       | 1            |
| 5.      | None                      | GSC 110     | Applied Calculus and Analytical Geometry | 3            |
| 6.      | None                      | GSC 122     | Probability and Statistics               | 3            |

|    |      |         |   |   |
|----|------|---------|---|---|
| 7. | None | PAK 103 | Pakistan Studies and Global Perspective | 2 |
| 8. | None | ENG 101 | Functional English                      | 3 |
| 9. |      | ISL 108 | Understanding Quran-I                   | 0 |

### **Semester 3**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                          | Credit Hours |
|---------|---------------------------|-------------|---------------------------------------|--------------|
| 1.      | CSC 113                   | CSC 221     | Data Structure & Algorithm            | 3            |
| 2.      | CSC 113                   | CSL 221     | Data Structure & Algorithm Lab        | 1            |
| 3.      | None                      | SEN 220     | Software Engineering                  | 3            |
| 4.      | None                      | CEN 223     | Computer Communication & Networks     | 3            |
| 5.      | None                      | CEL 223     | Computer Communication & Networks Lab | 1            |
| 6.      | None                      | GSC 121     | Linear Algebra                        | 3            |
| 7.      | None                      | HSS 219     | Civic and Community Engagement        | 2            |
| 8.      | None                      | ENG 134     | Communication Skills                  | 2            |
| 9.      |                           | ISL 109     | Understanding Quran-II                | 0            |

### **Semester 4**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                        | Credit Hours |
|---------|---------------------------|-------------|-------------------------------------|--------------|
| 1.      | CSC 210                   | ITC 226     | Web Systems and Technologies        | 2            |
| 2.      | CSC 210                   | ITL 226     | Web Systems and Technologies Lab    | 1            |
| 3.      | CSC 221                   | CSC 321     | Design and Analysis of Algorithms   | 3            |
| 4.      | None                      | HSS 423     | Entrepreneurship                    | 2            |
| 5.      | HSS 118                   | ENG 123     | Expository Writing                  | 3            |
| 6.      | GSC 110                   | GSC 211     | Multivariable Calculus              | 3            |
| 7.      | None                      |             | Social Sciences Elective            | 3            |
| 8.      | ISL 109                   | ISL 110     | Understanding Quran-III             | 0            |
| 9.      |                           | PAK 1098    | Ideology & Constitution of Pakistan | 2            |

### **Semester 5**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                      | Credit Hours |
|---------|---------------------------|-------------|-----------------------------------|--------------|
| 1.      | None                      | CSC 220     | Database Management System        | 3            |
| 2.      | None                      | CSL 220     | Database Management System Lab    | 1            |
| 3.      | CSC 221                   | CSC 320     | Operating Systems                 | 3            |
| 4.      | CSC 221                   | CSL 320     | Operating Systems Lab             | 1            |
| 5.      | CEN 223                   | ITC 312     | System and Network Administration | 3            |

|    |         |         |                                       |   |
|----|---------|---------|---------------------------------------|---|
| 6. | CEN 223 | ITL 312 | System and Network Administration Lab | 1 |
| 7. |         |         | Elective 1 (3+0 or 2+1)               | 3 |
| 8. | CEN 223 | CSC 407 | Information Security                  | 3 |
| 9. |         | ISL 111 | Understanding Quran-IV                | 0 |

\*Compulsory for Muslim students only

### **Semester 6**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                                    | Credit Hours |
|---------|---------------------------|-------------|---|--------------|
| 1.      | CEN 122                   | CEN 323     | Computer Organization and Assembly Language     | 2            |
| 2.      | CEN 122                   | CEL 323     | Computer Organization and Assembly Language Lab | 1            |
| 3.      | CSC 210                   | CSC 411     | Artificial Intelligence                         | 2            |
| 4.      | CSC 210                   | CSL 411     | Artificial Intelligence Lab                     | 1            |
| 5.      | ITC 312                   | ITC 324     | Information Technology Infrastructure           | 3            |
| 6.      |                           |             | Elective 2 (2+1)                                | 3            |
| 7.      |                           |             | Elective 3 (2+1)                                | 3            |
| 8.      |                           | ISL 112     | Understanding Quran-V                           | 0            |

### **Semester 7**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                               | Credit Hours |
|---------|---------------------------|-------------|--|--------------|
| 1.      | CSC 220                   | ITC 327     | Database Administration and Management     | 2            |
| 2.      | CSC 220                   | ITL 327     | Database Administration and Management Lab | 1            |
| 3.      | None                      | FYP 400     | Final Year Project                         | 3            |
| 4.      | CEN 223                   | ITC 411     | Cyber Security                             | 3            |
| 5.      |                           |             | Elective 4 (2+1)                           | 3            |
| 6.      |                           |             | Elective 5 (3+0 or 2+1)                    | 3            |
| 7.      | ISL 112                   | ISL 113     | Seerah-I                                   | 0            |

### **Semester 8**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title       | Credit Hours |
|---------|---------------------------|-------------|--------------------|--------------|
| 1.      | None                      | FYP 400     | Final Year Project | 3            |

|    |        |         |  |                |
|----|--------|---------|--|----------------|
| 2. | CSC320 | AIC 302 | Parallel and Distributed Computing     | 2              |
| 3. | CSC320 | AIL 302 | Parallel and Distributed Computing Lab | 1              |
| 4. |        |         | Elective Supporting                    | 3              |
| 5. |        |         | Elective 6 (3+0 or 2+1)                | 3              |
| 6. |        |         | Elective 7 (3+0 or 2+1)                | 3              |
| 7. |        | ISL 114 | Seerah-II                              | 1 Contact Hour |

### **List of Domain Elective Courses**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                               | Credit Hours |
|---------|---------------------------|-------------|--|--------------|
| 1.      | ITC 226                   | ITB 471     | E Commerce                                 | 3            |
| 2.      | None                      | ITC 425     | Business Processing Re-engineering         | 3            |
| 3.      | None                      | ITC 457     | Knowledge Management System & Technologies | 3            |
| 4.      | CSC 220                   | CSC 452     | Data Mining                                | 3            |
| 5.      | CSC 220                   | CSC 454     | Data Warehousing                           | 3            |
| 6.      | ITC 226                   | SEN 421     | Semantic Web                               | 3            |
| 7.      | SEN 220                   | SEN 411     | Software Testing                           | 3            |
| 8.      | SEN 220                   | SEN 456     | Usability Engineering                      | 3            |
| 9.      | CSC 220                   | CSC 426     | Business Intelligence and Analytic         | 3            |
| 10.     | None                      | SEN 427     | Information Systems Auditing and Assurance | 3            |
| 11.     | SEN 220                   | SEN 428     | Service Oriented Architecture              | 3            |
| 12.     | SEN 220                   | SEN 420     | Software Quality Assurance                 | 3            |
| 13.     | CEN 223                   | EET 455     | Wireless Communication                     | 3            |
| 14.     | None                      | SEN 320     | Human Computer Interaction                 | 3            |
| 15.     | CSC 221                   | CSC 404     | Blockchain Technologies                    | 3            |
| 16.     | CSC 221                   | CSC 448     | Introduction to Bioinformatics             | 3            |
| 17.     | CEN 223                   | CSC 450     | Internet of Things                         | 3            |
| 18.     | CEN 223                   | SEN 459     | Software Defined Network                   | 3            |
| 19.     | SEN 220                   | CSC 489     | Ubiquitous Computing                       | 3            |
| 20.     | GSC 221                   | GSC 445     | Operation Research                         | 3            |
| 21.     | None                      | CSC 458     | Management Information System              | 3            |
| 22.     | SEN 220                   | SEN 410     | Software Project Management                | 3            |
| 23.     | CSC 210                   | CSC 313     | Visual Programming                         | 2            |
| 24.     | CSC 210                   | CSL 313     | Visual Programming Lab                     | 1            |
| 25.     | CSC 220                   | CSC 487     | Introduction to Data Science               | 2            |
| 26.     | CSC 220                   | CSL 487     | Introduction to Data Science Lab           | 1            |
| 27.     | CSC 210                   | CEN 444     | Digital Image Processing                   | 2            |
| 28.     | CSC 210                   | CEL 444     | Digital Image Processing Lab               | 1            |

|     |         |         |                                      |   |
|-----|---------|---------|--------------------------------------|---|
| 29. | CSC 210 | CSC 444 | Computer Graphics                    | 2 |
| 30. | CSC 210 | CSL 444 | Computer Graphics Lab                | 1 |
| 31. | CSC 220 | CSC 468 | Advanced Databases                   | 2 |
| 32. | CSC 220 | CSL 468 | Advanced Databases Lab               | 1 |
| 33. | CSC 210 | CSC 341 | Mobile Application Development       | 2 |
| 34. | CSC 210 | CSL 341 | Mobile Application Development Lab   | 1 |
| 35. | None    | SEN 493 | Multimedia Systems                   | 2 |
| 36. | None    | SEL 493 | Multimedia Systems Lab               | 1 |
| 37. | SEN 220 | SEN 457 | Software Design and Architecture     | 2 |
| 38. | SEN 220 | SEL 457 | Software Design and Architecture Lab | 1 |
| 39. | CSC 113 | SEN 310 | Web Engineering                      | 2 |
| 40. | CSC 113 | SEL 310 | Web Engineering Lab                  | 1 |
| 41. | CSC 220 | CSC 488 | Big Data Analytics                   | 2 |
| 42. | CSC 220 | CSL 488 | Big Data Analytics Lab               | 1 |
| 43. | None    | CSC 484 | Content Management                   | 2 |
| 44. | None    | CSL 484 | Content Management Lab               | 1 |
| 45. | CSC 411 | CSC 413 | Introduction to Machine Learning     | 2 |
| 46. | CSC 411 | CSL 413 | Introduction to Machine Learning Lab | 1 |

### **List of Social Sciences Courses**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                  | Credit Hours |
|---------|---------------------------|-------------|-------------------------------|--------------|
| 1.      | None                      | HSS 107     | Introduction to Psychology    | 3            |
| 2.      | None                      | HSS 115     | Introduction to Media studies | 3            |
| 3.      | None                      | BES 103     | Critical Thinking             | 3            |

### **List of Elective Supporting Courses**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                       | Credit Hours |
|---------|---------------------------|-------------|------------------------------------|--------------|
| 1.      | None                      | MKT 110     | Principles of Marketing            | 3            |
| 2.      | None                      | FIN 201     | Fundamentals of Finance            | 3            |
| 3.      | None                      | MGT 111     | Principles of Management           | 3            |
| 4.      | None                      | MGT 242     | Organizational Theory and Behavior | 3            |

## BS Artificial Intelligence

**Program Title:** BS Artificial Intelligence

**Duration:** 4 Years

**Eligibility Criteria:** Minimum 50% marks in Intermediate (HSSC) examination (\*Pre-Medical/Pre-Engg.) or equivalent qualification with Mathematics certified by IBCC. \*Pre-Medical students are required to pass 02 deficiency courses of mathematics during the first year of degree program. Students with Pre-medical background must furnish an undertaking that they must pass deficiency courses of Mathematics of 6 credit hours within one year of their regular studies. Failure to do so will result in cancellation of admission without any fee refund.

### Semester-wise Revised Roadmap of BSAI

#### **Semester 1**

| Pre-requisite Course Code | Course Code | Course Title   | Credit Hours   |
|---------------------------|-------------|--|----------------|
| None                      | GSC 114     | Applied Physics  | 2              |
| None                      | GSL 113     | Applied Physics Lab  | 1              |
| None                      | CSC 114     | Introduction to Information & Communication Technology     | 2              |
| None                      | CSL 114     | Introduction to Information & Communication Technology Lab | 1              |
| None                      | CSC 113     | Computer Programming                                       | 3              |
| None                      | CSL 113     | Computer Programming Lab                                   | 1              |
| None                      | GSC 221     | Discrete Mathematics                                       | 3              |
| None                      | ISL 101     | Islamic Studies  | 2              |
| None                      | CSC 08      | Professional Practices and Ethics                          | 2              |
| None                      | ISL 107     | Tajweed  | 1 Contact Hour |

#### **Semester 2**

| Pre-requisite Course Code | Course Code | Course Title                | Credit Hours |
|---------------------------|-------------|-----------------------------|--------------|
| None                      | CEN 122     | Digital Design              | 2            |
| None                      | CEL 122     | Digital Design Lab          | 1            |
| CSC 113                   | CSC 210     | Object Oriented Programming | 3            |

|         |         |  |   |
|---------|---------|--|---|
| CSC 113 | CSL 210 | Object Oriented Programming Lab          | 1 |
| None    | GSC 122 | Probability and Statistics               | 3 |
| None    | GSC 110 | Applied Calculus and Analytical Geometry | 3 |
| None    | ENG 101 | Functional English                       | 3 |
| None    | PAK 103 | Pakistan Studies & Global Perspective    | 2 |
|         | ISL 108 | Understanding Quran-I                    | 0 |

### **Semester 3**

| Pre-requisite Course Code | Course Code | Course Title                                  | Credit Hours |
|---------------------------|-------------|---|--------------|
| CEN 120                   | CEN 323     | Computer Organization & Assembly Language     | 2            |
| CEN 120                   | CEL 323     | Computer Organization & Assembly Language Lab | 1            |
| CSC 113                   | CSC 221     | Data Structures and Algorithms                | 3            |
| CSC 113                   | CSL 221     | Data Structures and Algorithms Lab            | 1            |
| CSC 113                   | AIC 202     | Programming for Artificial Intelligence       | 2            |
| CSC 113                   | AIL 202     | Programming for Artificial Intelligence Lab   | 1            |
| None                      | GSC 121     | Linear Algebra                                | 3            |
| None                      | ENG134      | Communication Skills                          | 2            |
| None                      | HSS 219     | Civic and Community Engagement                | 2            |
|                           | ISL 109     | Understanding Quran-II                        | 0            |

### **Semester 4**

| Pre-requisite Course Code | Course Code | Course Title                          | Credit Hours |
|---------------------------|-------------|---------------------------------------|--------------|
| None                      | CEN 222     | Data Communication and Networking     | 3            |
| None                      | CEL 222     | Data Communication and Networking Lab | 1            |
| CSC 210                   | AIC 201     | Artificial Intelligence               | 3            |
| CSC 210                   | AIL 201     | Artificial Intelligence Lab           | 1            |
| None                      | CSC 220     | Database Management Systems           | 3            |
| None                      | CSL 220     | Database Management Systems Lab       | 1            |

|      |         |                                     |   |
|------|---------|-------------------------------------|---|
| None | HSS 423 | Entrepreneurship                    | 2 |
|      |         | Social Sciences Elective            | 3 |
| None | PAK 109 | Ideology & Constitution of Pakistan | 2 |
|      | ISL 110 | Understanding Quran-III             | 0 |

### **Semester 5**

| Pre-requisite Course Code | Course Code | Course Title                         | Credit Hours |
|---------------------------|-------------|--------------------------------------|--------------|
| AIC 201                   | AIC 203     | Knowledge Representation & Reasoning | 3            |
| AIC 201                   | AIC 301     | Machine Learning                     | 2            |
| AIC 201                   | AIL 301     | Machine Learning Lab                 | 1            |
| GSC 110                   | GSC 211     | Multivariable Calculus               | 3            |
| CSC 221                   | CSC 321     | Design and Analysis of Algorithms    | 3            |
|                           |             | Domain Elective 1                    | (2+1)        |
|                           |             | Domain Elective 2                    | (3+0 or 2+1) |
|                           | ISL 111     | Understanding Quran-IV               | 0            |

### **Semester 6**

| Pre-requisite Course Code | Course Code | Course Title                         | Credit Hours |
|---------------------------|-------------|--------------------------------------|--------------|
| AIC 301                   | AIC 401     | Deep Learning                        | 2            |
| AIC 301                   | AIL 401     | Deep Learning Lab                    | 1            |
| CSC 221                   | CSC 320     | Operating Systems                    | 3            |
| CSC 221                   | CSL 320     | Operating Systems Lab                | 1            |
| CSC 320                   | AIC 302     | Parallel & Distributed Computing     | 2            |
| CSC 320                   | AIL 302     | Parallel & Distributed Computing Lab | 1            |
|                           |             | Domain Elective 3                    | (2+1)        |
|                           |             | Elective 4                           | (3+0 or 2+1) |
|                           | ISL 112     | Understanding Quran-V                | 0            |

### **Semester 7**

| Pre-requisite Course Code | Course Code | Course Title         | Credit Hours |
|---------------------------|-------------|----------------------|--------------|
| None                      | FYP 400     | Final Year Project   | 3            |
| None                      | SEN 220     | Software Engineering | 3            |

|         |         |                     |       |
|---------|---------|---------------------|-------|
| None    | AIC 304 | Computer Vision     | 2     |
| None    | AIL 304 | Computer Vision Lab | 1     |
| HSS 120 | ENG 123 | Expository Writing  | 3     |
|         |         | Elective 5          | (2+1) |
|         | ISL 113 | Seerah-I            | 0     |

### **Semester 8**

| Pre-requisite Course Code | Course Code | Course Title         | Credit Hours |
|---------------------------|-------------|----------------------|--------------|
| None                      | FYP 400     | Final Year Project   | 3            |
| CEN 222                   | CSC 407     | Information Security | 3            |
|                           |             | Elective Supporting  | 3            |
|                           |             | Domain Elective 6    | (2+1)        |
|                           |             | Domain Elective 7    | (3+0 or 2+1) |
|                           | ISL 114     | Seerah-II            | 0            |

### **List of Elective Courses**

| Pre-requisite Course Code | Course Code | Course Title                   | Credit Hours |
|---------------------------|-------------|--------------------------------|--------------|
| GSC 122                   | AIC 305     | Advance Statistics             | 3            |
| None                      | CSC 315     | Theory of Automata             | 3            |
| None                      | CSC 452     | Data Mining                    | 3            |
| None                      | AIC 306     | Speech Processing              | 3            |
| None                      | AIC 402     | Reinforcement Learning         | 3            |
| None                      | AIC 403     | Fuzzy Systems                  | 2            |
| None                      | AIC 307     | Evolutionary Computing         | 3            |
| None                      | AIC 308     | Agent-Based Modeling           | 3            |
| None                      | CEN 459     | Robotics                       | 2+1          |
| None                      | ITC 412     | Introduction to Cyber Security | 2+1          |
| None                      | AIC 442     | Natural Language Processing    | 2+1          |
| None                      | AIC 410     | Virtual and Augmented Reality  | 2+1          |
| None                      | AIC 411     | HCI & Computer Graphics        | 2+1          |

|                    |         |   |     |
|--------------------|---------|---|-----|
| None               | AIC 310 | Swarm Intelligence                            | 2+1 |
| None               | CSC 400 | Quantum Computing                             | 2+1 |
| None               | AIC 377 | Game Artificial Intelligence                  | 2+1 |
| CSC 221<br>GSC 121 | CSC-XXX | Quantum Computing for Artificial Intelligence | 3+1 |
| AIC 201            | CSC-XXX | Explainable Artificial Intelligence           | 3+0 |
| None               | CSC-XXX | Cloud and Devops Engineering                  | 3+0 |
| None               | CSC-XXX | AI Ethics and Society                         | 3+0 |

### **List of Social Sciences Courses**

| Pre- requisite Course Code | Course Code | Course Title                  | Credit Hours |
|----------------------------|-------------|-------------------------------|--------------|
| None                       | HSS 107     | Introduction to Psychology    | 3            |
| None                       | HSS 115     | Introduction to Media studies | 3            |
| None                       | BES 103     | Critical Thinking             | 3            |

### **List of Elective Supporting Courses**

| Pre- requisite Course Code | Course Code | Course Title                       | Credit Hours |
|----------------------------|-------------|------------------------------------|--------------|
| None                       | MKT 110     | Principles of Marketing            | 3            |
| None                       | FIN 201     | Fundamentals of Finance            | 3            |
| None                       | MGT 111     | Principles of Management           | 3            |
| None                       | MGT 242     | Organizational Theory and Behavior | 3            |

## MS Artificial Intelligence Program

**Program Title:** Master of Science in Artificial Intelligence

**Duration:** 2 Years

**Eligibility Criteria:** 30 HEC recognized 4 years Bachelor degree in AI/ CS/ IT/ EE/ CE/ SE/ Robotics/ Mechatronics or equivalent with CGPA 2.0/4.0 (Semester System) or 50% marks (Annual System). NTS-GAT (General)/ GRE/University entry test passed with 50% marks.

The following courses are recommended to be completed before entering the MS Artificial Intelligence (AI) program.

- a. Programming Fundamentals OR Computer Programming
- b. Data Structures & Algorithms OR Design & Analysis of Algorithms
- c. Database Systems

### Semester wise Roadmap

#### Semester 1

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title   | Credit Hours |
|---------|---------------------------|-------------|--|--------------|
|         |                           | CSC 711     | Advanced Artificial Intelligence                       | 03           |
|         |                           | DSC 708     | Statistical and Mathematical Methods for Data Analysis | 03           |
|         |                           | ESC 701     | Research Methodology                                   | 03           |

#### Semester 2

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                                    | Credit Hours |
|---------|---------------------------|-------------|---|--------------|
|         |                           | CSC 719     | Machine Learning                                | 03           |
|         |                           | AIC 703     | Advanced Knowledge Representation and Reasoning | 03           |
|         |                           |             | Elective-I                                      | 03           |

#### Semester 3

| Sr. No. | Pre-requisite Course Code | Course Code           | Course Title            | Credit Hours |
|---------|---------------------------|-----------------------|-------------------------|--------------|
|         |                           | DSC 707               | Deep Learning           | 03           |
|         |                           |                       | Elective-II             | 03           |
|         |                           | THS 799/<br>Elec-Code | Thesis-I / Elective-III | 03           |

#### Semester 4

| Sr. No. | Pre-requisite Course Code | Course Code           | Course Title            | Credit Hours |
|---------|---------------------------|-----------------------|-------------------------|--------------|
|         |                           | THS 799/<br>Elec-Code | Thesis-II / Elective-IV | 03           |

#### List of Elective Courses

| Course Code | Course Title                         | Credit Hours |
|-------------|--------------------------------------|--------------|
| CSC 721     | Decision Support Systems             | 3            |
| CSC 715     | Intelligent Agents                   | 3            |
| CSC 741     | Advanced Natural Language Processing | 3            |

|         |   |   |
|---------|---|---|
| CEN 745 | Advanced Digital Image Processing           | 3 |
| CSC 751 | Pattern Recognition                         | 3 |
| CSC 722 | Advanced Information Theory                 | 3 |
| SEN 764 | Ontology Engineering                        | 3 |
| THS 799 | Thesis                                      | 6 |
| CSC 723 | Game Theory                                 | 3 |
| AIC 704 | Optimization Techniques                     | 3 |
| AIC 705 | Artificial Intelligence in Embedded systems | 3 |
| AIC 706 | AI for Healthcare Applications              | 3 |
| AIC 707 | Ethics of Artificial Intelligence           | 3 |

## MS Computer Science

**Program Title:** MS Computer Science

**Duration:** 2 Years

**Eligibility Criteria:** HEC recognized 4 years Bachelor degree in Computer Sciences/Software Engineering/Computer Engineering/ Information Technology or equivalent with CGPA 2.0/4.0 (Semester System) or 50% marks (Annual System) or MIT/MCS/M.Sc (Computer Science) or equivalent with CGPA 2.0/4.0 (Semester System) or 50% marks (Annual System). NTS GAT (General)/GRE/University entry test passed with 50% Marks.

### Program Mission

The mission of the MSCS program is to produce Computer Science graduates who are able to apply their theoretical knowledge and analytical skills to create effective and novel solutions to practical and research oriented computing problems.

### Education Objectives

The key objectives of the MSCS program include the following.

1. To provide an in depth understanding of the theory and concepts of the core Computer Science areas.
2. To prepare students for graduate level training in specialized areas of Computer Science.
3. To enable learning of the latest Computing tools and technologies.
4. To enable students to apply their knowledge and analytical skills to create effective and novel solutions to various computing problems.
5. To develop effective oral and written communication skills for working independently and in groups.

### Program Learning Outcomes

Students graduating from the MS (CS) program are expected to:

1. Ability to apply Mathematical foundations, computational theory and algorithmic principles to solve practical as well as research-oriented computing problems.
2. Ability to turn complex programming specifications into well designed and well tested computer programs.
3. Acquaintance with the latest computing tools and technologies.
4. To develop effective oral and written communication skills.
5. Ability to pursue continuous professional development.
6. Ability to work on practical and research-based problems collaboratively as well as independently.

### Road Map

| Course Code       | Course Title                   | CH |
|-------------------|--------------------------------|----|
| <b>Semester 1</b> |                                |    |
| CSC 703           | Advanced Theory of Computation | 3  |

|                   |   |   |
|-------------------|---|---|
| CSC 721           | Advanced Design and Analysis of Algorithms    | 3 |
| ESC 701           | Research Methodology (University Requirement) | 3 |
| <b>Semester 2</b> |   |   |
| CSC 720           | Advanced Operating Systems                    | 3 |
| CEN 720           | Advanced Computer Architecture                | 3 |
|                   | Elective I                                    | 3 |
| <b>Semester 3</b> |   |   |
|                   | Elective II                                   | 3 |
|                   | Elective III                                  | 3 |
| THS 799           | Thesis I / Elective IV                        | 3 |
| <b>Semester 4</b> |   |   |
| THS 799           | Thesis II / Elective V                        | 3 |

### **ELECTIVE COURSES – MScS Program**

| <b>Course Codes</b> | <b>Course Names</b>                              | <b>CH</b> |
|---------------------|--|-----------|
| CSC 706             | Advanced Ubiquitous Computing                    | 3         |
| CSC 705             | Intelligent User Interface Design and Evaluation | 3         |
| CSC 717             | Virtual Reality Technologies                     | 3         |
| CSC 716             | Game Theory                                      | 3         |
| CSC 701             | Computer Supported Cooperative Work              | 3         |

|         |   |   |
|---------|---|---|
| SEN 720 | Advanced Human Computer Interaction                       | 3 |
| SEN 756 | Advanced Usability Engineering                            | 3 |
|         |   |   |
| CSC 728 | Decision Support Systems                                  | 3 |
| CSC 715 | Intelligent Agents  | 3 |
| CSC 719 | Machine Learning  | 3 |
| DSC 707 | Deep Learning   | 3 |
| CSC 741 | Advanced Natural Language Processing                      | 3 |
| CEN 745 | Advanced Digital Image Processing                         | 3 |
| CSC 749 | Advanced Neural Networks and Fuzzy Logic                  | 3 |
| CSC 751 | Pattern Recognition                                       | 3 |
| CSC 764 | Computer Vision   | 3 |
| CSC 750 | Intelligent Tutoring Systems                              | 3 |
|         |   |   |
| ESC 719 | Distributed Networking                                    | 3 |
| ESCC722 | Network Administration and Management                     | 3 |
| ESC 756 | Mobile Communications and Networking                      | 3 |
| EET 702 | Advanced Network Security                                 | 3 |
| EET 713 | Advanced Network Design                                   | 3 |
| EET 716 | Advanced Topics in Wireless Networking and Communications | 3 |

|         |   |   |
|---------|---|---|
| EET 718 | Network Performance Evaluation            | 3 |
| EET 761 | Network Protocols and Standards           | 3 |
| CSC 781 | Cloud Computing                           | 3 |
| CSC 733 | Advanced Information Theory               | 3 |
|         |   |   |
| CSC 746 | Advanced Data Mining                      | 3 |
| CSC 747 | Text Mining                               | 3 |
| CSC 752 | Advanced DBMS                             | 3 |
| CSC 753 | Distributed Databases                     | 3 |
| CSC 754 | Object Oriented Databases                 | 3 |
| CSC 755 | Web based DBMS                            | 3 |
| CSC 756 | Multimedia Databases                      | 3 |
| CSC 760 | Advanced Data Warehousing                 | 3 |
| CSC 714 | Advanced Information Retrieval Techniques | 3 |
| SEN 764 | Ontology Engineering                      | 3 |
| SEN 761 | Semantic Web (3)                          | 3 |
| CEN 759 | Generative AI                             | 3 |

## MS (Data Science)

**Program Title:** MS (Data Science)

**Duration:** 2 Years

**Eligibility Criteria:** HEC recognized 4 years Bachelor degree in CS/SE/CE/EE/IT/Statistics/Mathematics or equivalent with CGPA 2.0/4.0 (Semester System) or 50% marks (Annual System). OR MIT/MCS/M.Sc. (Computer Science)/ M Phil Mathematics/M Phil Statistics or equivalent with CGPA 2.0/4.0 (Semester System) or 50% marks (Annual System).NTS-GAT (General)/ GRE/ University entry test passed with 50% marks.

### Semester wise Road map

#### Semester 1

| Sr. No. | Pre requisite Course Code | Course Code | Course Title   | Credit Hours |
|---------|---------------------------|-------------|--|--------------|
| 1       |                           | DSC 777     | Tools and Techniques in Data Science                   | 3            |
| 2       |                           | DSC 701     | Statistical and Mathematical Methods for Data Analysis | 3            |
| 3       |                           | ESC 701     | Research Methodology                                   | 3            |

#### Semester 2

| Sr. No. | Pre requisite Course Code | Course Code | Course Title       | Credit Hours |
|---------|---------------------------|-------------|--------------------|--------------|
| 1       |                           | DSC 700     | Big Data Analytics | 3            |
| 2       |                           | CSC 719     | Machine Learning   | 3            |
| 3       |                           |             | Elective I         | 3            |

#### Semester 3

| Sr. No. | Pre requisite Course Code | Course Code | Course Title                 | Credit Hours |
|---------|---------------------------|-------------|------------------------------|--------------|
| 1       |                           | DSC 707     | Deep Learning                | 3            |
| 2       |                           |             | Elective II                  | 3            |
| 3       |                           |             | MS Thesis I / Elective – III | 3            |

#### Semester 4

| Sr. No. | Pre requisite Course Code | Course Code | Course Title                 | Credit Hours |
|---------|---------------------------|-------------|------------------------------|--------------|
| 1       |                           |             | MS Thesis II / Elective – IV | 3            |

## **List of Electives Courses**

| <b>Pre requisite</b> | <b>Course Code</b> | <b>Course Title</b>                      | <b>Credit Hours</b> |
|----------------------|--------------------|--|---------------------|
|                      | DSC 702            | Data Visualization                       | 3                   |
|                      | DSC 703            | Distributed Data Engineering             | 3                   |
|                      | DSC 705            | Unstructured Data Processing             | 3                   |
|                      | CSC 728            | Decision Support Systems                 | 3                   |
|                      | CSC 715            | Intelligent Agents                       | 3                   |
|                      | CSC 741            | Advanced Natural Language Processing     | 3                   |
|                      | CEN 745            | Advanced Digital Image Processing        | 3                   |
|                      | CSC 749            | Advanced Neural Networks and Fuzzy Logic | 3                   |
|                      | CSC 751            | Pattern Recognition                      | 3                   |
|                      | CSC 764            | Computer Vision                          | 3                   |
|                      | CSC 781            | Cloud Computing                          | 3                   |
|                      | CSC 733            | Advanced Information Theory              | 3                   |
|                      | CSC 747            | Text Mining                              | 3                   |
|                      | CSC 752            | Advanced DBMS                            | 3                   |
|                      | CSC 760            | Advanced Data Warehousing                | 3                   |
|                      | SEN 764            | Ontology Engineering                     | 3                   |
|                      | CEN 759            | Generative AI                            | 3                   |
|                      | CSC 746            | Advanced Data Mining                     | 3                   |
|                      | THS 799            | Thesis                                   | 6                   |

## MS Information Security

**Program Title:** MS (Information Security)

**Duration:** 2 to 3 Years

**Total Credit Hours:** HEC recognized 4 years Bachelor degree in CS/SE/EE/CE/IT or equivalent, with CGPA 2.0/4.0 (Semester System) or 50% marks (Annual System). NTS-GAT (General) or GRE/University entry test passed with 50% marks.

### Semester wise Road map

#### Semester 1

| Sr. No. | Pre requisite | Course Code | Course Title                               | Credit Hours |
|---------|---------------|-------------|--|--------------|
| 1       |               | ISC 711     | Number Theory                              | 3            |
| 2       |               | CSC 721     | Advanced Design and Analysis of Algorithms | 3            |
| 3       |               | ISC 712     | Computer and Network Security              | 3            |

#### Semester 2

| Sr. No. | Pre requisite | Course Code | Course Title                            | Credit Hours |
|---------|---------------|-------------|---|--------------|
| 1       |               | Elective I  | Elective I                              | 3            |
| 2       |               | ISC 721     | Advanced Cryptography and Cryptanalysis | 3            |
| 3       |               | ESC 701     | Research Methodology                    | 3            |

#### Semester 3

| Sr. No. | Pre requisite | Course Code | Course Title            | Credit Hours |
|---------|---------------|-------------|-------------------------|--------------|
| 1       |               |             | Elective II             | 3            |
| 2       |               |             | Thesis I / Elective III | 3            |
|         |               |             | Elective IV             | 3            |

**Semester 4**

| Sr. No. | Pre requisite Course Code | Course Code | Course Title           | Credit Hours |
|---------|---------------------------|-------------|------------------------|--------------|
| 1       |                           |             | Thesis II / Elective V | 3            |

**List of Electives Courses**

| Pre requisite | Course Code | Course Title                                   | Credit Hours |
|---------------|-------------|--|--------------|
|               | ESC 719     | Distributed Networking                         | 3            |
|               | ESC 722     | Network Administration and Management          | 3            |
|               | CSC 733     | Advance Information theory                     | 3            |
|               | ESC 756     | Mobile Communication and Networking            | 3            |
|               | ISC 732     | Advance Computer Security                      | 3            |
|               | ISC 733     | Information Hiding                             | 3            |
|               | ISC 734     | Wireless Network Security                      | 3            |
|               | ISC 735     | Cloud Computing Security                       | 3            |
|               | ISC 736     | Cyber Warfare                                  | 3            |
|               | ISC 737     | Computer and Network Forensics                 | 3            |
|               | ISC 738     | Ethical Hacking                                | 3            |
|               | ISC 739     | Cyber Crimes and Laws                          | 3            |
|               | ISC 740     | Quantum Cryptography                           | 3            |
|               | ISC 741     | Algebraic Cryptanalysis                        | 3            |
|               | ISC 742     | Intrusion Detection and Prevention             | 3            |
|               | CSC 719     | Machine Learning                               | 3            |
|               | DSC 707     | Deep Learning                                  | 3            |
|               | ISC 743     | Penetration Testing and Vulnerability Analysis | 3            |
|               | EET 710     | Advanced Computer Networks                     | 3            |
|               | CSC 720     | Advanced Operating Systems                     | 3            |
|               | ISC 731     | Information Security Management                | 3            |
|               | ISC 748     | Blockchain Essentials                          | 3            |

## MS Mathematics

**Program Title:** MS (Mathematics)

**Duration:** 2 years

**Eligibility Criteria:** HEC recognized 4 years Bachelor degree in BS (Mathematics)/M.Sc (Mathematics) or equivalent, with minimum 130 Credit Hours and CGPA 2.0/4.0 (Semester System) or 50% marks (Annual System). NTS-GAT (General) or GRE passed with 50% marks.

### Semester wise Road map

#### Semester 1

| Sr. No. | Pre requisite Course Code | Course Code | Course Title | Credit Hours |
|---------|---------------------------|-------------|--------------|--------------|
| 1       |                           |             | Core I       | 03           |
| 2       |                           |             | Core II      | 03           |
| 3       |                           |             | Core III     | 03           |

#### Semester 2

| Sr. No. | Pre requisite Course Code | Course Code | Course Title         | Credit Hours |
|---------|---------------------------|-------------|----------------------|--------------|
| 1       |                           | ESC 701     | Research Methodology | 03           |
| 2       |                           |             | Core IV              | 03           |
| 3       |                           |             | Elective I           | 03           |

#### Semester 3

| Sr. No. | Pre requisite Course Code | Course Code | Course Title | Credit Hours |
|---------|---------------------------|-------------|--------------|--------------|
| 1       |                           | THS 799     | MS Thesis    | 03           |
| 2       |                           |             | Elective II  | 03           |

#### Semester 4

| Sr. No. | Pre requisite Course Code | Course Code | Course Title | Credit Hours |
|---------|---------------------------|-------------|--------------|--------------|
| 1       |                           | THS 799     | MS Thesis    | 03           |
| 2       |                           |             | Elective III | 03           |

### List of Core Courses

| Course Code | Course Title  | Credit Hours |
|-------------|---|--------------|
| MAT 710     | Advanced Partial Differential Equations             | 03           |
| MAT 711     | Advanced Functional Analysis                        | 03           |
| MAT 713     | Advanced Group Theory                               | 03           |
| MAT 739     | Mathematical Techniques for Boundary Value Problems | 03           |
| MAT 726     | Advanced Integral Equations and Applications        | 03           |
| MAT 727     | Riemannian Geometry                                 | 03           |
| MAT 728     | ODEs and Computational Linear Algebra               | 03           |
| MAT 729     | Advanced Mathematical Physics                       | 03           |

### List of Electives Courses

| Course Code | Course Title   | Credit Hours |
|-------------|--|--------------|
| MAT 737     | Fluid Dynamics                                       | 03           |
| ISC 711     | Number Theory  | 03           |
| MAT 712     | Numerical Solution of Partial differential Equations | 03           |
| MAT 714     | Non Newtonian Fluid                                  | 03           |
| MAT 715     | Perturbation Methods                                 | 03           |
| MAT 716     | Finite Element Method                                | 03           |
| MAT 717     | Near Rings   | 03           |
| MAT 718     | Fuzzy Logic/Fuzzy Algebra                            | 03           |
| MAT 719     | Advanced Ring Theory                                 | 03           |
| MAT 720     | Topological Algebras                                 | 03           |
| MAT 721     | Commutative Semigroup Rings                          | 03           |
| MAT 722     | General Relativity                                   | 03           |
| MAT 723     | Advanced Analytical Dynamics                         | 03           |
| MAT 724     | Heat and Mass Transfer                               | 03           |

|          |  |    |
|----------|--|----|
| MAT 730  | Numerical Optimization                       | 03 |
| ISC 721  | Advanced Cryptography and Cryptanalysis      | 03 |
| MAT 732  | Probability Models and Applications          | 03 |
| MAT 733  | Advanced Modern Algebra with Applications    | 03 |
| MAT 734  | Spectral Methods in Fluid Dynamics           | 03 |
| MAT 735  | Simple Linear Regression Models              | 03 |
| MAT 736  | Lattice Boltzmann Method                     | 03 |
| Math 738 | Lie Group Methods for Differential Equations | 03 |

## PhD Computer Science

**Program Title:** PhD Computer Science

**Duration:** 3 to 8 Years

**Eligibility Criteria:** 18 Years Education in the relevant discipline with a minimum CGPA of 3.00/4.00 (Semester System) or 60% marks (Annual System). NTS-GAT (General) or GRE (General) Test passed with minimum 60% marks or BU Admission Test (60% passing marks). Initial Research Proposal/Statement of Purpose is required at the time of PhD admission.

### Semester-wise Road map

#### Semester 1

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                    | Credit Hours |
|---------|---------------------------|-------------|---------------------------------|--------------|
| 1       |                           | ESC 801     | Research Methods in PhD Studies | 3            |
| 2       |                           |             | Elective-I                      | 3            |
| 3       |                           |             | Elective-II                     | 3            |

#### Semester 2

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title | Credit Hours |
|---------|---------------------------|-------------|--------------|--------------|
| 1       |                           |             | Elective-III | 3            |
| 2       |                           |             | Elective-IV  | 3            |
| 3       |                           |             | Elective-V   | 3            |

#### Semester 3

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title       | Credit Hours |
|---------|---------------------------|-------------|--------------------|--------------|
| 1       |                           |             | Comprehensive Exam | 0            |
| 2       |                           | THS 900     | PhD Thesis         | 9            |

#### Semester 4

| Sr. No. | Pre-requisite | Course Code | Course Title | Credit Hours |
|---------|---------------|-------------|--------------|--------------|
|---------|---------------|-------------|--------------|--------------|

|   | Course Code |         |            |   |
|---|-------------|---------|------------|---|
| 1 |             | THS 900 | PhD Thesis | 9 |

### **Semester 5**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title | Credit Hours |
|---------|---------------------------|-------------|--------------|--------------|
| 1       |                           | THS 900     | PhD Thesis   | 9            |

### **Semester 6**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title | Credit Hours |
|---------|---------------------------|-------------|--------------|--------------|
| 1       |                           | THS 900     | PhD Thesis   | 9            |

### **List of Electives Courses**

| Pre-requisite Course Code | Course Code | Course Title                                   | Credit Hours |
|---------------------------|-------------|--|--------------|
|                           | CEN 807     | Advance distributed systems                    | 3            |
|                           | SEN 810     | Advance Neural Networks & Fuzzy Logic          | 3            |
|                           | SEN 811     | Data Ware Housing and Mining                   | 3            |
|                           | DSC 807     | Advanced Deep Learning                         | 3            |
|                           | EET 851     | Mobile and ad-hoc Networks                     | 3            |
|                           | CSC 819     | Research Trends in Machine Learning            | 3            |
|                           | CSC 851     | Advanced Pattern Recognition                   | 3            |
|                           | SEN 862     | Emerging Trends in Big Data Analytics          | 3            |
|                           | CSC 881     | Advanced Cloud Computing                       | 3            |
|                           | CSC 820     | Advanced Topics in Operating Systems           | 3            |
|                           | EET 835     | Advance Topics in 5G and Beyond Communications | 3            |
|                           | EET 850     | Wireless Sensor Networks                       | 3            |
|                           | SEN 802     | Special Topics in Software Engineering         | 3            |
|                           | SEN 810     | Secure Software Systems                        | 3            |
|                           | EET 832     | Advance topics in Network Security             | 3            |
|                           | CEN 820     | Advanced Computer Architecture                 | 3            |
|                           | DSC 800     | Advanced Data Analytics                        | 3            |

|  |         |   |   |
|--|---------|---|---|
|  | CSC 841 | Advanced Computational Linguistics                    | 3 |
|  | DSC 802 | Advanced Data Visualization                           | 3 |
|  | CSC 860 | Advanced Complexity Theory and Algorithms             | 3 |
|  | CEN 808 | Advanced Techniques in System Modeling and Simulation | 3 |
|  | SEN 816 | Middleware For Networked and Distributed Systems      | 3 |
|  | CSC 800 | Advanced AI Networking                                | 3 |
|  | ESC 816 | Advanced Wireless Communications                      | 3 |
|  | SEN 861 | Semantic Web Modeling and Applications                | 3 |
|  | SEN 864 | Knowledge Representation and Reasoning                | 3 |
|  | ISC 821 | Advance Topics in Cryptography                        | 3 |
|  | SEN 808 | Computer and Cybersecurity                            | 3 |
|  | SEN 809 | Internet of Things: Design and Applications           | 3 |
|  | EET 837 | Advanced Data Communication Systems                   | 3 |
|  | SEN 853 | Advanced Power-Aware Computing                        | 3 |
|  | ISC 843 | Advanced Penetration Testing & Vulnerability Analysis | 3 |

## PhD Mathematics

**Program Title:** PhD Mathematics  
**Duration:** 3 to 8 years  
**Total Credit Hours:** 18 year of education (MS/MPhil/equivalent degree) in relevant discipline from an HEC recognized university with a minimum CGPA of 3.00/4.00 (Semester System) or 60% marks (Annual System). NTS-GAT (General) or GRE (General) Test passed with minimum 60% marks or BU Admission Test (60% passing marks). Initial Research Proposal/Statement of Purpose is required at the time of PhD admission.

### Semester-wise Road map

#### Semester 1

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                    | Credit Hours |
|---------|---------------------------|-------------|---------------------------------|--------------|
| 1       |                           | ESC 801*    | Research Methods in PhD Studies | 3            |
| 2       |                           |             | Elective I                      | 3            |
| 3       |                           |             | Elective II                     | 3            |

#### Semester 2

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title | Credit Hours |
|---------|---------------------------|-------------|--------------|--------------|
| 1       |                           |             | Elective III | 3            |
| 2       |                           |             | Elective IV  | 3            |
| 3       |                           |             | Elective V   | 3            |

#### Semester 3

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title | Credit Hours |
|---------|---------------------------|-------------|--------------|--------------|
| 1       |                           | THS 900     | PhD Thesis   | 9            |

#### Semester 4

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title | Credit Hours |
|---------|---------------------------|-------------|--------------|--------------|
| 1       |                           | THS 900     | PhD Thesis   | 9            |

**Semester 5**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title | Credit Hours |
|---------|---------------------------|-------------|--------------|--------------|
| 1       |                           | THS 900     | PhD Thesis   | 9            |

**Semester 6**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title | Credit Hours |
|---------|---------------------------|-------------|--------------|--------------|
| 1       |                           | THS 900     | PhD Thesis   | 9            |

**List of Electives Courses**

| Course Code | Course Title  | Credit Hours |
|-------------|---|--------------|
| MAT 810     | Advanced Elastodynamics                                       | 3            |
| MAT 811     | Modelling and Simulation of Dynamical Systems                 | 3            |
| MAT 812     | Advanced Finite Element Analysis                              | 3            |
| MAT 813     | Advanced Multivariate Methods and Analysis                    | 3            |
| MAT 814     | Advanced Near Rings   | 3            |
| MAT 815     | Advanced Quantum Theory                                       | 3            |
| MAT 816     | Advanced Semigroup Theory                                     | 3            |
| MAT 817     | Nonlinear Waves   | 3            |
| MAT 818     | Advanced Partial Differential Equations II                    | 3            |
| MAT 819     | Advanced Functional Analysis II                               | 3            |
| MAT 820     | Advanced Numerical Solution of Partial differential Equations | 3            |
| MAT 821     | Advanced Group Theory II                                      | 3            |
| MAT 822     | Advanced Non-Newtonian Fluid                                  | 3            |
| MAT 823     | Advanced Perturbation Methods                                 | 3            |
| MAT 824     | Advanced topics in Cryptography                               | 3            |
| MAT 825     | Advanced Fluid Dynamics-II                                    | 3            |
| MAT 826     | Advanced Lie Group Methods for Differential Equations         | 3            |
| MAT 827     | Advanced Heat and Mass Transfer                               | 3            |

## Bachelor of Social Sciences

**Program Title:** Bachelor of Social Sciences

**Duration:** 4 Years (8 Semesters)

**Eligibility Criteria:** All candidates who have passed intermediate examination or its equivalent with a minimum of 50% marks in any discipline can apply for admission to BSS

### Road Map for BSS

#### Semester 1

| S. No. | Course Code | Course Title                          | Credit Hours |
|--------|-------------|---------------------------------------|--------------|
| 1      | ENG 101     | Functional English                    | 3            |
| 2      | BES 204     | Introduction to Computer Applications | 3            |
| 3      | PSY 102     | Social Sciences                       | 2            |
| 3      | HSS 110     | Introduction to Development Studies   | 3            |
| 5      | ISL 101     | Islamic Studies                       | 2            |
| 6      | PAK 109     | Ideology and Constitution of Pakistan | 2            |
| 7      | ISL 107     | Tajweed                               | 0            |

#### Semester 2

| S. No. | Course Code | Course Title                           | Credit Hours |
|--------|-------------|--|--------------|
| 1      | ENG 213     | Interdisciplinary I                    | 3            |
| 2      | MAT 105     | Quantitative Reasoning - I             | 3            |
| 3      | ENV 111     | Natural Sciences                       | 3            |
| 4      | PAK 105     | Pakistan Studies                       | 2            |
| 5      | HSS 202     | Introduction to Sociology              | 3            |
| 6      | HSS 111     | Introduction to International Relation | 3            |
| 7      | ISL 108     | Understanding Quran-I                  | 0            |

**Semester 3**

| S. No. | Course Code | Course Title                       | Credit Hours |
|--------|-------------|------------------------------------|--------------|
| 1      | ENG 207     | Expository Writing                 | 3            |
| 2      | QTM 105     | Quantitative Reasoning – II        | 3            |
| 3      | HSS 201     | Introduction to Anthropology       | 3            |
| 4      | BES 106     | Research Methodology               | 3            |
| 5      | ANT 230     | Gender Studies                     | 3            |
| 6      | MED 107     | Introduction to Mass Communication | 3            |
| 7      | ISL 109     | Understanding Quran-II             | 1            |

**Semester 4**

| S. No. | Course Code | Course Title                                     | Credit Hours |
|--------|-------------|--|--------------|
| 1      | DST 301     | Introduction to Microeconomics                   | 03           |
| 2      | DST 303     | Theories of Development: Contending Perspectives | 03           |
| 3      | HSS 112     | Introduction to Political Science                | 03           |
| 4      | HSS 219     | Civics and Community Engagement                  | 02           |
| 5      | HSS 423     | Entrepreneurship                                 | 02           |
| 6      | DSS 402     | Qualitative Research Methods                     | 3            |
| 7      | ISL 110     | Understanding Quran-II                           | 1            |

\* 12 courses of General Education for 32 Credit Hours are completed in first 4 semester

\*\* Students are Eligible for a 3 Credit Hours internship of 6 – 8 weeks after 4th semester. This internship is to be started and completed preferably in summer break after 4th semester.

**Semester 5**

| S. No | Course Code | Course Title  | Credit Hours |
|-------|-------------|---|--------------|
| 1     | DST 302     | Macroeconomics  | 3            |
| 2     | DST 410     | Development Project: Planning, Appraisal & Implementation | 3            |

|   |         |   |    |
|---|---------|---|----|
| 3 | HSS 401 | Statistical Analysis of Social Data         | 3  |
| 4 | DST 336 | Climate Change Politics, Policy & Practices | 3  |
| 5 | DST 417 | Integrated Development Project Management   | 3  |
| 6 |         | Major Elective Course – I                   | 3  |
| 7 | ISL 111 | Understanding Quran-IV                      | 1  |
|   |         | Total                                       | 15 |

### Semester 6

| S. No | Course Code | Course Title                                 | Credit Hours |
|-------|-------------|--|--------------|
| 1     | DST 436     | Urbanization in the Developing World         | 3            |
| 2     | DST 409     | Development Policy: Process and Institutions | 3            |
| 3     | DST 437     | Development Planning in Pakistan             | 3            |
| 4     |             | Major Elective Course – II                   | 3            |
| 5     |             | Major Elective Course – III                  | 3            |
| 6     | ISL 112     | Understanding Quran-V                        | 1            |

### Semester 7

| S. No | Course Code | Course Title   | Credit Hours |
|-------|-------------|--|--------------|
| 1     | DST 343     | Health & Development: Perspectives, Issues and Practices | 3            |
| 2     | DST 414     | Migration, Diaspora & Development                        | 3            |
| 3     | DST 312     | Rural Development: Issues and Challenges                 | 3            |
|       |             | Major Elective Course – IV                               | 3            |
| 5     |             | Major Elective Course – V                                | 3            |
| 6     | ISL 113     | Seerah – I   | 1            |

**Semester 8**

| S. No | Course Code | Course Title                                    | Credit Hours |
|-------|-------------|---|--------------|
| 1     | DST 310     | Poverty Alleviation: Contending Approaches      | 3            |
| 2     | DST 401     | Sustainable Development & Livelihood Strategies | 3            |
| 3     |             | Major Elective Course – VI                      | 3            |
| 4     |             | Major Elective Course – VII                     | 3            |
| 5     | ISL 114     | Seerah – II                                     | 0            |
|       |             | Capstone Project                                | 3            |

**List of Electives  
Development Studies Electives**

| Sr. No | Course Code | Course Title  | Credit Hours |
|--------|-------------|---|--------------|
| 1      | DST 308     | Sociology of Development                                  | 3            |
| 2      | DST 401     | Sustainable Development & Livelihood Strategies           | 3            |
| 3      | DST 402     | Social Development: Issues & Approaches                   | 3            |
| 4      | DST 403     | Civil Society & Development                               | 3            |
| 5      | DST 406     | Women Empowerment: Issues and Perspectives                | 3            |
| 6      | DST 410     | Development Project: Planning, Appraisal & Implementation | 3            |
| 7      | DST 411     | Development Project: Monitoring & Evaluation              | 3            |
| 8      | DST 404     | Global Development Experiments                            | 3            |
| 9      | DST 405     | Globalization & World Development                         | 3            |
| 10     | DST 337     | Governance, Democracy & Development in Countries in       | 3            |

|    |         |  |   |
|----|---------|--|---|
|    |         | Transition   |   |
| 11 | DST 407 | Community Development                                    | 3 |
| 12 | DST 413 | Law & Development  | 3 |
| 13 | DST 338 | Disaster Management & Assistance                         | 3 |
| 14 | DST 339 | Foundation of Social Policy                              | 3 |
| 15 | DST 344 | Religion & Development                                   | 3 |
| 16 | DST 340 | Human Rights & Development                               | 3 |
| 17 | DST 341 | Conflict and Peace                                       | 3 |
| 18 | DST 342 | Political Paradigm in Developing Countries               | 3 |
| 19 | DST 343 | Health & Development: Perspectives, Issues and Practices | 3 |
| 20 | DST 345 | Contemporary Issues in Child Protection                  | 3 |

#### **International Relations Electives**

| Sr. No | Course Code | Course Title                        | Credit Hours |
|--------|-------------|-------------------------------------|--------------|
| 1      | IRS 313     | Foreign Policy Analysis             | 3            |
| 2      | IRS 319     | Government and Politics in Pakistan | 3            |
| 3      | IRS 310     | Foreign Policies of Great Powers    | 3            |
| 4      | IRS 401     | Human Rights & Global Politics      | 3            |
| 5      | IRS 402     | Global Environmental Politics       | 3            |
| 6      | IRS 409     | Strategic Studies                   | 3            |
| 7      | IRS 410     | Conflict & Conflict Resolution      | 3            |
| 8      | IRS 417     | Arms Control & Disarmament          | 3            |

|    |         |   |   |
|----|---------|---|---|
| 9  | IRS 323 | Comparative Political Systems               | 3 |
| 10 | IRS 311 | American Foreign Policy                     | 3 |
| 11 | IRS 404 | Issues in North-South Relations             | 3 |
| 12 | IRS 408 | International Terrorism                     | 3 |
| 13 | IRS 315 | Politics of Developing Nations              | 3 |
| 14 | IRS 411 | Religion & Politics                         | 3 |
| 15 | IRS 412 | Theories of Nationalism                     | 3 |
| 16 | IRS 413 | Democratic Transitions: Issues & Challenges | 3 |
| 17 | IRS 321 | Politics of Development                     | 3 |
| 18 | IRS 322 | International Financial Institutions        | 3 |
| 19 | IRS 415 | Global Governance & Development             | 3 |

**General Courses**

| Sr. No | Course Code | Course Title                            | Credit Hours |
|--------|-------------|---|--------------|
| 1      | HSS 115     | Introduction to Media Studies           | 3            |
| 2      | HSS 111     | Introduction to International Relations | 3            |
| 3      | HSS 112     | Introduction to Political Science       | 3            |
| 4      | HSS 102     | Introduction to Philosophy              | 3            |
| 5      | HSS 107     | Introduction to Psychology              | 3            |
| 6      | HSS 110     | Introduction to Development Studies     | 3            |
| 7      | HSS 201     | Introduction to Anthropology            | 3            |
| 8      | HSS 202     | Introduction to Sociology               | 3            |
| 9      | HSS 109     | Arabic                                  | 2            |
| 10     | HSS 163     | Chinese                                 | 2            |

|    |         |                             |   |
|----|---------|-----------------------------|---|
| 11 | HSS 160 | French                      | 2 |
| 12 | HSS 164 | German                      | 2 |
| 13 | HSS 161 | Russian                     | 2 |
| 14 | HSS 162 | Spanish                     | 2 |
| 15 | HSS 214 | Turkish                     | 2 |
| 16 | HSS 330 | Physical Education & Sports | 2 |

## BS Development Studies

**Program Title:** BS Development Studies  
**Duration:** 4 Years (8 Semesters)  
**Eligibility Criteria:** Intermediate/A level/Equivalent with at Least 50% marks.

### Roadmap of BS Development Studies

#### Semester-1

| S No | Course Code | Course Title   | Credit Hours               |
|------|-------------|--|----------------------------|
| 1    | ENG 101     | Functional English   | 3                          |
| 2    | BES 204     | Applications of Information and Communication Technologies (ICT) | 3                          |
| 3    | PAK 104     | Ideology and Constitution of Pakistan                            | 2                          |
| 4    | HSS 330     | Arts & Humanities  | 2                          |
| 5    | ISL 102     | Islamic studies  | 2                          |
| 6    | TBD         | Entrepreneurship   | 2                          |
| 7    | HSS 110     | Introduction to Development Studies                              | 3                          |
| 8    | ISL 107     | Tajweed  | Compulsory 01 contact hour |

#### Semester-2

| S No | Course Code | Course Title                 | Credit Hours |
|------|-------------|------------------------------|--------------|
| 1    |             | Expository Writing           | 3            |
| 2    |             | Quantitative Reasoning-1     | 3            |
| 3    |             | Natural Science              | 3            |
| 4    |             | Social Science               | 2            |
| 5    | DST 340     | Human Rights and Development | 3            |

|   |         |                       |                            |
|---|---------|-----------------------|----------------------------|
| 6 | DST 341 | Conflict and Peace    | 3                          |
| 7 | ISL 108 | Understanding Quran-I | Compulsory 01 contact hour |

### Semester-3

| S No | Course Code | Course Title                    | Credit Hours               |
|------|-------------|---------------------------------|----------------------------|
| 1    |             | Interdisciplinary-I             | 3                          |
| 2    |             | Quantitative Reasoning-1        | 3                          |
| 3    | HSS 219     | Civics and Community Engagement | 3                          |
| 4    | BES 106     | Research Methodology            | 3                          |
| 5    | DST 307     | Development Economics           | 3                          |
| 6    |             | Interdisciplinary-II            | 3                          |
| 7    | ISL 109     | Understanding Quran-II          | Compulsory 01 contact hour |

### Semester-4

| S No | Course Code | Course Title                                     | Credit Hours               |
|------|-------------|--|----------------------------|
| 1    | DST 301     | Introduction to Microeconomics                   | 3                          |
| 2    | DST 303     | Theories of Development: Contending Perspectives | 3                          |
| 3    | HSS 402     | Qualitative Research Methods                     | 3                          |
| 4    | DST 408     | Development Communication                        | 3                          |
| 5    |             | Interdisciplinary-III                            | 3                          |
| 6    |             | Pakistan Studies                                 | 2                          |
| 7    | ISL 110     | Understanding Quran-III                          | Compulsory 01 contact hour |

### Semester-5

| S No | Course Code | Course Title   | Credit Hours               |
|------|-------------|--|----------------------------|
| 1    | DST 302     | Macroeconomics   | 3                          |
| 2    | HSS 401     | Statistical Analysis of Social Data                        | 3                          |
| 3    | DST 336     | Climate Change Politics, Policy & Practices                | 3                          |
| 4    | DST 410     | Development Projects: Planning, Appraisal & Implementation | 3                          |
| 5    |             | Interdisciplinary-IV                                       | 3                          |
| 6    | ISL 111     | Understanding Quran IV                                     | Compulsory 01 contact hour |

#### Semester-6

| S No | Course Code | Course Title                                 | Credit Hours               |
|------|-------------|--|----------------------------|
| 1    | DST 411     | Development Project: Monitoring & Evaluation | 3                          |
| 2    | DST 409     | Development Policy: Process and Institutions | 3                          |
| 3    | DST 339     | Foundation of Social Policy                  | 3                          |
| 4    | DST 338     | Disaster Management & Assistance             | 3                          |
| 5    | DST 345     | Contemporary issues in Child Protection      | 3                          |
| 6    | ISL 112     | Understanding Quran IV                       | Compulsory 01 contact hour |

#### Semester-7

| S No | Course Code | Course Title   | Credit Hours |
|------|-------------|--|--------------|
| 1    | DST 343     | Health & Development: Perspectives, Issues and Practices | 3            |
| 2    | DST 414     | Migration, Diaspora & Development                        | 3            |
| 3    |             | Major – Elective-I                                       | 3            |
| 4    |             | Major – Elective-II                                      | 3            |

|   |         |                      |                            |
|---|---------|----------------------|----------------------------|
| 5 |         | Major – Elective-III | 3                          |
| 6 | ISL 113 | Seerah – I           | Compulsory 01 contact hour |

**Semester-8**

| S No | Course Code | Course Title                                    | Credit Hours               |
|------|-------------|---|----------------------------|
| 1    | DST 310     | Poverty Alleviation: Contending Approaches      | 3                          |
| 2    | DST 401     | Sustainable Development & Livelihood Strategies | 3                          |
| 3    |             | Major – Elective-IV                             | 3                          |
| 4    |             | Major – Elective-V                              | 3                          |
| 5    |             | Capstone Project                                | 3                          |
| 6    | ISL 114     | Seerah – II                                     | Compulsory 01 contact hour |

**Semester-wise Road map for Single Major with one Minor**

**Semester-7**

| S No | Course Code | Course Title   | Credit Hours               |
|------|-------------|--|----------------------------|
| 1    | DST 343     | Health & Development: Perspectives, Issues and Practices | 3                          |
| 2    | DST 414     | Migration, Diaspora & Development                        | 3                          |
| 3    |             | Major – Elective-I                                       | 3                          |
| 4    |             | Major – Elective-II                                      | 3                          |
| 5    |             | Major – Elective-III                                     | 3                          |
| 6    |             | Minor I  | 3                          |
| 7    |             | Minor II   | 3                          |
| 8    | ISL 113     | Seerah – I   | Compulsory 01 contact hour |

**Semester-8**

| S No | Course Code | Course Title                                    | Credit Hours               |
|------|-------------|---|----------------------------|
| 1    | DST 310     | Poverty Alleviation: Contending Approaches      | 3                          |
| 2    | DST 401     | Sustainable Development & Livelihood Strategies | 3                          |
| 3    |             | Major – Elective-IV                             | 3                          |
| 4    |             | Major – Elective-V                              | 3                          |
| 5    |             | Minor III                                       | 3                          |
| 6    |             | Minor IV  | 3                          |
| 7    |             | Capstone Project                                | 3                          |
| 8    | ISL 114     | Seerah – II                                     | Compulsory 01 contact hour |

### **List of Elective Courses**

#### **Minor I: Environmental Development**

| S# | Course Code | Course Title   | Category | CH |
|----|-------------|--|----------|----|
| 1  | DST 415     | Geographic Information System and Development                  | Minor    | 3  |
| 2  | DST 416     | Natural Resource Management for National Development           | Minor    | 3  |
| 3  | DST 417     | Water Resource Management: Issues, Strategies and Perspectives | Minor    | 3  |
| 4  | DST 418     | Vulnerability, Disaster Risk Reduction and Preparedness        | Minor    | 3  |
| 5  | DST 419     | Tourism and Development  | Minor    | 3  |
| 6  | DST 420     | Climate Change, Sustainability and Development                 | Minor    | 3  |

#### **Minor II: Peace, Conflict and Development**

| S# | Course Code | Course Title                                       | Category | CH |
|----|-------------|--|----------|----|
| 1  | DST 421     | Conflict Prevention, Peacebuilding and Development | Minor    | 3  |

|   |         |  |       |   |
|---|---------|--|-------|---|
| 2 | DST 422 | Theories of Peace and Conflict               | Minor | 3 |
| 3 | DST 423 | State Security and Challenges to Development | Minor | 3 |
| 4 | DST 424 | International Institutions and Human Rights  | Minor | 3 |
| 5 | DST 425 | Power, Participation and Social Change       | Minor | 3 |
| 6 | DST 426 | Aid, Trade and Development                   | Minor | 3 |

### Minor III: Gender and Development

| S# | Course Code | Course Title                                     | Category | CH |
|----|-------------|--|----------|----|
| 1  | DST 427     | Gender, Families and Households                  | Minor    | 3  |
| 2  | DST 428     | Feminism and Feminist Issues in the Global South | Minor    | 3  |
| 3  | DST 429     | Rethinking Gender and Empowerment                | Minor    | 3  |
| 4  | DST 430     | Women, Migration and Development                 | Minor    | 3  |
| 5  | DST 431     | Gender and Globalization                         | Minor    | 3  |
| 6  | DST 432     | Gender, Health and Development                   | Minor    | 3  |

### Minor IV: International Development

| S# | Course Code | Course Title                    | Category | CH |
|----|-------------|---------------------------------|----------|----|
| 1  | IRS 303     | Global Political Economy        | Minor    | 3  |
| 2  | IRS 321     | Politics of Development         | Minor    | 3  |
| 3  | IRS 308     | International Organizations     | Minor    | 3  |
| 4  | IRS 402     | Global Environmental Politics   | Minor    | 3  |
| 5  | IRS 415     | Global Governance & Development | Minor    | 3  |
| 6  | IRS 401     | Human Rights & Global Politics  | Minor    | 3  |

### Minor V: Anthropology

| S# | Course Code | Course Title                         | Category | CH |
|----|-------------|--------------------------------------|----------|----|
| 1  | ANT 108     | Social and Cultural Change           | Minor    | 3  |
| 2  | ANT 330     | Anthropology of Media                | Minor    | 3  |
| 3  | ANT 410     | Anthropology of Science & Technology | Minor    | 3  |
| 4  | ANT 415     | Corporate Anthropology               | Minor    | 3  |
| 5  | ANT 307     | Legal Anthropology                   | Minor    | 3  |

## Bachelor of Studies in English

**Program Title:** Bachelor of Studies in English  
**Duration:** 4 years  
**Eligibility Criteria:** Intermediate/A level/Equivalent with at Least 50% marks.

### Summary of Credit Hours

#### Semester 1

| S # | Pre-Requisite with Course code | Course Code | Course Title  | Credit Hours  |
|-----|--------------------------------|-------------|---|---------------|
| 1   |                                | ENG 101     | Functional English  | 3             |
| 2   |                                |             | Pakistan Studies*   | 2             |
| 3   |                                |             | Arts & Humanities*  | 2             |
| 4   |                                |             | Applications of Information and Communication Technologies (ICT)* | 3             |
| 5   |                                |             | Civics & Community Engagement*                                    | 2             |
| 6   |                                | ENG 108     | Introduction to English Literature 1 (Drama & Poetry)             | 3             |
| 7   |                                | ENG 109     | Introduction to Linguistics                                       | 3             |
|     |                                | ISL 107     | Tajweed   | Compulsory NC |

#### Semester 2

| S# | Pre-Requisite with Course code  | Course Code | Course Title  | Credit Hours  |
|----|---------------------------------|-------------|---|---------------|
| 1  | (ENG 101)<br>Functional English |             | Expository Writing*                                     | 3             |
| 2  |                                 |             | Ideology and Constitution of Pakistan*                  | 2             |
| 3  |                                 |             | Natural Sciences*                                       | 3             |
| 4  |                                 |             | Quantitative Reasoning-1*                               | 3             |
| 5  |                                 | ENG 112     | Phonetics and Phonology                                 | 3             |
| 6  |                                 | ENG 110     | History of English Literature I (Medieval to Romantics) | 3             |
|    |                                 | ISL 108     | Understanding Quran-I                                   | Compulsory NC |

**Semester 3**

| S# | Pre-Requisite with Course code                              | Course Code | Course Title   | Credit Hours | Category   |
|----|---|-------------|--|--------------|------------|
| 1  |   |             | Interdisciplinary-I  | 3            | G          |
| 2  |   |             | Social Sciences*   | 2            | G          |
| 3  |   |             | Quantitative Reasoning -II*  | 3            | G          |
| 4  |   |             | Islamic Studies * (Religious Edu / Ethics for non-Muslim students) | 2            | G          |
| 5  |   | ENG 222     | Morphology & Syntax  | 3            | M          |
| 6  | ENG 108<br>Introduction to Literature 1<br>(Drama & Poetry) | ENG 203     | Introduction to Literature II (Novel & Prose)                      | 3            | M          |
| 7  |   | ISL 109     | Understanding Quran-II   |              | Non-Credit |

**Semester 4**

| S No | Pre-requisite Course Code   | Course Code | Course Title   | Credit Hours |
|------|---|-------------|--|--------------|
| 1    |   |             | Entrepreneurship*  | 2            |
| 2    |   |             | Interdisciplinary-II   | 3            |
| 3    |   |             | Interdisciplinary-III  | 3            |
| 4    |   |             | Interdisciplinary-IV   | 3            |
| 5    |   | ENG 210     | Semantics  | 3            |
| 6    | ENG 110<br>History of English Literature I<br>(Medieval to Romantics) | ENG 211     | History of English Literature II<br>(Romantics to Present Age) | 3            |
| 7    |   | ISL 110     | Understanding Quran-III  |              |

□ **Note: Internship of 6-9 weeks after 4th Semester.**

| S# | Course Code | Internship | Credit Hours /Non-Credit Hours |
|----|-------------|------------|--------------------------------|
| 1  | SDW 496     | Internship | Non Credit Hours               |

### Semester 5

| S# | Pre-Requisite with Course code | Course Code | Course Title                     | Category    | Credit Hours |
|----|--------------------------------|-------------|----------------------------------|-------------|--------------|
| 1  |                                | ENG 307     | Classics in Drama                | M           | 3            |
| 2  |                                | ENG 311     | Pedagogical Grammar              | M           | 3            |
| 3  |                                | ENG 306     | Literary Criticism and Theory    | M           | 3            |
| 4  |                                | ENG 303     | Classical Poetry (14-18 century) | M           | 3            |
| 5  |                                | ENG 310     | Sociolinguistics                 | M           | 3            |
| 6  |                                | ENG 312     | Discourse Analysis               | M           | 3            |
|    |                                | ISL 110     | Understanding Quran IV           | Non- Credit | 1            |

### Semester 6

| S# | Pre-Requisite with Course code | Course Code | Course Title          | Category      | Credit Hours   |
|----|--------------------------------|-------------|-----------------------|---------------|----------------|
| 1  |                                | ENG 305     | Research Methodology  | M             | 3              |
| 2  |                                | ENG 314     | Lexical Studies       | M             | 3              |
| 3  |                                | ENG 486     | Varieties of English  | M             | 3              |
| 4  |                                | ENG 304     | Novel (18-19 century) | M             | 3              |
| 5  |                                | ENG 308     | Romantic Poetry       | M             | 3              |
| 6  |                                | ISL 112     | Understanding Quran-V | Compulsory NC | 1 Contact Hour |

### Semester 7

| S. No | Pre-requisite Course Code | Course Code | Course Title                              | Credit Hours |
|-------|---------------------------|-------------|---|--------------|
| 1     |                           | ENG 405     | Stylistics                                | 3            |
| 2     |                           | ENG 401     | Contemporary Literature I (Poetry& Drama) | 3            |
| 3     |                           | ENG 413     | Pragmatics                                | 3            |
| 4     |                           |             | Elective I                                | 3            |

|   |  |         |             |   |
|---|--|---------|-------------|---|
| 5 |  |         | Elective II | 3 |
| 6 |  | ISL 113 | Seerah – I  | 0 |

### Semester 8

| S# | Pre-Requisite with Course code             | Course Code | Course Title                               | Category      | Credit Hours   |
|----|--|-------------|--|---------------|----------------|
| 1  | Contemporary Literature 1 (Poetry & Drama) | ENG 409     | Contemporary Literature II (Prose & Novel) | M             | 3              |
|    |  | ENG 313     | Psycholinguistics                          | M             | 3              |
| 3  |  |             | Elective III                               | E             | 3              |
| 4  |  |             | Elective IV                                | E             | 3              |
| 5  |  | RGS 490     | Capstone Project                           | CS            | 3              |
| 6  |  | ISL 114     | Seerah – II                                | Compulsory NC | 1 Contact Hour |

### General Education Courses

| Sr# | Course Category   | Course Title  | Credit Hours |
|-----|-------------------|---|--------------|
| 1   | Arts & Humanities | <ol style="list-style-type: none"> <li>1. French Language</li> <li>2. Russian Language</li> <li>3. Language Arabic Language</li> <li>4. German Language</li> <li>5. Chinese Language</li> <li>6. Spanish Language</li> <li>7. Turkish Language</li> <li>8. HSS 330 Physical Education and Sports</li> </ol> | 2            |
| 2   | Natural Sciences  | Introduction to Environmental Studies   | 3            |
| 3   | Social Sciences   | <ol style="list-style-type: none"> <li>1. (HSS 331) Fundamentals of International Relations</li> <li>2. (HSS 332) Fundamentals of Development Studies</li> </ol>  | 2            |

|                     |   |  |     |
|---------------------|---|--|-----|
|                     |   | 3. Introduction to Psychology  |     |
| 4                   | Functional English  | 1.Functional English 3   |     |
| 5                   | Expository Writing  | 1. (ENG 224 ) Creative Writing<br>2. ( ENG 123) Expository Writing<br>3. Advance Academic reading and Writing Skills | 3   |
| 6                   | Quantitative Reasoning  | -Mathematics - Statistics  | 6   |
| 7                   | Islamic Studies (OR) Religious Education Studies only for non-Muslim students | Islamic Studies  | 2   |
| 8                   | Ideology and Constitution of Pakistan   | 1. Ideology and Constitution of Pakistan<br>2. Pakistan Studies  | 2+2 |
| 9                   | Applications of Information and Communication Technologies (ICT)              | Introduction to Computer Applications  | 3   |
| 10                  | Entrepreneurship  | Entrepreneurship   | 2   |
| 11                  | Civics and Community Engagement   | Civics and Community Engagement  | 2   |
| <b>Total 32 CHs</b> |   |  |     |

### Interdisciplinary/Allied Requirements

| Sr# | Course Code | Course Title                       | CHs |
|-----|-------------|------------------------------------|-----|
| 1   | ANT 230     | Gender Studies                     | 03  |
| 2   | ENG 201     | OC & Presentation Skills           | 03  |
| 3   | HSS 102     | Introduction to Philosophy         | 03  |
| 4   | HSS 202     | Introduction to Sociology          | 03  |
| 5   | BES 103     | Critical Thinking                  | 03  |
| 6   | MED 115     | Introduction to Mass Communication | 03  |

|   |         |                               |    |
|---|---------|-------------------------------|----|
| 7 | HSS 115 | Introduction to Media Studies | 03 |
| 8 | HSS 201 | Introduction to Anthropology  | 03 |

**BS in English Core Courses to be offered in Major Category**

| <b>Core Courses For Majors</b> |                    |   |            |
|--------------------------------|--------------------|---|------------|
| <b>S#</b>                      | <b>Course Code</b> | <b>Course Title</b>   | <b>CHs</b> |
| 1                              | ENG 108            | Introduction to English Literature-I (Drama & Poetry)       | 3          |
| 2                              | ENG 109            | Introduction to Linguistics                                 | 3          |
| 3                              | ENG 110            | History of English Literature I (Medieval to Romantics)     | 3          |
| 4                              | ENG 112            | Phonetics and Phonology                                     | 3          |
| 5                              | ENG 222            | Morphology and Syntax                                       | 3          |
| 6                              | ENG 203            | Introduction to Literature II (Novel & Prose)               | 3          |
| 7                              | ENG 210            | Semantics   | 3          |
| 8                              | ENG 211            | History of English Literature II (Romantics to Present Age) | 3          |
| 9                              | ENG 303            | Classical Poetry (14-18 century)                            | 3          |
| 10                             | ENG 304            | Novel (18-19 Century)                                       | 3          |
| 11                             | ENG 305            | Research Methodology  | 3          |
| 12                             | ENG 306            | Literary criticism & Theory                                 | 3          |
| 13                             | ENG 307            | Classics in drama   | 3          |
| 14                             | ENG 308            | Romantic Poetry   | 3          |
| 15                             | ENG 486            | Varieties of English  | 3          |
| 16                             | ENG 310            | Sociolinguistics  | 3          |
| 17                             | ENG 311            | Pedagogical Grammar   | 3          |
| 18                             | ENG 312            | Discourse Analysis  | 3          |
| 19                             | ENG 313            | Psycholinguistics   | 3          |
| 20                             | ENG 314            | Lexical Studies   | 3          |
| 21                             | ENG 405            | Stylistics  | 3          |
| 22                             | ENG 401            | Contemporary Literature I                                   | 3          |
| 23                             | ENG 413            | Pragmatics  | 3          |
| 24                             | ENG 409            | Contemporary Literature II                                  | 3          |

## Courses to be Offered in Major Elective Category

### Electives for Major (Literature)

| Sr.#                                 | COURSECODE | COURSE TITLE                              | CHs |
|--------------------------------------|------------|---|-----|
| 1                                    | ENG 410    | Post-Colonial Literature                  | 3   |
| 2                                    | ENG 411    | Literary Discourse & Journalistic Writing | 3   |
| 3                                    | ENG 451    | African Literature                        | 3   |
| 4                                    | ENG 452    | Continental Literature                    | 3   |
| 5                                    | ENG 453    | Fantasy                                   | 3   |
| 6                                    | ENG 454    | Islam and Western Literature              | 3   |
| 7                                    | ENG 455    | Journalist Discourse                      | 3   |
| 8                                    | ENG 456    | Literary Essays                           | 3   |
| 9                                    | ENG 457    | Literature of War and Conflict            | 3   |
| 10                                   | ENG 458    | Literature, Culture and Media             | 3   |
| 11                                   | ENG 459    | Modern Drama and Novel                    | 3   |
| 12                                   | ENG 460    | Modern Poetry                             | 3   |
| 13                                   | ENG 461    | Pakistani Literature in English I         | 3   |
| 14                                   | ENG 462    | Pakistani Literature in English II        | 3   |
| 15                                   | ENG 463    | Popular Fiction                           | 3   |
| 16                                   | ENG 464    | Russian Literature                        | 3   |
| 17                                   | ENG 465    | Shakespeare Studies                       | 3   |
| 18                                   | ENG 515    | Western Literature                        | 3   |
| 19                                   | ENG 516    | World Literature                          | 3   |
| 20                                   | ENG 517    | Feminist Literature                       | 3   |
| 21                                   | ENG 518    | Comparative Studies                       | 3   |
| 22                                   | ENG 403    | American / Canadian Literature            | 3   |
| 23                                   | ENG 402    | South Asian Literature                    | 3   |
| Electives for Major<br>(Linguistics) |            |   |     |
| 1                                    | ENG 406    | Language Learning Theories                | 3   |
| 2                                    | ENG 407    | Syllabus Designing and Testing            | 3   |
| 3                                    | ENG 408    | TEFEL-I                                   | 3   |
| 4                                    | ENG 412    | TEFEL-II                                  | 3   |
| 5                                    | ENG 471    | Computational Linguistics                 | 3   |
| 6                                    | ENG 472    | Corpus Linguistics                        | 3   |
| 7                                    | ENG 473    | Critical Pedagogy                         | 3   |
| 8                                    | ENG 474    | Educational Technology                    | 3   |

|    |         |                                     |   |
|----|---------|-------------------------------------|---|
| 9  | ENG 475 | Forensic Linguistics                | 3 |
| 10 | ENG 476 | History of Modern Linguistics       | 3 |
| 11 | ENG 477 | Language and Education              | 3 |
| 12 | ENG 478 | Language and Gender                 | 3 |
| 13 | ENG 479 | Language Testing                    | 3 |
| 14 | ENG 480 | Linguistic Survey of Pakistan       | 3 |
| 15 | ENG 481 | Linguistics and Law                 | 3 |
| 16 | ENG 482 | Linguistics and Translation         | 3 |
| 17 | ENG 483 | Second Language Acquisition         | 3 |
| 18 | ENG 484 | Technology in Language Teaching     | 3 |
| 19 | ENG 485 | Testing and Evaluation              | 3 |
| 20 | ENG 520 | English for Specific Purposes       | 3 |
| 21 | ENG 521 | Translational Studies               | 3 |
| 22 | ENG 522 | English Language Teaching           | 3 |
| 23 | ENG 523 | Media Discourse Analysis            | 3 |
| 24 | ENG 414 | Introduction to Applied Linguistics | 3 |

## BS (International Relations)

**Program Title:** Bachelor of Science in International Relations  
**Duration:** 4 years (08 Semester)  
**Eligibility Criteria:** Intermediate/A level/Equivalent with at Least 50% marks

### Semester-wise Road map

#### Semester 1

| S No | Course Code | Course Title                            | Credit Hours               |
|------|-------------|---|----------------------------|
| 1    | ENG 101     | <b>Functional English</b>               | 3                          |
| 2    | BES 204     | Introduction to Computer Applications   | 3                          |
| 3    |             | Interdisciplinary- I                    | 3                          |
| 4    |             | Quantitative Reasoning                  | 3                          |
| 5    |             | Natural Sciences*                       | 3                          |
| 6    | IRS 101     | Introduction to International Relations | 3                          |
| 7    | ISL 107     | Tajweed                                 | Compulsory 01 contact hour |

#### Semester-2

| S No | Course Code | Course Title                             | Credit Hours               |
|------|-------------|--|----------------------------|
| 1    | IRS 330     | Geo-Political Structure of the World     | 3                          |
| 2    | MAT 105     | Expository Writing*                      | 3                          |
| 3    | IRS 442     | International Relations: 1648–1945       | 3                          |
| 4    |             | Quantitative Reasoning- II               | 3                          |
| 5    | PAK 105     | Pakistan Studies                         | 2                          |
| 6    | IRS 360     | Regional and International Organizations | 3                          |
| 7    | ISL 108     | Understanding Quran-I                    | Compulsory 01 contact hour |

#### Semester-3

| S No | Course Code | Course Title   | Credit Hours               |
|------|-------------|--|----------------------------|
| 1    |             | Arts & Humanities*   | 2                          |
| 2    | IRS 301     | Theories of International Relations                                | 3                          |
| 3    | IRS 307     | International Relations Since 1945                                 | 3                          |
| 4    | IRS 309     | International Law  | 3                          |
| 5    |             | Islamic Studies * (Religious Edu / Ethics for non-Muslim students) | 2                          |
| 6    |             | Ideology & Constitution of Pakistan                                | 2                          |
| 7    | ISL 109     | Understanding Quran-II   | Compulsory 01 contact hour |

#### Semester-4

| S No | Course Code | Course Title                              | Credit Hours               |
|------|-------------|---|----------------------------|
| 1    | IRS 361     | Globalization and International Relations | 3                          |
| 2    | IRS 302     | Foreign Policy of Pakistan                | 3                          |
| 3    | IRS 313     | Foreign Policy Analysis                   | 3                          |
| 4    | IRS 313     | Social Sciences*                          | 2                          |
| 5    | ANT 230     | Civics & Community Engagement *           | 2                          |
| 6    | MGT         | Entrepreneurship                          | 2                          |
| 7    | ISL 110     | Understanding Quran-III                   | Compulsory 01 contact hour |

Note: Internship of 6-9 weeks after 4th Semester

#### Semester-5

| S No | Course Code | Course Title                  | Credit Hours |
|------|-------------|-------------------------------|--------------|
| 1    | IRS 314     | Diplomacy                     | 3            |
| 2    | IIRS 303    | Global Political Economy      | 3            |
| 3    | IRS 402     | Global Environmental Politics | 3            |

|   |                    |  |                            |
|---|--------------------|--|----------------------------|
| 4   |                    | Interdisciplinary- II                  | 3                          |
| 5   | IRS 410            | Conflict & Conflict Resolution         | 3                          |
|   |                    | Interdisciplinary III                  | 3                          |
| 6   | ISL 111            | Understanding Quran IV                 | Compulsory 01 contact hour |
| <b>Semester-6</b>   |                    |  |                            |
| <b>S No</b>   | <b>Course Code</b> | <b>Course Title</b>                    | <b>Credit Hours</b>        |
| 1   | IRS 310            | Foreign Policies of Great Powers       | 3                          |
| 2   | IRS 409            | Strategic Studies                      | 3                          |
| 3   |                    | Elective 1                             | 3                          |
| 4   |                    | Elective 2                             | 3                          |
| 5   | IRS 363            | Academic Writing & Research Methods*   | 3                          |
| 6   | ISL 112            | Understanding Quran IV                 | Compulsory 01 contact hour |
| <b>Semester-7</b>   |                    |  |                            |
| <b>S No</b>   | <b>Course Code</b> | <b>Course Title</b>                    | <b>Credit Hours</b>        |
| 1   | IRS 476            | Regional Connectivity                  | 3                          |
| 2   | IRS 420            | Nuclear Security and Non-proliferation | 3                          |
| 3   |                    | Elective-III                           | 3                          |
| 4   |                    | Major – Elective-IV                    | 3                          |
| 5   |                    | Interdisciplinary IV                   | 3                          |
| 6   | ISL 113            | Seerah -I                              | Compulsory 01 contact hour |
| <b>Semester-8</b>   |                    |  |                            |
| <b>S No</b>   | <b>Course Code</b> | <b>Course Title</b>                    | <b>Credit Hours</b>        |
| 1   | IRS417             | Arms Control and Disarmament           | 3                          |
| 2   |                    | Elective- V                            | 3                          |
| 3   |                    | Elective-VI                            | 3                          |
| 4   |                    | Elective-VII                           | 3                          |
| 5   |                    | Capstone Project                       | 3                          |
| 6   | ISL 114            | Seerah – II                            | Compulsory 01 contact hour |
| <b>Semester-wise Road map for Single Major with one Minor</b> |                    |  |                            |
| <b>Semester-7</b>   |                    |  |                            |
| <b>S No</b>   | <b>Course Code</b> | <b>Course Title</b>                    | <b>Credit Hours</b>        |
| 1   | IRS 412            | Theories of Nationalism                | 3                          |
| 2   | IRS 310            | Foreign Policies of Great Powers       | 3                          |
| 3   |                    | Major – Elective-I                     | 3                          |
| 4   |                    | Major – Elective-II                    | 3                          |
| 5   |                    | Major – Elective-III                   | 3                          |
| 6   |                    | Minor I                                | 3                          |
| 7   |                    | Minor II                               | 3                          |
| 8   | ISL 113            | Seerah – I                             | Compulsory 01 contact hour |
| <b>Semester-8</b>   |                    |  |                            |
| <b>S No</b>   | <b>Course Code</b> | <b>Course Title</b>                    | <b>Credit Hours</b>        |
| 1   | IRS 401            | Human Rights & Global Politics         | 3                          |
| 2   | IRS 417            | Arms Control and Disarmament           | 3                          |
| 3   |                    | Major – Elective-IV                    | 3                          |
| 4   |                    | Major – Elective-V                     | 3                          |
| 5   |                    | Minor III                              | 3                          |
| 6   |                    | Minor IV                               | 3                          |
| 7   |                    | Capstone Project                       | 3                          |
| 8   | ISL 114            | Seerah – II                            | Compulsory 01 contact hour |
| <b>List of Elective Courses</b>                               |                    |  |                            |
| <b>Sr. No</b>   | <b>Course Code</b> | <b>Course Title</b>                    | <b>Credit Hours</b>        |

|   |                    |   |                 |
|---|--------------------|---|-----------------|
| 1                                       | IRS 405            | International Politics of South Asia                                    | 3               |
| 2                                       | IRS 325            | State & Society of South Asia   | 3               |
| 3                                       | IRS 406            | International Politics of Central Asia                                  | 3               |
| 4                                       | IRS 320            | Government & Politics in Central Asia                                   | 3               |
| 5                                       | IRS 407            | International Politics of Southeast Asia                                | 3               |
| 6                                       | IRS 326            | American Government & Politics  | 3               |
| 7                                       | IRS315             | Politics of Developing Nations  | 3               |
| 8                                       | IRS 525            | Role of International Financial Institutions in International Relations | 3               |
| 9                                       | IRS 527            | Politics & Security of Asia-Pacific Region                              | 3               |
| 10                                      | IRS 529            | Contemporary Environmental Issues                                       | 3               |
| 11                                      | IRS 530            | Major Issues of Muslim World  | 3               |
| 12                                      | IRS 532            | Peace Building in Post-Conflict Societies                               | 3               |
| 13                                      | IRS 537            | Contemporary Political Theories   | 3               |
| 14                                      | IRS 543            | Power Politics and Beyond: Emerging Paradigms                           | 3               |
| 15                                      | IRS 503            | Seminar on Contemporary Regional & Global Issues                        | 3               |
| 16                                      | IRS 504            | Traditional & Non-Traditional Security Paradigms                        | 3               |
| 17                                      | IRS 515            | Role of IMF, World Bank, & WTO)   | 3               |
| 18                                      | IRS 502            | Advanced Research Methodology   | 3               |
| 19                                      | IRS 517            | Evolution & Development of International Political Philosophy           | 3               |
| 20                                      | IRS 519            | Ethnic Conflict in Global Perspective                                   | 3               |
| 21                                      | IRS 527            | Politics & Security of Asia-Pacific Region                              | 3               |
| 22                                      | IRS 529            | Contemporary Environmental Issues                                       | 3               |
| 23                                      | IRS 530            | Major Issues of Muslim World  | 3               |
| 24                                      | IRS 415            | Global Governance and Development                                       | 3               |
| 25                                      | IRS 402            | Global Environmental Politics   | 3               |
| 26                                      | IRS 795            | Emerging Technologies in IR   | 3               |
| <b>MINOR 1: Maritime</b>                |                    |   |                 |
| <b>S#</b>                               | <b>Course Code</b> | <b>Course Title</b>   | <b>Category</b> |
| 1                                       | MTM 673            | Blue Economy of Pakistan  | Minor Course    |
| 2                                       | MTM 674            | Geo-politics & Maritime Security in Indian Ocean                        | Minor Course    |
| 3                                       | IRS 423            | Issues of Maritime Security for Pakistan                                | Minor Course    |
| 4                                       | IRS 424            | Politics of Sea   | Minor Course    |
| <b>MINOR 2: Political Ecology</b>       |                    |   |                 |
| <b>S#</b>                               | <b>Course Code</b> | <b>Course Title</b>   | <b>Category</b> |
| 1                                       | IRS 425            | Political Ecology of Development  | Minor Course    |
| 2                                       | IRS 426            | Climate Change and Human Security                                       | Minor Course    |
| 3                                       | IRS 427            | Global Environmental Governance   | Minor Course    |
| 4                                       | IRS 428            | Biodiversity & Sustainable Development                                  | Minor Course    |
| 5                                       | IRS 429            | Agrarian Development, Food Policy & Rural Poverty                       | Minor Course    |
| <b>MINOR 3: Artificial Intelligence</b> |                    |   |                 |
| <b>S#</b>                               | <b>Course Code</b> | <b>Course Title</b>   | <b>Category</b> |
| 1                                       | IRS 430            | Artificial Intelligence & International Affairs                         | Minor Course    |
| 2                                       | IRS 431            | Artificial Intelligence & the Future of Warfare                         | Minor Course    |
| 3                                       | IRS 432            | The Economics of AI   | Minor Course    |
| 4                                       | IRS 433            | Artificial Intelligence & Human Security                                | Minor Course    |
| 5                                       | IRS 434            | Digital Diplomacy   | Minor Course    |
| <b>MINOR 4: Anthropology</b>            |                    |   |                 |
| <b>S#</b>                               | <b>Course Code</b> | <b>Course Title</b>   | <b>Category</b> |
| 1                                       | ANT 448            | Ethnicity, Nationality, and Morality                                    | Minor Course    |
| 2                                       | ANT 325            | Anthropology of Peace and Conflict                                      | Minor Course    |
| 3                                       | ANT 328            | Anthropology of Art   | Minor Course    |
| 4                                       | ANT 314            | Disasters & Displacement  | Minor Course    |
| 5                                       | ANT 403            | Political Anthropology  | Minor Course    |

## BS Public Health

**Program Title:** BS Public Health

**Duration:** 4 Years (8 Semesters)

**Eligibility Criteria:** Any student with 12 years of education with more than 50 % marks is eligible for the admission in BS Public Health Program

### Semester-wise Road map

#### Semester 1

| Sr. No. | Course Code | Course Title  | Credit Hours   |
|---------|-------------|---|----------------|
| 1       | ENG 101     | Functional English  | 3              |
| 2       |             | Applications of Information and Communication Technologies (ICT)* | 3              |
| 3       |             | Pakistan Studies*   | 2              |
| 4       |             | Natural Sciences*   | 3              |
| 5       |             | Islamic studies ((Religious Edu / Ethics for non-Muslim students) | 2              |
| 6       | PHY 118     | Personal hygiene  | 3              |
| 7       | ISL107      | Tajweed   | 1 Contact hour |

#### Semester 2

| Sr. No. | Course Code | Course Title                           | Credit Hours   |
|---------|-------------|--|----------------|
| 1       |             | Expository Writing*                    | 3              |
| 2       | HSS 219     | Civics and Community Engagement*       | 2              |
| 3       |             | Quantitative reasoning-I*              | 3              |
| 4       |             | Arts and Humanities*                   | 2              |
| 5       | SHD 111     | Interdisciplinary I                    | 3              |
| 6       | CHD 219     | Concept of Health and disease          | 3              |
| 7       |             | Ideology and constitution of Pakistan* | 2              |
|         | ISL 108     | Understanding Quran-I                  | 1 Contact Hour |

#### Semester 3

| Sr. No. | Course Code | Course Title               | Credit Hours |
|---------|-------------|----------------------------|--------------|
| 1       |             | Social sciences*           | 2            |
| 2       |             | Quantitative Reasoning-II* | 3            |

|   |         |  |                |
|---|---------|--|----------------|
| 3 | PAS 222 | Health promotion, advocacy & Social Mobilization | 3              |
| 4 | PHC 215 | Primary Health Care                              | 3              |
| 5 |         | Interdisciplinary II                             | 3              |
| 6 |         | Interdisciplinary III                            | 3              |
| 7 | ISL 109 | Understanding Quran-II                           | 1 Contact hour |

#### **Semester 4**

| Sr. No. | Course Code | Course Title                                  | Credit Hours   |
|---------|-------------|---|----------------|
| 1       | BEP 220     | Basic Epidemiology                            | 3              |
| 2       | BST 108     | Basic Biostatistics                           | 3              |
| 3       | FIN 328     | Fundamentals Principles of Infectious Disease | 3              |
| 4       |             | Interdisciplinary-IV                          | 3              |
| 5       | MGT 363     | Entrepreneurship*                             | 2              |
| 6       |             | Elective I*                                   | 3              |
| 7       | ISL 110     | Understanding Quran-III                       | 1 Contact hour |

\* 12 courses of General Education for 32 Credit Hours are completed in first 4 semesters.

\*\* Students are Eligible for a **3 Credit Hours internship of 6 – 8 weeks** after 4<sup>th</sup> semester. After successful completion of 4 semesters of course work.

| Sr. no. | Course code | Internship | CH |
|---------|-------------|------------|----|
| 1.      | SDW 496     | Internship | 3  |

#### **Semester 5**

| Sr. No. | Course Code | Course Title                          | Credit Hours   |
|---------|-------------|---------------------------------------|----------------|
| 1       | CNT 323     | Community Nutrition                   | 3              |
| 2       | CDE 329     | Communicable Disease Epidemiology     | 3              |
| 3       | NCE 330     | Non-Communicable Disease Epidemiology | 3              |
| 4       | EOH 326     | Environmental and Occupational Health | 3              |
| 5       |             | Elective II*                          | 3              |
|         | ISL 111     | Understanding Quran IV                | 1 Contact hour |

**Semester 6**

| Sr. No. | Course Code | Course Title          | Credit Hours   |
|---------|-------------|-----------------------|----------------|
| 1       | CPD 324     | Community Pediatrics  | 3              |
| 2       | MIB 436     | Microbiology          | 3              |
| 3       | HLP 332     | Health planning       | 3              |
| 4       | REM 435     | Research Methodology  | 3              |
| 5       |             | Elective III*         | 3              |
|         | ISL 112     | Understanding Quran-V | 1 Contact Hour |

**Semester 7**

| Sr. No. | Course Code | Course Title                 | Credit Hours   |
|---------|-------------|------------------------------|----------------|
| 1       | RPH 325     | Reproductive health          | 3              |
| 2       | HMT 443     | Health Marketing             | 3              |
| 3       | ETL 437     | Entomology                   | 3              |
| 4       | DHM 333     | District Health Management   | 3              |
| 5       | HPM 331     | Health policy and management | 3              |
| 6       | ISL 113     | Seerah – I                   | 1 Contact hour |

**Semester 8**

| Sr. No. | Course Code | Course Title                     | Credit Hours   |
|---------|-------------|----------------------------------|----------------|
| 1       | HPM 445     | Health Project Management        | 3              |
| 2       | QMH 447     | Quality Management in Healthcare | 3              |
| 3       | MHL 427     | Mental Health                    | 3              |
| 4       |             | Research Project                 | 3              |
| 5       |             | Elective IV*                     | 3              |
| 6       | ISL 114     | Seerah II                        | 1 Contact hour |

**List of Elective Courses**

| Sr. No. | Course Code | Course Title                 | Credit Hours |
|---------|-------------|------------------------------|--------------|
| 1       | DSM 443     | Disaster Management          | 3            |
| 2       | HIS 444     | Health Information System    | 3            |
| 3       | ASH 446     | Adolescent and Sexual Health | 3            |
| 4       | SIH 448     | School Health                | 3            |
| 5       | INH 449     | International Health         | 3            |

|    |         |  |   |
|----|---------|--|---|
| 6  | HEC 450 | Health Economics                       | 3 |
| 7  | HEP 451 | Health Financing                       | 3 |
| 8  | APH 452 | Art and Public Health                  | 3 |
| 9  | COD 453 | Community Dentistry                    | 3 |
| 10 | FOS 456 | Food Safety                            | 3 |
| 11 | ASR 457 | Addiction and Social Rehabilitation    | 3 |
| 12 | NUM 458 | Nuclear Medicine                       | 3 |
| 13 | SPM 459 | Sports Medicine                        | 3 |
| 14 | RIM 460 | Risk Management                        | 3 |
| 15 | GER 461 | Geriatrics                             | 3 |
| 16 | HIM 462 | Health Inventory Management            | 3 |
| 17 | PRH 463 | Prison Health                          | 3 |
| 18 | CON 455 | Community Nursing                      | 3 |
| 19 | COP 454 | Community Psychiatry                   | 3 |
| 20 |         | Sustainable healthcare                 | 3 |
| 21 |         | Fundamentals of Anatomy and Physiology | 3 |
| 22 |         | Digital health                         | 3 |

## MS – Applied Anthropology

**Program Title:** MS Applied Anthropology

**Duration:** 2 Years ( 4 Semesters)

**Eligibility Criteria:** Candidates with 16 years of education in Social/Natural Sciences and related disciplines having CGPA of 2.0/4.0 in the semester system, or 50% marks in the annual system. Candidate must pass the entry test of Bahria University or GAT general.

### Roadmap of MS Applied Anthropology

#### 1<sup>st</sup> Semester- MS

| S No | Course Title   | Course Code | Credit Hours |
|------|--|-------------|--------------|
| 1    | Applied Anthropology in Community Development: Contending Perspectives | APA 701     | 3            |
| 2    | Classical Anthropological Theory: Issues and Debates                   | APA 702     | 3            |
| 3    | Elective-I   |             | 3            |
| 4    | Elective-II  |             | 3            |

#### 2<sup>nd</sup> Semester- MS

| S No | Course Title  | Course Code | Credit Hours |
|------|---|-------------|--------------|
| 1    | Advanced Research Methods in Anthropology                   | APA 703     | 3            |
| 2    | Contemporary Anthropological Theories: Debates and Critique | APA 704     | 3            |
| 3    | Elective-III  |             | 3            |
| 4    | Elective-IV   |             | 3            |

#### 3<sup>rd</sup> & 4<sup>th</sup> Semester- MS

| Semester | Name of the Subject | Course Code | Credits Hours |
|----------|---------------------|-------------|---------------|
|          |                     |             |               |

|                  |        |         |     |
|------------------|--------|---------|-----|
| Third and Fourth | Thesis | THS 700 | 3+3 |
|------------------|--------|---------|-----|

## DETAILS OF CORE AND OPTIONAL COURSES

### CORE COURSES

| NO | Course Name                                   | Course Code | Credit hours |
|----|---|-------------|--------------|
| 1  | Applied Anthropology in Community Development | APA 501     | 3            |
| 2  | History of Anthropological Thought            | APA 502     | 3            |
| 3  | Research Methods in Anthropology              | APA 503     | 3            |
| 4  | Contemporary Anthropological Theories         | APA 504     | 3            |

### OPTIONAL COURSES

| NO | Course Name   | Course Code | Credit hours |
|----|---|-------------|--------------|
| 1  | Technology and Cultural Growth: Contemporary Debates        | APA 705     | 3            |
| 2  | Applied Medical Anthropology                                | APA 706     | 3            |
| 3  | Digital Anthropology and Artificial Intelligence            | APA 707     | 3            |
| 4  | International Development: Socio-Cultural Perspectives      | APA 708     | 3            |
| 5  | Anthropology and Human Rights: Global Debates               | APA 709     | 3            |
| 6  | Anthropological Studies of Women: Emerging Discourses       | APA 710     | 3            |
| 7  | Philosophy of Social Sciences: From Classical to Modern Era | APA 711     | 3            |
| 8  | Environmental Anthropology: Key Issues and Debates          | APA 712     | 3            |
| 9  | Anthropology Myth and Folklore                              | APA 713     | 3            |
| 10 | Anthropological Perspective on Women and Development        | APA 714     | 3            |
| 11 | Anthropology of Religion: Beliefs, Rituals and Pluralism    | APA 715     | 3            |

|    |   |         |   |
|----|---|---------|---|
| 12 | <a href="#">Anthropology</a> of Media: From Classical to Digital Era              | APA 716 | 3 |
| 13 | Women's Rights & Politics in Islamic Society: Social and Political Perspectives   | APA 717 | 3 |
| 14 | Anthropology of Tourism, Heritage and Development                                 | APA 718 | 3 |
| 15 | Anthropology of Disaster, Displacement and Risk Management                        | APA 719 | 3 |
| 16 | Migration and Diaspora: Global Insights   | APA 520 | 3 |
| 17 | Human Resource Management: An Anthropological Approach                            | APA 721 | 3 |
| 18 | Business Anthropology: Modern Trends  | APA 722 | 3 |
| 19 | Development Communication: Current Perspectives                                   | APA 723 | 3 |
| 20 | Anthropology of Globalization and Trans culturalism: Issues, Debates and Critique | APA 724 | 3 |

## MS IN GOVERNMENT & PUBLIC POLICY

**Program Title:** Government & Public Policy

**Duration:** 2 Years ( 4 Semesters)

**Eligibility Criteria:** 16 Years of education from HEC recognized university in the relevant discipline with a Minimum CGPA 2.0/4.0 or 50% marks where CGPA is not given.

### Semester 1

| Course Code | Course Title  | Credit Hours |
|-------------|---|--------------|
| GPP 700     | Analyzing Public Policy: Concepts , Challenges, and Impacts | 3            |
| GPP 701     | Dynamics of Public Policy & Institutions                    | 3            |
|             | Elective-1  | 3            |
|             | Elective-2  | 3            |

### Semester 2

| Course Code | Course Title  | Credit Hours |
|-------------|---|--------------|
| GPP 702     | Advanced Political Economy of Public Policy         | 3            |
| GPP 703     | Understanding Advance Research Methods & Techniques | 3            |
|             | Elective-3  | 3            |
|             | Elective-4  | 3            |

Total course work credit hours: 24

### Semester 3 & 4 – Second Year

| Course Code | Course Title | Credit Hours |
|-------------|--------------|--------------|
| THS 700     | Thesis       | 3+3          |

Total research work credit hours: 06

Total Degree Credit Hours: 24 (Course work) + 06 (Research work) = 30 Credit Hours

**DEFICIENCY COURSES**

| Course Codes | Course Name  | Credit Hours |
|--------------|--|--------------|
| BES 106      | Research Methodology   | 3            |
| HSS 110      | Introduction to Development Studies                            | 3            |
| DST 337      | Governance, Democracy & Development in Countries in Transition | 3            |

**ELECTIVE COURSES**

| Course Codes | Course Name   | Credit Hours |
|--------------|---|--------------|
| GPP 705      | Understanding Social Policy                                   | 3            |
| GPP 706      | Advanced Urban Development                                    | 3            |
| GPP 707      | Advanced Health Policy  | 3            |
| GPP 708      | Advanced Evidence in Public Policy                            | 3            |
| GPP 709      | Advanced Global and Local Governance                          | 3            |
| GPP 710      | Contemporary Migration Governance in Times of Crisis          | 3            |
| GPP 711      | Advanced Public Policy for Agrarian Markets                   | 3            |
| GPP 712      | Advanced Data and Development                                 | 3            |
| GPP 713      | Advanced Qualitative Methods for Public Policy                | 3            |
| GPP 714      | Governance, Legal Frameworks and Public Policy                | 3            |
| GPP 715      | Contemporary Public Policy of gender-sensitive governance     | 3            |
| GPP 516      | Lectures and Public Policy: Dynamics, Challenges, and Impacts | 3            |
| GPP 717      | Understanding Media and Public Policy governance              | 3            |

## MS in International Relations

**Program Title:** MS International Relations

**Duration:** 2 Years (4 Semesters)

**Eligibility Criteria:** 16 Years of education in International relations, Anthropology, Sociology, Development studies, Political Science, Gender studies, Behavioral Science, Pakistan studies or in relevant field. Minimum CGPA of 2.0 in the semester system, or 50% marks in the annual system. Candidate must pass the entry test of Bahria University or GAT general conducted by the NTS with minimum 50% cumulative score.

### Semester-wise Road map

#### 1<sup>st</sup> Semester

| Sr No | Course Code | Course Title  | Credit Hours |
|-------|-------------|---|--------------|
| 1.    | IRS 781     | Advanced Methods in Research Methodology                          | 3            |
| 2.    | IRS 766     | Foreign Policy analysis: Theoretical Foundations and Applications | 3            |
| 3.    | IRS 752     | Advanced Theory and Practice in International Relations           | 3            |
| 4.    | IRS 751     | Conventional and Unconventional Security Paradigms                | 3            |

#### 2<sup>nd</sup> Semester

| Sr No | Course Code | Course Title | Credit Hours |
|-------|-------------|--------------|--------------|
| 1.    |             | Elective II  | 3            |
| 2.    |             | Elective III | 3            |
| 3.    |             | Elective IV  | 3            |
| 4.    |             | Elective V   | 3            |

#### 3rd Semester

| Sr No | Course Code | Course Title | Credit Hours |
|-------|-------------|--------------|--------------|
| 1.    |             | THS 700      | Thesis       |

#### 4th Semester

| Sr No | Course Code | Course Title | Credit Hours |
|-------|-------------|--------------|--------------|
| 1.    |             | THS 700      | Thesis       |

### List of Elective Courses

| Sr No | Course Code | Course Title | Credit Hours |
|-------|-------------|--------------|--------------|
|-------|-------------|--------------|--------------|

|     |         |   |   |
|-----|---------|---|---|
| 1.  | IRS 753 | Seminar on Contemporary World Affairs   | 3 |
| 2.  | IRS 754 | Global Perspectives on Ethnic Conflict  | 3 |
| 3.  | IRS 755 | Power Politics and Beyond: emerging Paradigm                                  | 3 |
| 4.  | IRS 756 | Gulf War and its Enduring Significance  | 3 |
| 5.  | IRS 757 | Future Trends in International Relations                                      | 3 |
| 6.  | IRS 758 | SAPs: The Triad of IMF, World Bank and WTO)                                   | 3 |
| 7.  | IRS 759 | Non-State Actors in Contemporary International Relations                      | 3 |
| 8.  | IRS 760 | From Classical to Modern: The Evolution of International Political Philosophy | 3 |
| 9.  | IRS 761 | Contemporary Politics of South Asia   | 3 |
| 10. | IRS 762 | Contemporary Politics of Middle East  | 3 |
| 11. | IRS 763 | International Law & Use of Force in Contemporary World                        | 3 |
| 12. | IRS 764 | Trends and Challenges in Modern International Law                             | 3 |
| 13. | IRS 765 | Understanding Foreign Policy: Comparative Analysis of Major Powers            | 3 |
| 14. | IRS 766 | Foreign Policy Analysis: Theoretical Foundations and Applications             | 3 |
| 15. | IRS 767 | The Influence of International Financial Institutions on World Politics       | 3 |
| 16. | IRS 768 | Pakistan's Foreign Policy Analysis  | 3 |
| 17. | IRS 769 | Understanding Politics and Security of Asia- Pacific Region                   | 3 |
| 18. | IRS 770 | Contemporary Challenges to National Security in Pakistan                      | 3 |
| 19. | IRS 771 | Environmental Concerns in the Modern World                                    | 3 |
| 20. | IRS 772 | Contemporary Challenges in the Muslim World                                   | 3 |
| 21. | IRS 773 | South Asian Geopolitics: Dynamics of Conflict and Cooperation                 | 3 |
| 22. | IRS 774 | Post- Conflict Peace Building: Strategies and Challenges                      | 3 |
| 23. | IRS 775 | Global Institutions and International Cooperation                             | 3 |
| 24. | IRS 776 | Understanding Power Sharing in Multi-ethnic Societies                         | 3 |
| 25. | IRS 777 | Advanced Course on Arms Control and International Society                     | 3 |
| 26. | IRS 778 | Contemporary Trends in Politics of Human Rights                               | 3 |
| 27. | IRS 779 | Key Trends in Modern Political Theory   | 3 |
| 28. | IRS 780 | Dynamics of Central Asia in World Politics                                    | 3 |

## Master Studies in English (Linguistics)

**Program Title:** MS (English Linguistics)  
**Duration:** 2 Years ( 4 Semesters)

**Eligibility Criteria:** Sixteen years of schooling or 4 year education (minimum 120 credit hours) after HSSC/F.A./F.Sc/Grade 12 or equivalent shall be required for admission in the MS (Linguistics) program. Deficiency courses will be offered for students from other disciplines.

### ROADMAP

#### 1<sup>st</sup> Semester

| Course Codes | Course Title                                     | CH | SGDS |
|--------------|--|----|------|
| ENG 702      | Advanced Research Methods in Applied Linguistics | 3  | 4    |
| ENG 703      | Linguistic Theories and the Study of Language    | 3  | 4    |
| -            | Elective-I                                       | 3  | 4    |
| -            | Elective-II                                      | 3  | 4    |

#### 2<sup>nd</sup> Semester

| Course Codes | Course Title                         | CH | SGDS |
|--------------|--------------------------------------|----|------|
| ENG 704      | Critical Discourse Analysis          | 3  | 4    |
| ENG 705      | Emerging Perspectives in Linguistics | 3  | 4    |
| -            | Elective-III                         | 3  | 4    |
| -            | Elective-IV                          | 3  | 4    |

#### 3<sup>rd</sup> Semester

| Codes   | Courses | CH | SGDS |
|---------|---------|----|------|
| THS 800 | Thesis  | 3  | 4    |

#### 4<sup>th</sup> Semester

| Codes   | Courses | CH | SGDS |
|---------|---------|----|------|
| THS 800 | Thesis  | 3  | 4    |

#### LIST OF ELECTIVE COURSES FOR MS in English (LINGUISTICS)

| Course Codes | Course Title                             | CH | SGDs |
|--------------|--|----|------|
| ENG 711      | Corpus Linguistics for Language Research | 3  | 4    |

|         |   |   |   |
|---------|---|---|---|
| ENG 712 | Stylistics for Writers and Editors                    | 3 | 4 |
| ENG 713 | Language in the Digital Age                           | 3 | 4 |
| ENG 714 | Systemic Functional Linguistics for Language Research | 3 | 4 |
| ENG 715 | Language Culture and Communication                    | 3 | 4 |
| ENG 716 | Language Program Evaluation and Assessment            | 3 | 4 |
| ENG 717 | Advanced Cognitive Linguistics                        | 3 | 4 |
| ENG 718 | Sociolinguistics for Language Research                | 3 | 4 |
| ENG 719 | English Around the World                              | 3 | 4 |
| ENG 720 | Applied Linguistics for Language Professionals        | 3 | 4 |
| ENG 721 | ELT in 21 <sup>st</sup> Century                       | 3 | 4 |

#### LIST OF ELECTIVE COURSES FOR MS in English (LINGUISTICS)

| Course Codes | Course Title  | CH | SGDs |
|--------------|---|----|------|
| ENG 711      | Corpus Linguistics for Language Research              | 3  | 4    |
| ENG 712      | Stylistics for Writers and Editors                    | 3  | 4    |
| ENG 713      | Language in the Digital Age                           | 3  | 4    |
| ENG 714      | Systemic Functional Linguistics for Language Research | 3  | 4    |
| ENG 715      | Language Culture and Communication                    | 3  | 4    |
| ENG 716      | Language Program Evaluation and Assessment            | 3  | 4    |
| ENG 717      | Advanced Cognitive Linguistics                        | 3  | 4    |
| ENG 718      | Sociolinguistics for Language Research                | 3  | 4    |
| ENG 719      | English Around the World                              | 3  | 4    |
| ENG 720      | Applied Linguistics for Language Professionals        | 3  | 4    |
| ENG 721      | ELT in 21 <sup>st</sup> Century                       | 3  | 4    |

#### LIST OF DEFICIENCY COURSES

| Course Code | Course Title                        | CH | SGDS |
|-------------|-------------------------------------|----|------|
| ENG 414     | Introduction to Applied Linguistics | 3  | 4    |
| ENG 306     | Discourse analysis                  | 3  | 4    |
| ENG 210     | Semantics                           | 3  | 4    |
| ENG 405     | Stylistics                          | 3  | 4    |

## PhD in International Relations

**Program Title:** PhD International Relations  
**Duration:** 3 Years  
**Eligibility Criteria:** 18 year of education (MS/MPhil/equivalent degree) in relevant discipline from an HEC recognized university with a minimum CGPA of 3.00/4.00 (Semester System) or 60% marks (Annual System). NTS-GAT (General) or GRE (General) Test passed with minimum 60% marks or BU Admission Test (60% passing marks). Initial Research Proposal/Statement of Purpose is required at the time of PhD admission.

### **Roadmap of PhD International Relations**

#### **Semester 1**

| S.# | Course Code | Course Title  | Credit Hours |
|-----|-------------|---|--------------|
| 1   | IRS 801     | Contemporary Theory and Practice in International Relations | 3            |
| 2   | IRS 802     | Contemporary Research Methods                               | 3            |
| 3   |             | Elective I  | 3            |

#### **Semester 2**

| S.# | Course Code | Course Title | Credit Hours |
|-----|-------------|--------------|--------------|
| 1   |             | Elective II  | 3            |
| 2   |             | Elective III | 3            |
| 3   |             | Elective IV  | 3            |

#### **Semester 3**

| S.# | Course Code | Course Title | Credit Hours |
|-----|-------------|--------------|--------------|
| 1   | THS 800     | Thesis       | 09           |

#### **Semester 4**

| S.# | Course Code | Course Title | Credit Hours |
|-----|-------------|--------------|--------------|
| 1   | THS 800     | Thesis       | 09           |

#### **Semester 5**

| S.# | Course Code | Course Title | Credit Hours |
|-----|-------------|--------------|--------------|
| 1   | THS 800     | Thesis       | 09           |

#### **Semester 6**

| S.# | Course Code | Course Title | Credit Hours |
|-----|-------------|--------------|--------------|
| 1   | THS 800     | Thesis       | 09           |

#### **List of Electives Courses**

| S.# | Course Code | Course Title   | Credit Hours |
|-----|-------------|--|--------------|
| 1.  | IRS-803     | Comparative Politics: Theoretical understanding                | 3            |
| 2.  | IRS-804     | Seminar on Major Contemporary Issues in International Politics | 3            |
| 3.  | IRS-805     | International Relations of South Asia                          | 3            |
| 4.  | IRS-806     | International Politics of Middle East                          | 3            |
| 5.  | IRS-807     | The Significance of South East Asia in Global Politics         | 3            |
| 6.  | IRS-808     | International Politics of Central Asia                         | 3            |
| 7.  | IRS-810     | Latin America in World Politics                                | 3            |
| 8.  | IRS-811     | The Significance of Africa in Global Politics                  | 3            |
| 9.  | IRS-812     | The Challenges and Prospects for the Contemporary Muslim World | 3            |
| 10. | IRS-813     | Foreign Policies of Major Powers in Comparative Perspective    | 3            |
| 11. | IRS-814     | Understanding the US Politics and Foreign Policy               | 3            |
| 12. | IRS-815     | Advance course of Politics and Foreign Policy of China         | 3            |
| 13. | IRS-816     | Dynamics of Russian Geopolitics and Diplomacy                  | 3            |

|     |         |   |   |
|-----|---------|---|---|
| 14. | IRS-817 | Understanding International Law and Organization                            | 3 |
| 15. | IRS-818 | Understanding Regionalism: Theory and Practice                              | 3 |
| 16. | IRS-819 | Global Political Economy  | 3 |
| 17. | IRS-820 | Contemporary Approaches of Strategic Studies                                | 3 |
| 18. | IRS-821 | Advanced Nuclear Studies  | 3 |
| 19. | IRS-822 | Contemporary approaches to understand Conflict Resolution                   | 3 |
| 20. | IRS-823 | Mass Media and International Relations                                      | 3 |
| 21. | IRS-824 | Advanced Critical Debates in International Relations                        |   |
| 22. | IRS-825 | Major Approaches and models in Pakistan's Foreign Policy:<br>Seminar Course |   |
| 23. | IRS-826 | Global Environmental Politics   |   |
| 24. | IRS-827 | Globalization the Role of Contemporary State and Society                    |   |
| 25. | IRS-828 | Securitization of International Relations                                   |   |
| 26. | IRS-829 | Understanding the Dynamics of Modern Diplomacy                              |   |
| 27. | IRS-830 | Climate Change Activism, Sustainability and International Security          |   |
| 28. | IRS-831 | Politics of Refugees and Immigration in International Relations             |   |
| 29. | IRS-832 | Strategizing Indian Ocean   |   |
| 30. | IRS-833 | Models of Foreign Policy Analysis   |   |

**List of Deficiency Courses**

| S.# | Course Code | Course Title  | Credit Hours |
|-----|-------------|---|--------------|
| 1.  | IRS-702     | Advanced Research Methodology                         | 3            |
| 2.  | IRS-700     | International Relations: Advanced Theory and Practice | 3            |

## MS Islamic Studies (Islam & Life)

**Program Title: MS Islamic Studies (Islam & Life)**

**Duration: 2 Years (4 Semesters)**

**Eligibility Criteria:** 4 years Bachelor degree in BS (Islamic Studies)/ M.A (Islamic Studies) or equivalent with minimum 126 Credit Hours and CGPA 2.0/4.0 (Semester System) or 50% marks (Annual System). NTS-GAT (General) or GRE passed with 50% marks.

### Semester - I

| S. No. | Course Code | Course                                   | Credit Hours |
|--------|-------------|--|--------------|
| 1      | ISL-701     | Advance Research Methodology             | 3 (3-0)      |
| 2      | ISL-702     | Ijtihad: History, Principles and Methods | 3 (3-0)      |
| 3      |             | Core Course-I                            | 3            |
| 4      |             | Core Course-II                           | 3            |

### Semester - 2

| S. N. | Course Code | Course  | Credit Hours |
|-------|-------------|---|--------------|
| 1     | ISL-703     | Orientalism: Critical Study (Specialization Specific) | 3 (3-0)      |
| 2     |             | Core Course-III                                       | 3            |
| 3     |             | Core Course-IV  | 3            |
| 4     |             | Core Course-V   | 3            |

### Semester - 3

| S. N. | Course Code | Course | Credit Hours |
|-------|-------------|--------|--------------|
| 1     | ISL 700     | Thesis |              |

### Semester - 4

| S. N. | Course Code | Course | Credit Hours |
|-------|-------------|--------|--------------|
| 1     | ISL 700     | Thesis |              |

List of Major Course;

| S. N. | Course Code | Course                                     | Credit Hours |
|-------|-------------|--|--------------|
| 1.    | ISL-704     | Study of Quran and It's Sciences           | 3            |
| 2.    | ISL-705     | Study of Hadith and Its Sciences           | 3            |
| 3.    | ISL-706     | Study of Seerah                            | 3            |
| 4.    | ISL-707     | Study of Fiqh and Usool ul Fiqh            | 3            |
| 5.    | ISL-708     | Arabic Language                            | 3            |
| 6.    | ISL-709     | Study of World Religion                    | 3            |
| 7.    | ISL-710     | Islamic Civilization and Modern Challenges | 3            |
| 8.    | ISL-711     | Islamic Economic System                    | 3            |
| 9.    | ISL-712     | Study of Tassawuf                          | 3            |
| 10.   | ISL-713     | Human Rights and Islam                     | 3            |

## PhD Islamic Studies

**Program Title:** PhD in Islamic Studies

**Duration:** 3 Years

**Eligibility Criteria:** 18 year of education (MS/MPhil/equivalent degree) in relevant discipline from an HEC recognized university with a minimum CGPA of 3.00/4.00 (Semester System) or 60% marks (Annual System).

### Semester-wise Road map

#### **Semester 1**

| S.# | Course Code | Course Title                              | Credit Hours |
|-----|-------------|---|--------------|
| 1   | ISL 801     | Uloom UI Quran & modern exegesis trends   | 3            |
| 2   | ISL 802     | Modern Research Techniques and Principles | 3            |
| 3   |             | Elective 1                                | 3            |

#### **Semester 2**

| S.# | Course Code | Course Title                      | Credit Hours |
|-----|-------------|-----------------------------------|--------------|
| 1   | ISL 803     | Applied Study of Ahadith-UI-Ahkam | 3            |
| 2   |             | Elective 2                        | 3            |
| 3   |             | Elective 2                        | 3            |

#### **Semester 3**

| S.# | Course Code | Course Title | Credit Hours |
|-----|-------------|--------------|--------------|
| 1   | THS 900     | Thesis       | 9            |

#### **Semester 4**

| S.# | Course Code | Course Title | Credit Hours |
|-----|-------------|--------------|--------------|
| 1   | THS 900     | Thesis       | 9            |

#### **Semester 5**

| S.# | Course Code | Course Title | Credit Hours |
|-----|-------------|--------------|--------------|
| 1   | THS 900     | Thesis       | 9            |

#### **Semester 6**

| S.# | Course Code | Course Title | Credit Hours |
|-----|-------------|--------------|--------------|
| 1   | THS 900     | Thesis       | 9            |

**List of Electives Courses**

| Course Code | Course Title   | Credit Hours |
|-------------|--|--------------|
| ISL 804     | Applied Study of Ayat-UI-Ahkam   | 3            |
| ISL 805     | Ijtihad and Objectives of Shariah  | 3            |
| ISL 806     | Family and Inheritance Law in Islam  | 3            |
| ISL 807     | Contemporary Islamic Thought   | 3            |
| ISL 808     | Islam and the Modern Political System                                      | 3            |
| ISL 809     | Muslim Philosophers and Theologists  | 3            |
| ISL 810     | Islamic and Religious Pluralism  | 3            |
| ISL 811     | Islamic Financial System   | 3            |
| ISL 812     | Seminars on Interdisciplinary Studies in Science, Philosophy, and Religion | 3            |
| ISL 813     | Understanding Seerah Trends  | 3            |
| ISL 814     | Interfaith Dialogue and Islamic Principles of Adb ul Ikhtelaf              | 3            |
| ISL 815     | Uloom ul Hadith & Methodologies of Muhaddiseen                             | 3            |
| ISL 816     | Islamic Perspectives on Globalization in the Modern World                  | 3            |

**List of Deficiency Courses**

| Course Code | Course Title                            | Credit Hours |
|-------------|---|--------------|
| ISL 801     | Uloom UI Quran & modern exegesis trends | 3            |
| ISL 803     | Applied Study of Ahadith-UI-Ahkam       | 3            |

## LLB

**Program Title:** LLB

**Duration:** Five Years (Ten Semesters)

**Eligibility Criteria:** Candidates having passed Intermediates/A level or equivalent examination with 50% marks moreover cleared Law Admission Test (LAT) with 50% marks are eligible for admission however, those aspirants who are not appeared in LAT yet are also eligible to apply for admission but they have to submit result later with the required percentage, in other case admission will be cancelled.

### Semester-wise Road map

#### Semester 1

| S.# | Course Code | Course Title              | Credit Hours |
|-----|-------------|---------------------------|--------------|
| 1   | ISL 107     | Tajweed                   | 0            |
| 2   | ENG 101     | Functional English        | 3            |
| 3   | PAK 102     | Pakistan Studies          | 3            |
| 4   | LLB 117     | Introduction to Sociology | 3            |
| 5   | LLB 114     | Fundamentals of Economics | 3            |
| 6   | LLB 115     | Introduction to Law       | 3            |
| 7   | CSC 105     | Introduction to Computers | 3            |

#### Semester 2

| S.No. | Course Code | Course Title                    | Credit Hours |
|-------|-------------|---------------------------------|--------------|
| 1     | ISL 108     | Understanding Quran - I         | 0            |
| 2     | ENG 102     | English Writing Skills          | 3            |
| 3     | ISL 101     | Islamic Studies/Ethics          | 3            |
| 4     | LLB 123     | Principles of Political Science | 3            |
| 5     | LLB 124     | Legal System of Pakistan        | 3            |
| 6     | HSS 410     | Entrepreneurship                | 3            |
| 7     | LLB 127     | Law of Torts - I                | 3            |

#### Semester 3

| S.# | Course Code | Course Title             | Credit Hours |
|-----|-------------|--------------------------|--------------|
| 1   | ISL 109     | Understanding Quran - II | 0            |

|   |         |                                     |   |
|---|---------|-------------------------------------|---|
| 2 | MAT 205 | Statistics                          | 3 |
| 3 | LLB 217 | Introduction to Logic and Reasoning | 3 |
| 4 | LLB 213 | Islamic Jurisprudence - I           | 3 |
| 5 | LLB 219 | Law of Torts - II                   | 3 |
| 6 | LLB 215 | Law of Contract - I                 | 3 |
| 7 | MGT 121 | Introduction to Management          | 3 |

#### **Semester 4**

| S.# | Course Code | Course Title                   | Credit Hours |
|-----|-------------|--------------------------------|--------------|
| 1   | ISL 110     | Understanding Quran - III      | 0            |
| 2   | CCE 310     | Civic and Community Engagement | 3            |
| 3   | LLB 221     | Human Rights Law               | 3            |
| 4   | LLB 218     | Constitutional Law – I (UK)    | 3            |
| 5   | LLB 223     | Law of Contract - II           | 3            |
| 6   | LLB 516     | Research Methods               | 3            |
| 7   | LLB 227     | Introduction to Psychology     | 3            |

#### **Semester 5**

| S.# | Course Code | Course Title               | Credit Hours |
|-----|-------------|----------------------------|--------------|
| 1   | ISL 111     | Understanding Quran - IV   | 0            |
| 2   | LLB 311     | Jurisprudence-I            | 3            |
| 3   | LLB 226     | Constitutional Law-II (US) | 3            |
| 4   | LLB 313     | Islamic Personal Law-I     | 3            |
| 5   | LLB 314     | Criminal Law-I             | 3            |
| 6   | LLB 317     | Law of Property            | 3            |
| 7   | LLB 224     | Islamic Jurisprudence-II   | 3            |

#### **Semester 6**

| S.# | Course Code | Course Title                  | Credit Hours |
|-----|-------------|-------------------------------|--------------|
| 1   | ISL 112     | Understanding Quran - V       | 0            |
| 2   | LLB 321     | Jurisprudence-II              | 3            |
| 3   | LLB 326     | Law of Business Organizations | 3            |
| 4   | LLB 323     | Islamic Personal Law-II       | 3            |
| 5   | LLB 324     | Criminal Law-II               | 3            |

|   |         |                                   |   |
|---|---------|-----------------------------------|---|
| 6 | LLB 327 | Land Laws                         | 3 |
| 7 | LLB 316 | Constitutional Law-III (Pakistan) | 3 |

### **Semester 7**

| S.# | Course Code | Course Title                           | Credit Hours |
|-----|-------------|--|--------------|
| 1   | ISL 113     | Seerah - I                             | 0            |
| 2   | LLB 411     | Public International Law-I             | 3            |
| 3   | LLB 417     | Constitutional Development in Pakistan | 3            |
| 4   | LLB 413     | Civil Procedure-I                      | 3            |
| 5   | LLB 414     | Criminal Procedure-I                   | 3            |
| 6   | LLB 415     | Law of Evidence-I                      | 3            |
| 7   | LLB 416     | Legal Drafting-I                       | 3            |

### **Semester 8**

| S.# | Course Code | Course Title                | Credit Hours |
|-----|-------------|-----------------------------|--------------|
| 1   | ISL 114     | Seerah - II                 | 0            |
| 2   | LLB 421     | Public International law-II | 3            |
| 3   | LLB 422     | Equity and Specific Relief  | 3            |
| 4   | LLB 423     | Civil Procedure-II          | 3            |
| 5   | LLB 424     | Criminal Procedure-II       | 3            |
| 6   | LLB 425     | Law of Evidence-II          | 3            |
| 7   | LLB 426     | Legal Drafting-II           | 3            |

### **Semester 9**

| S.# | Course Code | Course Title                     | Credit Hours |
|-----|-------------|----------------------------------|--------------|
| 1   | LLB 500     | Internship                       | 3            |
| 2   | LLB 517     | Minor Acts                       | 3            |
| 3   | LLB 017     | Labour Laws                      | 3            |
| 4   | LLB 011     | Intellectual Property Law        | 3            |
| 5   | LLB 518     | Moot Cases & Professional Ethics | 3            |
| 6   | LLB 004     | Consumer Protection Laws         | 3            |

**Semester 10**

| S.# | Course Code | Course Title                                       | Credit Hours |
|-----|-------------|--|--------------|
| 1   | LLB 526     | Administrative Law                                 | 3            |
| 2   | LLB 527     | Interpretation of Statute and Legislative Drafting | 3            |
| 3   | LLB 523     | Research Project                                   | 3            |
| 4   | LLB 001     | Alternate Dispute Resolution                       | 3            |
| 5   | LLB 030     | Taxation Laws                                      | 3            |
| 6   | LLB 008     | Environmental Law                                  | 3            |

## LLM General

Program Title: LLM General  
Duration: Two Years (Four Semesters)  
Eligibility Criteria: LL.B degree from Pakistan Bar Council (PBC)/ HEC recognized university/institute with minimum CGPA of 2.00/4.00 or 50% marks where CGPA is not given.

### **Semester-wise Road map**

#### **Semester 1**

| Sr.No. | Course Code | Course Title                                 | Credit Hours |
|--------|-------------|--|--------------|
| 1      | LLM 700     | Research Methodology                         | 3            |
| 2      | LLM---      | Elective - I                                 | 3            |
| 3      | LLM---      | Elective - II                                | 3            |
| 4      | LLM---      | Elective - III                               | 3            |
| 5      | LLB 115     | Introduction to Law (Deficiency Course)      | 3            |
| 6      | LLB 124     | Legal System of Pakistan (Deficiency Course) | 3            |

#### **Semester 2**

| Sr.No | Course Code | Course Title  | Credit Hours |
|-------|-------------|---|--------------|
| 1     | LLM---      | Elective - IV   | 3            |
| 2     | LLM---      | Elective - V  | 3            |
| 3     | LLM---      | Elective - VI   | 3            |
| 4     | LLM---      | Elective - VII  | 3            |
| 5     | LLB 417     | Constitutional Developments in Pakistan (Deficiency Course) | 3            |

#### **Semester 3**

| Sr.No. | Course Code | Course Title | Credit Hours |
|--------|-------------|--------------|--------------|
| 1      | THS 701     | Thesis       | 3            |

#### **Semester 4**

| Sr.No. | Course Code | Course Title | Credit Hours |
|--------|-------------|--------------|--------------|
| 1      | THS 701     | Thesis       | 3            |

**List of Elective Courses**

| <b>Sr.No</b> | <b>Course Code</b> | <b>Course Title</b>                                   | <b>Credit Hours</b> |
|--------------|--------------------|---|---------------------|
| 1            | LLM 701            | ADMINISTRATIVE LAW                                    | 3                   |
| 2            | LLM 702            | ALTERNATE DISPUTE RESOLUTION                          | 3                   |
| 3            | LLM 703            | BANKING LAW   | 3                   |
| 4            | LLM 704            | COMMERCIAL/ BUSINESS LAW                              | 3                   |
| 5            | LLM 705            | COMPANY/ CORPORATE LAW                                | 3                   |
| 6            | LLM 706            | COMPARATIVE CONSTITUTIONAL LAW                        | 3                   |
| 7            | LLM 707            | COMPARATIVE ENVIRONMENTAL LAW                         | 3                   |
| 8            | LLM 708            | COMPARATIVE HUMAN RIGHTS LAW                          | 3                   |
| 9            | LLM 709            | COMPARATIVE STUDY OF ISLAMIC AND WETERN JURISPRUDENCE | 3                   |
| 10           | LLM 710            | CONSTITUTIONAL LAW OF PAKISTAN                        | 3                   |
| 11           | LLM 711            | CRIMINOLOGY   | 3                   |
| 12           | LLM 712            | INTELLECTUAL PROPERTY LAWS                            | 3                   |
| 13           | LLM 713            | INTERNATIONAL ECONOMIC LAW                            | 3                   |
| 14           | LLM 714            | INTERNATIONAL TRADE LAW                               | 3                   |
| 15           | LLM 715            | ISLAMIC LAW   | 3                   |
| 16           | LLM 716            | LABOUR LAW  | 3                   |
| 17           | LLM 717            | LAW AND POLITICS                                      | 3                   |
| 18           | LLM 718            | LAW AND SOCIETY IN SOUTH ASIA                         | 3                   |
| 19           | LLM 719            | LAW OF EVIDENCE                                       | 3                   |
| 20           | LLM 720            | LAW OF INTERNATIONAL INSTITUTIONS                     | 3                   |
| 21           | LLM 721            | LAW OF TAXATION                                       | 3                   |
| 22           | LLM 722            | LEGAL HISTORY OF PAKISTAN AND INDIA                   | 3                   |
| 23           | LLM 723            | SHIPPING LAW  | 3                   |
| 24           | LLM 724            | WESTERN JURISPRUDENCE AND LEGAL THEORY                | 3                   |
| 25           | LAW 756            | ISLAMIC FAMILY LAWS                                   | 3                   |
| 26           | LLM 757            | BUSINESS ETHICS AND HUMAN RIGHTS                      | 3                   |

## PhD Law Programme

**Program Title:** PhD Law

**Duration:** Three – Eight Years

**Eligibility Criteria:** 18 years of education (MS/MPhil/equivalent degree) in relevant discipline from an HEC recognized university with a minimum CGPA of 3.00/4.00 (Semester System) or 60% marks (Annual System). NTS-GAT (General) or GRE (General) Test passed with minimum 60% marks or BU Admission Test (60% passing marks). Initial Research Proposal/Statement of Purpose is required at the time of PhD admission.

### Semester-wise Road map

#### Semester 1

| S.No | Course Code | Course Title   | Credit Hours |
|------|-------------|--|--------------|
| 1    | LLP 801     | Advanced Research Methods in Law   | 3            |
| 2    | LLP ---     | Elective - I   | 3            |
| 3    | LLP ---     | Elective - II  | 3            |
| 4    | LLM 710     | Constitutional Law of Pakistan (Deficiency Course)                         | 3            |
| 5    | LLM 709     | Comparative Study of Islamic and Western Jurisprudence (Deficiency Course) | 3            |

#### Semester 2

| S.No | Course Code | Course Title  | Credit Hours |
|------|-------------|---|--------------|
| 1    | LLP---      | Elective - III  | 3            |
| 2    | LLP---      | Elective - IV   | 3            |
| 3    | LLP---      | Elective - V  | 3            |
| 4    | LLM 720     | Law of International Institutions (Deficiency Course) | 3            |

#### Semester 3

| S.No | Course Code | Course Title       | Credit Hours |
|------|-------------|--------------------|--------------|
| 1    |             | Comprehensive Exam | 0            |

#### Semester 4

| Sr. No. | Course Code | Course Title      | Credit Hours |
|---------|-------------|-------------------|--------------|
| 1       |             | Research Proposal | 0            |

#### Semester 5

| S.No | Course Code | Course Title | Credit Hours |
|------|-------------|--------------|--------------|
| 1    | THS 900     | Thesis       | 9            |

**Semester 6**

| S.No | Course Code | Course Title | Credit Hours |
|------|-------------|--------------|--------------|
| 1    | THS 900     | Thesis       | 9            |

**Semester 7**

| S.No | Course Code | Course Title | Credit Hours |
|------|-------------|--------------|--------------|
| 1    | THS 900     | Thesis       | 9            |

**Semester 8**

| S.No | Course Code | Course Title | Credit Hours |
|------|-------------|--------------|--------------|
| 1    | THS 900     | Thesis       | 9            |

**List of Electives Courses**

| Sr.No | Course Code | Course Title  | Credit Hours |
|-------|-------------|---|--------------|
| 1     | LLP 802     | Legal History of the Subcontinent                                   | 3            |
| 2     | LLP 803     | Comparative Legal Theory/Philosophy                                 | 3            |
| 3     | LLP 804     | Law and Governance: Institutional Framework                         | 3            |
| 4     | LLP 805     | Comparative Legal System and Procedure                              | 3            |
| 5     | LLP 806     | Transformation of Sharia into Law: The Modern Application of Sharia | 3            |
| 6     | LLP 808     | Technological Advancement in Law                                    | 3            |
| 7     | LLP 809     | Law and Regional Integration: With Focus On CPEC                    | 3            |
| 8     | LLP 810     | Comparative Criminal Justice System                                 | 3            |
| 9     | LLP 811     | Comparative Human Rights Law  | 3            |

**List of Deficiency Courses**

| S.No | Course Code | Course Title   | Credit Hours |
|------|-------------|--|--------------|
| 1    | LLM 710     | Constitutional Law of Pakistan (Deficiency Course)                         | 3            |
| 2    | LLM 709     | Comparative Study of Islamic and Western Jurisprudence (Deficiency Course) | 3            |
| 3    | LLM 720     | Law of International Institutions (Deficiency Course)                      | 3            |

## BS (Accounting and Finance)

**Program Title:** BS (Accounting and Finance)  
**Duration:** 4 Years Total  
**Eligibility Criteria:** Intermediate or its equivalent with a minimum of 50% marks in any discipline.

### Roadmap of BS A&F

#### Semester 1

| Sr. No | Course Code      | Course Title                           | Credit Hours |
|--------|------------------|--|--------------|
| 1      | ENG 101          | Functional English                     | 3            |
| 2      | QTM 122          | Business Mathematics & Numeracy Skills |              |
| 3      | ECO 110          | Microeconomics                         | 3            |
| 4      | PAK 109          | Ideology of Pakistan                   | 2            |
| 5      | ACC 101          | Principles of Accounting               | 3            |
| 6      | ISL 101/ SOC 360 | Islamic Studies/ Ethics                |              |
|        | ISL 107          | Tajweed                                | 0            |

#### Semester 2

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                           | Credit Hours |
|---------|---------------------------|-------------|--|--------------|
| 1       |                           | MIS-210     | Introduction to Information Technology | 3            |
| 2       |                           | ENG 102     | English Writing Skills                 | 3            |
| 3       |                           | HSS 219     | Civic and Community Engagement         | 2            |
| 4       |                           | ECO 121     | Macroeconomics                         | 3            |
| 5       | ACC 101                   | ACC 102     | Financial Accounting                   | 3            |
| 6       |                           | MGT-111     | Principles of Management               | 3            |
|         |                           | ISL 203     | *Fehm-e-Quran – I                      | 1            |

**\*For non-Muslim:** Any University approved 02 (or more) credit hours of Interdisciplinary Course

#### Semester 3

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title            | Credit Hours |
|---------|---------------------------|-------------|-------------------------|--------------|
| 1       |                           | MKT 110     | Principles of Marketing | 3            |

|   |  |         |  |   |
|---|--|---------|--|---|
| 2 |  | ENV 120 | Introduction to Environment and Sustainability | 3 |
| 3 |  | ACC 203 | Cost Accounting                                | 3 |
| 4 |  | FIN 201 | Introduction to Finance                        | 3 |
| 5 |  | QTM 110 | Business Statistics                            | 3 |
| 6 |  | SOC 212 | Critical and Logical Thinking                  | 3 |

#### **Semester 4**

| <b>Sr. No.</b> | <b>Pre-requisite Course Code</b> | <b>Course Code</b> | <b>Course Title</b>                  | <b>Credit Hours</b> |
|----------------|----------------------------------|--------------------|--------------------------------------|---------------------|
| 1              |                                  | MGT 242            | Organizational Behavior              | 3                   |
| 2              |                                  | MGT 363            | Entrepreneurship                     | 3                   |
| 3              |                                  | PAK 101            | Pakistan Studies                     | 2                   |
| 4              | ACC 203                          | ACC 304            | Managerial Accounting                | 3                   |
| 5              |                                  | HSS-301            | Social and Psychological Development | 3                   |
| 6              | Fin 201                          | FIN 202            | Financial Management                 | 3                   |
| 7              |                                  | ISL 204            | Fehm-e-Quran – II                    | 1                   |

**\*For non-Muslim:** Any University approved 02 (or more) credit hours of Interdisciplinary Course

#### **Semester 5**

| <b>Sr. No.</b> | <b>Pre-requisite Course Code</b> | <b>Course Code</b> | <b>Course Title</b>            | <b>Credit Hours</b> |
|----------------|----------------------------------|--------------------|--------------------------------|---------------------|
| 1              |                                  | ACC 400            | Advanced Managerial Accounting | 3                   |
| 2              |                                  | ACC 305            | Financial Reporting-I          | 3                   |
| 3              |                                  | ACC 306            | Principles of Auditing         | 3                   |
| 4              |                                  | ACC 220            | Principles of Taxation         | 3                   |
| 5              |                                  | FIN 306            | Financial Modeling             | 3                   |
| 6              |                                  | MGT 301            | Business Law                   | 3                   |

#### **Semester 6**

| <b>Sr. No.</b> | <b>Pre-requisite</b> | <b>Course Code</b> | <b>Course Title</b> | <b>Credit Hours</b> |
|----------------|----------------------|--------------------|---------------------|---------------------|
|----------------|----------------------|--------------------|---------------------|---------------------|

|          | <b>Course Code</b> |         |   |   |
|----------|--------------------|---------|---|---|
| <b>1</b> |                    | FIN 320 | Financial Institution Management            | 3 |
| <b>2</b> |                    | FIN 308 | Corporate Finance                           | 3 |
| <b>3</b> |                    | ENG 214 | Business Communication                      | 3 |
| <b>4</b> | ACC 305            | ACC 320 | Financial Reporting-II                      | 3 |
| <b>5</b> |                    | Fin 311 | Introduction to Islamic Banking and Finance | 3 |
| <b>6</b> |                    | RMT 240 | Research Methods & Techniques               | 3 |

### **Semester 7**

| <b>S.#</b> | <b>Pre-requisite Course Code</b> | <b>Course Code</b> | <b>Course Title</b>       | <b>Credit Hours</b> |
|------------|----------------------------------|--------------------|---------------------------|---------------------|
| 1          | ACC 220                          | ACC 410            | Advanced Taxation         | 3                   |
| 2          | ACC 306                          | ACC 412            | Advanced Auditing         | 3                   |
| 3          |                                  | HRM-353            | Human Resource Management | 3                   |
| 4          |                                  | MGT 503            | Corporate law             | 3                   |
| 5          |                                  |                    | Specialization-I          | 3                   |
| 6          |                                  |                    | Specialization-II         | 3                   |
| 7          |                                  | ISL 113            | Seerah-I                  | 0                   |

### **Semester 8**

| <b>Sr. No.</b> | <b>Pre-requisite Course Code</b> | <b>Course Code</b> | <b>Course Title</b>     | <b>Credit Hours</b> |
|----------------|----------------------------------|--------------------|-------------------------|---------------------|
| 1              | RMT 240                          | PRO 450            | Capstone Project/Thesis | 3                   |
| 2              |                                  |                    | Specialization-III      | 3                   |
| 3              |                                  |                    | Specialization-IV       | 3                   |
| 4              |                                  | ECO 415            | Econometrics            | 3                   |
| 5              |                                  | ISL 114            | Seerah-II               | 0                   |

### **Field Experience / Internship**

| Sr. No.                   | Prerequisite Courses | Course Code | Course Title                   | Credit Hours |
|---------------------------|----------------------|-------------|--------------------------------|--------------|
| 1                         |                      | SDW 498     | Field Experience / Internship* | 3            |
| <b>Total Credit Hours</b> |                      |             |                                | <b>3</b>     |

- 6 weeks Internship after 4th Semester in the Summer semester, preferably.
- Honors, Awards, & scholarships will be calculated on the basis of coursework only, excluding internship credit hours.
- The Quran and Seerah program is optional for Non-Muslim students.

**List of Elective Courses**

| Course Code | Course Title                                | Category | Credit Hours |
|-------------|---|----------|--------------|
| ACC623      | Corporate Governance                        | Elective | 3            |
| ACC 624     | Accounting Information System With SAP      | Elective | 3            |
| ACC625      | Mercantile Law                              | Elective | 3            |
| ACC626      | Advance IT                                  | Elective | 3            |
| ACC 627     | Strategic Management Accounting and Control | Elective | 3            |
| ACC 628     | Tax Management and Optimization             | Elective | 3            |
| ACC 629     | Actuarial Accounting                        | Elective | 3            |
| ACC 631     | Merger and Acquisition Accounting           | Elective | 3            |
| ACC 607     | Advance Financial Reporting                 | Elective | 3            |
| FIN646      | Financial Econometrics                      | Elective | 3            |
| FIN647      | Financial Restructuring                     | Elective | 3            |
| FIN619      | Financial Derivatives                       | Elective | 3            |
| FIN648      | International Finance                       | Elective | 3            |
| FIN649      | Islamic Banking and Finance                 | Elective | 3            |
| FIN650      | Analysis of Financial Time Series           | Elective | 3            |
| FIN651      | Financial Information System                | Elective | 3            |
| FIN613      | Portfolio Analysis and Management           | Elective | 3            |
| FIN618      | Treasury and Funds Management               | Elective | 3            |
| FIN603      | Entrepreneurial Finance                     | Elective | 3            |
| FIN621      | Budgeting                                   | Elective | 3            |
| FIN612      | Analysis of Financial Statements            | Elective | 3            |
| FIN660      | Branch and Branchless Banking               | Elective | 3            |

|                 |  |          |   |
|-----------------|--|----------|---|
| FIN652          | Lending- Products, Operation and Risk Management                   | Elective | 3 |
| FIN653          | Finance of International Trade                                     | Elective | 3 |
| FIN654          | Marketing of Financial Services                                    | Elective | 3 |
| FIN655          | Information Technology in Financial Services                       | Elective | 3 |
| FIN617          | Investment Banking   | Elective | 3 |
| FIN 615         | Commercial Banking   | Elective | 3 |
| FIN685          | Business Intelligence  | Elective | 3 |
| FIN684          | Financial Engineering  | Elective | 3 |
| FIN 659         | Advance Financial Management                                       | Elective | 3 |
| FIN 523         | FinTech  | Elective | 3 |
| FIN 522         | SAP- Financial Data Analytics                                      | Elective | 3 |
| FIN 524         | Shariah Standards for Islamic Financial Institutions (AAOIFI )     | Elective | 3 |
| SFI 300         | Introduction on to Sustainable Finance and Investments             | Elective | 3 |
| MIS             | Data, System and Risks   | Elective | 3 |
| FIN             | Block Chain & Financial Markets                                    | Elective | 3 |
| ACC             | Sustainability of Accountants                                      | Elective | 3 |
| MGT             | Contemporary Issues in Corporate Governance                        | Elective | 3 |
| <b>MARITIME</b> |  |          |   |
| MTM 101         | Introduction to Maritime Industry                                  | Elective | 3 |
| MTM 230         | Introduction to Maritime Law and International Maritime Convention | Elective | 3 |
| MTM202          | Economics of Sea Transport & International Trade                   | Elective | 3 |
| MTM 222         | Introduction to Coastal Zone Management                            | Elective | 3 |
| MTM 304         | Port Operations and Management                                     | Elective | 3 |
| MTM 306         | Shipping Operations and Management                                 | Elective | 3 |
| MTM 322         | Fisheries Resources & Management                                   | Elective | 3 |
| MTM 401         | Coastal Eco-Tourism Development and Management                     | Elective | 3 |
| MTM 403         | Maritime Innovation & Entrepreneurship                             | Elective | 3 |
| MTM 501         | Maritime Business: China Pakistan Perspective under CPEC           | Elective | 3 |
| MTM 521         | Maritime Business and HRM  | Elective | 3 |
| MTM 504         | Maritime Management: Concept and Applications                      | Elective | 3 |
| MTM 505         | Contemporary Issues of Maritime Management                         | Elective | 3 |

|          |   |          |   |
|----------|---|----------|---|
| MTM 506  | Maritime Management in Pakistan: Past, Present and Future | Elective | 3 |
| HRM 508  | Marine Environments and Administration                    | Elective | 3 |
| ECO- 363 | Introduction to Blue and Green Economy                    | Elective | 3 |

**List of Social Sciences Courses**

| <b>Course Code</b> | <b>Course Title</b> | <b>Credit Hours</b> |
|--------------------|---------------------|---------------------|
| HSS 109            | Arabic              | 2                   |
| HSS 163            | Chinese             | 2                   |
| HSS 160            | French              | 2                   |
| HSS 164            | German              | 2                   |
| HSS 161            | Russian             | 2                   |
| HSS 162            | Spanish             | 2                   |
| HSS 214            | Turkish             | 2                   |

## BS Economics

**Program Title:** BS Economics

**Duration:** 4 years

**Eligibility Criteria:** Intermediate or its equivalent with a minimum of 50% marks in any discipline.

### Roadmap of BS Economics

#### **Semester 1**

| S.# | Pre-requisite Course Code | Course Code | Course Title              | Credit Hours |
|-----|---------------------------|-------------|---------------------------|--------------|
| 1   |                           | ENG 101     | Functional English        | 3            |
| 2   |                           | QTM 101     | Business Mathematics      | 3            |
| 3   |                           | ECO 110     | Microeconomics- I         | 3            |
| 4   |                           | MIS 161     | Introduction to IT        | 3            |
| 5   |                           | HSS 108     | Introduction to Sociology | 3            |
| 6   |                           | MGT 363     | Entrepreneurship          | 3            |
|     |                           | ISL 107     | Tajweed                   | 0            |

#### **Semester 2**

| Sr. No.            | Pre-requisite Course Code | Course Code | Course Title                                   | Credit Hours    |
|--------------------|---------------------------|-------------|--|-----------------|
|                    | 1                         |             | ISL 101  | Islamic Studies |
| 2                  |                           | NEW         | Introduction to Environment and sustainability | 3               |
| 3                  |                           | QTM 105     | Introduction to Statistics                     | 3               |
| 4                  |                           | ECO 121     | Macroeconomics-I                               | 3               |
| 5                  |                           | ECO 111     | Microeconomics-II                              | 3               |
| 6                  |                           | HSS 107     | Introduction to Psychology                     | 2               |
|                    |                           | ISL 108     | *Fehm ul Quran - I                             | 1               |
| Total Credit Hours |                           |             |  | 17              |

**\*For non-Muslim:** Any University approved 02 (or more) credit hours of Interdisciplinary Course

#### **Semester 3**

| S.# | Pre-requisite Course Code | Course Code | Course Title                         | Credit Hours |
|-----|---------------------------|-------------|--------------------------------------|--------------|
| 1   |                           | SOC 240     | Pakistan Studies                     | 2            |
| 2   |                           | ECO 304     | Business Taxation and Public Finance | 3            |
| 3   |                           | ECO 122     | Macroeconomics-II                    | 3            |

|   |         |         |  |   |
|---|---------|---------|--|---|
| 4 |         | ECO 202 | Issues in Pakistan's Economy               | 3 |
| 5 |         | ENG 213 | Oral Communication and Presentation Skills | 3 |
| 6 | QTM 105 | QTM 232 | Statistical Inference                      | 3 |
| 7 |         |         |  |   |

#### **Semester 4**

| S.# | Pre-requisite Course Code | Course Code | Course Title                          | Credit Hours |
|-----|---------------------------|-------------|---------------------------------------|--------------|
| 1   |                           | ECO 301     | Fundamentals of Econometrics          | 3            |
| 2   |                           | New         | Introduction to Financial Economics   | 3            |
| 3   |                           | PAK 109     | Ideology and Constitution of Pakistan | 2            |
| 4   |                           | MGT 211     | Self-Management                       | 3            |
| 5   |                           | ECO 340     | Development Economics                 | 3            |
| 6   |                           | HSS 219     | Civics and Community Engagement       | 2            |
| 7   |                           | ISL 204     | *Fehm ul Quran - II                   | 1            |

\*For non-Muslim: Any University approved 02 (or more) credit hours of Interdisciplinary Course

#### **Semester 5**

| S.# | Pre-requisite Course Code | Course Code | Course Title                           | Credit Hours |
|-----|---------------------------|-------------|--|--------------|
| 1   |                           | ECO 306     | International Economics & Finance      | 3            |
| 2   |                           | NEW         | Data Science for Economists            | 3            |
| 3   |                           | NEW         | Introduction to Blue and Green Economy | 3            |
| 4   |                           | MGT 311     | Career Exploring                       | 3            |
| 5   |                           | ECO 309     | Monetary Theory & Policy               | 3            |
| 6   |                           | ECO 362     | Managerial Economics                   | 3            |
| 7   |                           |             |  |              |

#### **Semester 6**

| S.# | Pre-requisite Course Code | Course Code | Course Title                                | Credit Hours |
|-----|---------------------------|-------------|---|--------------|
| 1   |                           | ECO 526     | Sustainable Development and Economic Policy | 3            |
| 2   |                           | HSS 301     | Social and Psychological Development        | 3            |
| 3   |                           |             | Econometrics-II                             | 3            |

|   |  |         |                                 |   |
|---|--|---------|---------------------------------|---|
| 4 |  | ECO 508 | Labor Economics                 | 3 |
| 5 |  | ECO 307 | Money and Banking               | 3 |
| 6 |  | Eco 506 | Poverty and Income distribution | 3 |

### Semester 7

|   | Pre-requisite Course Code | Course Code | Course Title                  | Credit Hours |
|---|---------------------------|-------------|-------------------------------|--------------|
| 1 |                           | ECO 403     | Trade Policy                  | 3            |
| 2 |                           | RMT 240     | Research Methods & Techniques | 3            |
| 3 |                           | ECO 502     | Industrial Economics          | 3            |
| 4 |                           | ECO 510     | Islamic Economics             | 3            |
| 5 |                           |             | Elective-I                    | 3            |
| 6 |                           |             | Elective-II                   | 3            |
| 7 |                           | ISL 113     | Seerah-i                      | 0            |

### Semester 8

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title              | Credit Hours |
|---------|---------------------------|-------------|---------------------------|--------------|
|         |                           | MGT 463     | Corporate Skills          | 3            |
|         |                           |             | Elective -III             | 3            |
|         |                           |             | Elective-IV               | 3            |
|         |                           | PRO 450     | Capstone Project / Thesis | 3            |
|         |                           | ISL 114     | Seerah-ii                 |              |
|         |                           |             | Internship                | 3            |

### List of Elective Courses

| Course Code | Course Title  | Credit Hours | HEC Category | SDGs |
|-------------|---|--------------|--------------|------|
| ECO 536     | Globalization and International Trade                 | 3            | Elective     |      |
| ECO 518     | International Business Law                            | 3            | Elective     |      |
| ECO 537     | International Financial Markets                       | 3            | Elective     |      |
| ECO 538     | International Logistics and Transportation Management | 3            | Elective     |      |
| ECO 539     | Foreign Trade and FDI Policies                        | 3            | Elective     |      |
| ECO 522     | International Corporate Law                           | 3            | Elective     |      |
| ECO 523     | Global Value chains (GVCs) for Trade                  | 3            | Elective     |      |

|         |  |   |          |  |
|---------|--|---|----------|--|
| ECO 524 | World Trade Organization and Regional Trade Facilitation | 3 | Elective |  |
| ECO 525 | Asian transport corridors and Trade                      | 3 | Elective |  |
| ECO 502 | Industrial Economics                                     | 3 | Elective |  |
| ECO 503 | Budgeting and Financial Planning                         | 3 | Elective |  |
| ECO 504 | Advanced Topics in Microeconomics                        | 3 | Elective |  |
| ECO 505 | Advanced Topics in Macroeconomics                        | 3 | Elective |  |
| ECO 507 | International Economics                                  | 3 | Elective |  |
| ECO 509 | Investment Banking & Security Analysis                   | 3 | Elective |  |
| ECO 513 | Economics of Regulation and Competition Policy           | 3 | Elective |  |

| <b>Maritime</b>    |  |              |                     |            |
|--------------------|--|--------------|---------------------|------------|
| <b>Course Code</b> | <b>Course</b>  | <b>Cr Hr</b> | <b>HEC Category</b> | <b>SDG</b> |
| MTM 101            | Introduction to Maritime Industry                                  | 3            | Electives           | SDG 4      |
| MTM 230            | Introduction to Maritime Law and International Maritime Convention | 3            | Electives           | SDG 16     |
| MTM202             | Economics of Sea Transport & International Trade                   | 3            | Electives           | SDG 14     |
| MTM 222            | Introduction to Coastal Zone Management                            | 3            | Electives           | SDG 14     |
| MTM 304            | Port Operations and Management                                     | 3            | Electives           | SDG 4      |
| MTM 306            | Shipping Operations and Management                                 | 3            | Electives           | SDG 4      |
| MTM 322            | Fisheries Resources & Management                                   | 3            | Electives           | SDG 14     |
| MTM 401            | Coastal Eco-Tourism Development and Management                     | 3            | Electives           | SDG 14     |
| MTM 403            | Maritime Innovation & Entrepreneurship                             | 3            | Electives           | SDG 9      |
| MTM 501            | Maritime Business: China Pakistan Perspective under CPEC           | 3            | Electives           | SDG 4      |
| MTM 521            | Maritime Business and HRM  |              | Electives           | SDG 10     |
| MTM 504            | Maritime Management: Concept and Applications                      | 3            | Electives           | SDG 10     |
| MTM 505            | Contemporary Issues of Maritime Management                         | 3            | Electives           | SDG 16     |
| MTM 506            | Maritime Management in Pakistan: Past, Present and Future          | 3            | Electives           | SDG 16     |
| HRM 508            | Marine Environments and Administration                             | 3            | Electives           | SDG 13     |
| ECO-363            | Introduction to Blue and Green Economy                             | 3            | Electives           | SDG 13     |

**List of Social Sciences Courses**

| <b>Course Code</b> | <b>Course Title</b> | <b>Credit Hours</b> |
|--------------------|---------------------|---------------------|
| HSS 109            | Arabic              | 2                   |
| HSS 163            | Chinese             | 2                   |
| HSS 160            | French              | 2                   |
| HSS 164            | German              | 2                   |
| HSS 161            | Russian             | 2                   |
| HSS 162            | Spanish             | 2                   |
| HSS 214            | Turkish             | 2                   |

## BS (Supply Chain Management)

**Program Title:** BS (Supply Chain Management)

**Duration:** 4 Years Total

**Eligibility Criteria:** Intermediate or it's equivalent with a minimum of 50% marks in any discipline.

### Semester 1

| Sr. No. | Pre-requisite Course Code | Course Code         | Course Title                           | Credit Hours |
|---------|---------------------------|---------------------|--|--------------|
| 1       |                           | ENG 101             | Functional English                     | 3            |
| 2       |                           | QTM 122             | Business Mathematics & Numeracy Skills | 3            |
| 3       |                           | ECO 110             | Microeconomics                         | 3            |
| 4       |                           | PAK 109             | Ideology and Constitution of Pakistan  | 2            |
| 5       |                           | ISL 101/<br>SOC 360 | Islamic Studies/Ethics                 | 2            |
| 6       |                           | MGT111              | Principles of Management               | 3            |
|         |                           | ISL 107             | Tajweed                                | 0            |

### Semester 2

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                   | Credit Hours |
|---------|---------------------------|-------------|--------------------------------|--------------|
| 1       |                           | ENG 102     | English Writing Skills         | 3            |
| 2       |                           | MIS 163     | IT in SCM                      | 3            |
| 3       |                           | HSS 219     | Civic and Community Engagement | 2            |
| 4       |                           | ACC 102     | Financial Accounting           | 3            |
| 5       |                           | ECO 121     | Macroeconomics                 | 3            |
| 6       |                           | SCM 101     | Introduction to SCM            | 3            |
|         |                           | ISL 203     | *Fehm-e-Quran – I              | 1            |
|         | Total Credit Hours        |             |                                | 18           |

**\*For non-Muslim:** Any University approved 02 (or more) credit hours of Interdisciplinary Course

### Semester 3

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                                   | Credit Hours |
|---------|---------------------------|-------------|--|--------------|
| 1       |                           | ENV 120     | Introduction to Environment and Sustainability | 3            |
| 2       |                           | QTM 110     | Business Statistics                            | 3            |

|   |                    |         |  |    |
|---|--------------------|---------|--|----|
| 3 |                    | ACC 304 | Managerial Accounting                  | 3  |
| 4 |                    | SOC 212 | Critical and Logical Thinking          | 3  |
| 5 |                    | MKT 110 | Principles of Marketing                | 3  |
| 6 |                    | SCM 201 | Introduction to Procurement Management | 3  |
| 7 |                    | ISL 109 | Understanding Quran – ii               | 0  |
|   | Total Credit Hours |         |  | 18 |

#### Semester 4

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                         | Credit Hours |
|---------|---------------------------|-------------|--------------------------------------|--------------|
| 1       |                           | MGT-363     | Entrepreneurship                     | 3            |
| 2       |                           | PAK 101     | Pakistan Studies                     | 2            |
| 3       |                           | FIN 220     | Finance of SC Managers               | 3            |
| 4       |                           | SCM 301     | Inventory and Warehouse Management   | 3            |
| 5       |                           | OPM 360     | Operation and Production Management  | 3            |
| 6       |                           | HSS-301     | Social and Psychological Development | 3            |
|         |                           | ISL 204     | *Fehm-e-Quran – II                   | 1            |
|         | Total Credit Hours        |             |                                      | 18           |

**\*For non-Muslim:** Any University approved 02 (or more) credit hours of Interdisciplinary Course

#### Semester 5

|   | Pre-requisite Course Code | Course Code | Course Title                                    | Credit Hours |
|---|---------------------------|-------------|---|--------------|
| 1 |                           | MGT 311     | Career Exploring Management                     | 3            |
| 2 |                           | MGT 435     | Project Management                              | 3            |
| 3 |                           | MIS 310     | SC Analytics and Information System             | 3            |
| 4 |                           | MGT 312     | Quality Management and Lean Thinking            | 3            |
| 5 |                           | QTM 205     | Statistical Inference and Quantitative Research | 3            |

|   |  |         |                                    |   |
|---|--|---------|------------------------------------|---|
| 6 |  | SCM 302 | Supply Network Planning and Design | 3 |
|   |  | ISL 111 | Understanding Quran – iv           | 0 |

### Semester 6

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                      | Credit Hours |
|---------|---------------------------|-------------|-----------------------------------|--------------|
| 1       |                           | MGT 211     | Self-Management (Shifted from S4) | 3            |
| 2       |                           | SCM 320     | Import Export Management          | 3            |
| 3       |                           | SCM 321     | Multimodal Transport Management   | 3            |
| 4       |                           | SCM 402     | Legal Aspects of Supply Chains    | 3            |
| 5       |                           | RMT 240     | Research Methods & Techniques     | 3            |
| 6       |                           | SCM 323     | Innovations in SC with Ecommerce  | 3            |
|         |                           | ISL 112     | Understanding Quran – v           | 0            |

### Semester 7

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                             | Credit Hours |
|---------|---------------------------|-------------|--|--------------|
| 1       |                           | SCM 401     | Supply Chain Risk Management             | 3            |
| 2       |                           | RMT 360     | Operations Research                      | 3            |
| 3       |                           | HRM-353     | Human Resource Management                | 3            |
| 4       |                           | SCM 421     | Globalization and Outsourcing Strategies | 3            |
| 5       |                           |             | Specialization-I                         | 3            |
| 6       |                           |             | Specialization-II                        | 3            |
|         |                           | ISL 113     | Seerah-I                                 | 0            |

### Semester 8

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title     | Credit Hours |
|---------|---------------------------|-------------|------------------|--------------|
| 1       |                           | MGT 463     | Corporate Skills | 3            |

|   |         |         |                         |   |
|---|---------|---------|-------------------------|---|
| 2 |         |         | Specialization-III      | 3 |
| 3 |         |         | Specialization-IV       | 3 |
| 4 | RMT 240 | PRO 450 | Capstone Project/Thesis | 3 |
|   |         | ISL 114 | Seerah – ii             | 0 |

### Field Experience / Internship

| Sr. No. | Prerequisite Courses | Course Code | Course Title                   | Credit Hours |
|---------|----------------------|-------------|--------------------------------|--------------|
| 1       |                      | SDW 498     | Field Experience / Internship* | 3            |

- 6 weeks Internship after 4th Semester in the Summer semester, preferably.
- Honors, Awards, & scholarships will be calculated on the basis of coursework only, excluding internship credit hours.
  - The Quran and Seerah program is optional for Non-Muslim students

### List of Elective Courses

| Course Code | Course Title                                   | Credit Hours | Category |
|-------------|--|--------------|----------|
| SCM 654     | Management and Leadership                      | 3            | Elective |
| SCM 649     | Contemporary Issues in Supply Chain Management | 3            | Elective |
| SCM 655     | Customer and Supplier Relationship Management  | 3            | Elective |
| SCM 648     | Entrepreneurship in Supply Chain Management    | 3            | Elective |
| SCM 647     | ERP and SCM Systems                            | 3            | Elective |
| SCM 633     | Master planning of Resources in SCM            | 3            | Elective |
| SCM 617     | Demand Forecasting                             | 3            | Elective |
| SCM 646     | Business Process Reengineering                 | 3            | Elective |
| SCM 645     | Contract Management                            | 3            | Elective |
| SCM 636     | Green Supply Chain Management                  | 3            | Elective |
| SCM 652     | Shipping, Freights and Port Operations         | 3            | Elective |
| SCM 654     | Management and Leadership                      | 3            | Elective |
| SCM 651     | Humanitarian Logistics                         | 3            | Elective |
| SCM 649     | Contemporary Issues in Supply Chain Management | 3            | Elective |
| SCM 648     | Entrepreneurship in Supply Chain Management    | 3            | Elective |
| SCM 647     | ERP and SCM Systems                            | 3            | Elective |
| SCM 646     | Business Process Reengineering                 | 3            | Elective |

|                |  |   |          |
|----------------|--|---|----------|
| SCM 653        | Health Safety Environment (HSE) in Warehouse                       | 3 | Elective |
| SCM 324        | Supply Chain Performance Measurement                               | 3 | Elective |
| <b>MTM 101</b> | Introduction to Maritime Industry                                  | 3 | Elective |
| <b>MTM 230</b> | Introduction to Maritime Law and International Maritime Convention | 3 | Elective |
| <b>MTM 215</b> | Economics of Sea Transport & International Trade                   | 3 | Elective |
| <b>MTM 222</b> | Introduction to Coastal Zone Management                            | 3 | Elective |
| <b>MTM 304</b> | Port Operations and Management                                     | 3 | Elective |
| <b>MTM 306</b> | Shipping Operations and Management                                 | 3 | Elective |
| <b>MTM 322</b> | Fisheries Resources & Management                                   | 3 | Elective |
| <b>MTM 401</b> | Coastal Eco-Tourism Development and Management                     | 3 | Elective |
| <b>MTM 403</b> | Maritime Innovation & Entrepreneurship                             | 3 | Elective |
| <b>MTM 526</b> | Maritime Business: China Pakistan Perspective under CPEC           | 3 | Elective |
| <b>MTM 521</b> | Maritime Business and HRM  | 3 | Elective |
| <b>MTM 527</b> | Maritime Management: Concept and Applications                      | 3 | Elective |
| <b>MTM 528</b> | Contemporary Issues of Maritime Management                         | 3 | Elective |
| <b>MTM 529</b> | Maritime Management in Pakistan: Past, Present and Future          | 3 | Elective |
| <b>HRM 508</b> | Marine Environments and Administration                             | 3 | Elective |
| <b>ECO-363</b> | Introduction to Blue and Green Economy                             | 3 | Elective |

### **List of Social Sciences Courses**

| <b>Course Code</b> | <b>Course Title</b> | <b>Credit Hours</b> |
|--------------------|---------------------|---------------------|
| HSS 109            | Arabic              | 2                   |
| HSS 163            | Chinese             | 2                   |
| HSS 160            | French              | 2                   |
| HSS 164            | German              | 2                   |
| HSS 161            | Russian             | 2                   |
| HSS 162            | Spanish             | 2                   |
| HSS 214            | Turkish             | 2                   |

## BS (Business Analytics)

**Program Title:** BS (Business Analytics)

**Duration:** 4 Years Total

**Credit Hours:** Intermediate or its equivalent with a minimum of 50% marks in any discipline

### Semester 1

| Sr. No. | UN SDGs | Pre-requisite Course Code | Course Code         | Course Title                           | Credit Hours |
|---------|---------|---------------------------|---------------------|--|--------------|
| 1       | SDG 4   |                           | ENG 101             | Functional English                     | 3            |
| 2       | SDG 4   |                           | QTM 122             | Business Mathematics & Numeracy Skills | 3            |
| 3       | SDG 8   |                           | ECO 110             | Microeconomics                         | 3            |
| 4       | SDG 16  |                           | PAK 109             | Ideology and Constitution of Pakistan  | 2            |
| 5       | SDG 4   |                           | MGT-111             | Principles of Management               | 3            |
| 6       | SDG 10  |                           | ISL 101/<br>SOC 360 | Islamic Studies / Ethics               | 2            |
|         | SDG 4   |                           | ISL 107             | Tajweed                                | 0            |

### Semester 2

| Sr. No                    | Pre-requisite Course Code | Course Code | Course Title                     | Credit Hours |
|---------------------------|---------------------------|-------------|----------------------------------|--------------|
| 1                         | ENG 101                   | ENG 102     | English Writing skills           | 3            |
| 2                         |                           | MIS 161     | IT in Business (word, excel)     | 3            |
| 3                         |                           | HSS 219     | Civic and Community Engagement   | 2            |
| 4                         |                           | ECO 121     | Macroeconomics                   | 3            |
| 5                         |                           | BUA 101     | Programming Fundamentals         | 3            |
| 6                         |                           | BUA-105     | Introduction to Python Analytics | 3            |
|                           |                           |             | * Fehm-e-Quran – I               | 1            |
| <b>Total Credit Hours</b> |                           |             |                                  | <b>18</b>    |

\*For non-Muslim: Any University approved 02 (or more) credit hours of Interdisciplinary Course

### Semester 3

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                    | Credit Hours |
|---------|---------------------------|-------------|---------------------------------|--------------|
| 1       |                           | ENV 120     | Introduction to Environment and | 3            |

|   |         |         |                                    |   |
|---|---------|---------|------------------------------------|---|
|   |         |         | Sustainability                     |   |
| 2 |         | QTM 110 | Business Statistics                | 3 |
| 3 |         | MKT 110 | Principles of Marketing            | 3 |
| 4 |         | ACC-110 | Accounting for business Analytics  | 3 |
| 5 |         | SOC 212 | Critical and Logical Thinking      | 3 |
| 6 | MIS-161 | BUA-201 | Fundamentals of Business Analytics | 3 |

#### Semester 4

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                            | Credit Hours |
|---------|---------------------------|-------------|---|--------------|
| 1       |                           | MGT-363     | Entrepreneurship                        | 3            |
| 2       |                           | BUA-202     | Data Structure and Business Application | 3            |
| 3       | PAK 109                   | PAK 101     | Pakistan Studies                        | 2            |
| 4       |                           | CSC 412     | Artificial Intelligence                 | 3            |
| 5       | QTM 122                   | GSC 121     | Linear Algebra                          | 3            |
| 6       |                           | HSS-301     | Social and Psychological Development    | 3            |
|         |                           |             | *Fehm-e-Quran – II                      | 1            |

\*For non-Muslim: Any University approved 02 (or more) credit hours of Interdisciplinary Course

#### Semester 5

| Sr. No.                   | Pre-requisite Course Code | Course Code | Course Title                     | Credit Hours |
|---------------------------|---------------------------|-------------|----------------------------------|--------------|
| 1                         | QTM 110                   | QTM 204     | Statistical Inference            | 3            |
| 2                         |                           | CSC 419     | Fundamentals of Machine Learning | 3            |
| 3                         | ACC-110                   | FIN 201     | Fundamentals of Finance          | 3            |
| 4                         |                           | ECO 301     | Fundamentals of Econometrics     | 3            |
| 5                         |                           | BUA-302     | Web Application Development      | 3            |
| 6                         |                           | BUA-303     | Digital Analytics                | 3            |
| <b>Total Credit Hours</b> |                           |             |                                  | <b>18</b>    |

#### Semester 6

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title         | Credit Hours |
|---------|---------------------------|-------------|----------------------|--------------|
| 1       |                           | RMT-240     | Research Methods and | 3            |

|   |  |         |  |   |
|---|--|---------|--|---|
|   |  |         | Techniques   |   |
| 2 |  | SCM 306 | Fundamentals of Operations and Supply Chain Management | 3 |
| 3 |  | BUA-304 | Decision Science for Business                          | 3 |
| 4 |  | BUA-401 | Legal and Ethical Issues in Business Analytics         | 3 |
| 5 |  | CSC 452 | Business Data and Text Mining                          | 3 |
| 6 |  | BUA-305 | E-Commerce   | 3 |
|   |  | ISL 112 |  | 0 |

### Semester 7

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                             | Credit Hours |
|---------|---------------------------|-------------|--|--------------|
| 1       | MGT-111                   | MGT 435     | Project Management                       | 3            |
| 2       |                           | BUA-402     | Predictive Analysis                      | 3            |
| 3       | MGT-111                   | HRM 353     | Human Resource Management                | 3            |
| 4       |                           | BUA-403     | Information Security and System Auditing | 3            |
| 5       |                           |             | Specialization-I                         | 3            |
| 6       |                           |             | Specialization-II                        | 3            |
|         |                           | ISL 113     | Seerah-i                                 | 0            |

### Semester 8

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                      | Credit Hours |
|---------|---------------------------|-------------|-----------------------------------|--------------|
| 1       |                           | BUA 404     | Data Management and Visualization | 3            |
| 2       |                           |             | Specialization-III                | 3            |
| 3       |                           |             | Specialization-IV                 | 3            |
| 4       | RMT-240                   | PRO 450     | Capstone Project/Thesis           | 3            |
| 5       |                           | ISL 114     | Seerah-ii                         | 0            |

### Field Experience / Internship

| Sr. No. | Prerequisite Courses | Course Code | Course Title                   | Credit Hours |
|---------|----------------------|-------------|--------------------------------|--------------|
| 1       |                      | SDW 498     | Field Experience / Internship* | 3            |

- 6 weeks Internship after 4th Semester in the Summer semester, preferably.
- Honors, Awards, & scholarships will be calculated on the basis of coursework only, excluding internship credit hours.
- The Quran and Seerah program is optional for Non-Muslim students.

### ELECTIVES

| Course Code     | Course Title  | Credit Hrs | Category | 17 UN SDGs |
|-----------------|---|------------|----------|------------|
| CSC 521         | Advanced Design and Analysis of Algorithm             | 3          | Elective | SDG 12     |
| CSC 444         | Computer Graphics                                     | 3          | Elective | SDG 8      |
| CSC 341         | Mobile Application Development                        | 3          | Elective | SDG 9      |
| CSC 449         | Neural Networks& Fuzzy Logic                          | 3          | Elective | SDG 4      |
| SEN 420         | Software Quality Assurance                            | 3          | Elective | SDG 8      |
| CEN 45          | Simulation and Modelling                              | 3          | Elective | SDG 9      |
| CEN 451         | Data Encryption and Security                          | 3          | Elective | SDG 9      |
| CSC 404         | Block chain Technologies                              | 3          | Elective | SDG 9      |
| ITC 411         | Cyber Security  | 3          | Elective | SDG 11     |
| CSC 484         | Content Management                                    | 3          | Elective | SDG 8 & 9  |
| MKT 603         | Product Management                                    | 3          | Elective | SDG 4      |
| HRM 691         | Career Planning and Strategic Compensation Management | 3          | Elective | SDG 10     |
| ENT 619         | Technology Entrepreneurship                           | 3          | Elective | SDG 9 & 8  |
| MIS 679         | Enterprise Resource Planning (ERP) Implementation     | 3          | Elective | SDG 9      |
| MIS 625         | Business Process Re-Engineering                       | 3          | Elective | SDG 9      |
|                 | Database for Analytics with Daa Warehousing           | 3          | Elective | SDG 11     |
|                 | Fraud Analytics & Digital Forensics                   | 3          | Elective | SDG 8      |
|                 | Geospatial Analytics                                  | 3          | Elective | SDG 9      |
| <b>MARITIME</b> |   |            |          |            |
| MTM 101         | Introduction to Maritime Industry                     | 3          | Elective | SDG 4      |

|         |  |   |          |        |
|---------|--|---|----------|--------|
| MTM 230 | Introduction to Maritime Law and International Maritime Convention | 3 | Elective | SDG 16 |
| MTM202  | Economics of Sea Transport & International Trade                   | 3 | Elective | SDG 14 |
| MTM 222 | Introduction to Coastal Zone Management                            | 3 | Elective | SDG 14 |
| MTM 304 | Port Operations and Management                                     | 3 | Elective | SDG 4  |
| MTM 306 | Shipping Operations and Management                                 | 3 | Elective | SDG 4  |
| MTM 322 | Fisheries Resources & Management                                   | 3 | Elective | SDG 14 |
| MTM 401 | Coastal Eco-Tourism Development and Management                     | 3 | Elective | SDG 14 |
| MTM 403 | Maritime Innovation & Entrepreneurship                             | 3 | Elective | SDG 9  |
| MTM 501 | Maritime Business: China Pakistan Perspective under CPEC           | 3 | Elective | SDG 4  |
| MTM 521 | Maritime Business and HRM  | 3 | Elective | SDG 10 |
| MTM 504 | Maritime Management: Concept and Applications                      | 3 | Elective | SDG 10 |
| MTM 505 | Contemporary Issues of Maritime Management                         | 3 | Elective | SDG 16 |
| MTM 506 | Maritime Management in Pakistan: Past, Present and Future          | 3 | Elective | SDG 16 |
| HRM 508 | Marine Environments and Administration                             | 3 | Elective | SDG 13 |
| ECO-363 | <i>Introduction to Blue and Green Economy</i>                      | 3 | Elective | SDG 13 |

### **List of Social Sciences Courses**

| <b>Course Code</b> | <b>Course Title</b> | <b>Credit Hours</b> |
|--------------------|---------------------|---------------------|
| HSS 109            | Arabic              | 2                   |
| HSS 163            | Chinese             | 2                   |
| HSS 160            | French              | 2                   |
| HSS 164            | German              | 2                   |
| HSS 161            | Russian             | 2                   |
| HSS 162            | Spanish             | 2                   |
| HSS 214            | Turkish             | 2                   |

## BS Business and Information Technology (BSBIT)

**Program Title:** BS Business and Information Technology (BSBIT)  
**Duration:** 4 Years Total  
**Eligibility Criteria:** Intermediate or its equivalent with a minimum of 50% marks in any discipline.

### Roadmap of BS B&IT

#### Semester -1

| Sr. No. | Prerequisite Courses | Course Code | Course Title                           | Credit Hours |
|---------|----------------------|-------------|--|--------------|
| 1       |                      | ENG 101     | Functional English                     | 3            |
| 2       |                      | MKT 110     | Principle of Marketing                 | 3            |
| 3       |                      | MGT 111     | Principles of Management               | 3            |
| 4       |                      | QTM 122     | Business Mathematics & Numeracy Skills | 3            |
| 5       |                      | MIS 161     | IT in Business (word, excel)           | 3            |
| 6       |                      | ECO 101     | Fundamentals of Economics              | 3            |
| 7       |                      | ISL 107     | Tajweed                                | 0            |

#### Semester 2

| Sr. No. | Prerequisite Courses | Course Code | Course Title                                   | Credit Hours |
|---------|----------------------|-------------|--|--------------|
| 1       |                      | ENG 102     | English Writing Skills                         | 3            |
| 2       |                      | CSC 113     | Computer Programming                           | 3            |
| 3       |                      | CSL 113     | Computer Programming Lab                       | 1            |
| 4       |                      | ENV 120     | Introduction to Environment and Sustainability | 3            |
| 5       |                      | QTM 110     | Business Statistics                            | 3            |
| 6       |                      | ACC 101     | Principles of Accounting                       | 3            |
| 7       |                      | ISL 203     | *Fehm-e-Quran – I                              | 1            |
|         |                      | PAK 109     | Ideology and Constitution of Pakistan          | 2            |

**\*For non-Muslim:** Any University approved 02 (or more) credit hours of Interdisciplinary Course

#### Semester 3

| Sr. No. | Pre-requisite Courses | Course Code | Course Title                                    | Credit Hours |
|---------|-----------------------|-------------|---|--------------|
| 1       |                       | ENG 213     | Oral Communication and Presentation Skills      | 3            |
| 2       |                       | QTM 205     | Statistical Inference and Quantitative Research | 3            |

|   |         |                   |   |   |
|---|---------|-------------------|---|---|
| 3 | CSC 113 | CSC 210           | Object Oriented Programming             | 3 |
| 4 | CSC 113 | CSL 210           | Object Oriented Programming Lab         | 1 |
| 5 |         | SOC 212           | Critical and Logical Thinking           | 3 |
| 6 |         | HSS 202           | Introduction to Sociology               | 3 |
| 7 |         | ISL 201 / SOC 360 | Islamic Socio-Economic Studies / Ethics | 2 |
| 8 |         | ISL 109           | Understanding Quran-ii                  | 0 |

#### **Semester 4**

| Sr. No.                   | Pre-requisite Courses | Course Code | Course Title                          |
|---------------------------|-----------------------|-------------|---------------------------------------|
| 1                         |                       | HSS 219     | Civic and Community Engagement        |
| 2                         |                       | CEN 223     | Computer Communication & Networks     |
| 3                         |                       | CEL 223     | Computer Communication & Networks Lab |
| 4                         |                       | CSC 220     | Database Management System            |
| 5                         |                       | CSL 220     | Database Management System Lab        |
| 6                         |                       | MGT 363     | Entrepreneurship                      |
| 7                         |                       | FIN 201     | Fundamentals of Finance               |
| 8                         |                       | PAK 101     | Pakistan Studies                      |
| 9                         |                       | ISL 204     | Fehm-e-Quran – II                     |
| <b>Total Credit Hours</b> |                       |             |                                       |

**\*For non-Muslim:** Any University approved 02 (or more) credit hours of Interdisciplinary Course

#### **Semester 5**

| Sr. No. | Prerequisite Courses | Course Code | Course Title                         | Credit Hours |
|---------|----------------------|-------------|--------------------------------------|--------------|
| 1       |                      | ENG 214     | Business Communication               | 3            |
| 2       | CSC 113              | CSC 221     | Data Structure & Algorithm           | 3            |
| 3       | CSC 113              | CSL 221     | Data Structure & Algorithm Lab       | 1            |
| 4       |                      | MGT 253     | Human Resource Management            | 3            |
| 5       |                      | HSS 301     | Social and Psychological Development | 3            |
| 6       |                      | MGT 435     | Project Management                   | 3            |
| 7       |                      | ISL 111     | Understanding Quran-iv               | 0            |

#### **Semester 6**

| Sr. | Prerequisite | Course Code | Course Title | Credit Hours |
|-----|--------------|-------------|--------------|--------------|
|-----|--------------|-------------|--------------|--------------|

| No. | Courses |         |  |   |
|-----|---------|---------|--|---|
| 1   |         | SEN 220 | Software Engineering                       | 3 |
| 2   |         | RMT 240 | Research Methods & Techniques              | 3 |
| 3   | CSC 210 | CSC 411 | Artificial Intelligence                    | 2 |
| 4   | CSC 210 | CSL 411 | Artificial Intelligence Lab                | 1 |
| 5   |         | MGT 301 | Business Law                               | 3 |
| 6   |         | SOC 350 | Business Ethics                            | 3 |
| 7   |         | SCM 361 | Introduction to Blue Economy and Green SCM | 3 |
| 8   |         | ISL 112 | Understanding Quran-v                      | 0 |

### Semester 7

| Sr. No.                   | Prerequisite Courses | Course Code | Course Title                          | Credit Hours |
|---------------------------|----------------------|-------------|---------------------------------------|--------------|
| 1                         |                      | MKT 689     | Digital Marketing                     | 3            |
| 2                         |                      | MIS 460     | E-Commerce                            | 3            |
| 3                         |                      | MIS 461     | Advance Application of IT in Business | 3            |
| 4                         |                      | CSC 487     | Introduction to Data Science          | 2            |
| 5                         |                      | CSL 487     | Introduction to Data Science Lab      | 1            |
| 6                         |                      |             | Specialization-I                      | 3            |
| 7                         |                      |             | Specialization-II                     | 3            |
|                           |                      | ISL 113     | Seerah-I                              | 0            |
| <b>Total Credit Hours</b> |                      |             |                                       | <b>18</b>    |

### Semester 8

| Sr. No. | Prerequisite Courses | Course Code | Course Title                       | Credit Hours |
|---------|----------------------|-------------|------------------------------------|--------------|
| 1       | CSC 210              | CSC 341     | Mobile Application Development     | 2            |
| 2       | CSC 210              | CSL 341     | Mobile Application Development Lab | 1            |
| 3       |                      | HRM 242     | Organizational Theory and Behavior | 3            |
| 4       |                      |             | Specialization-III                 | 3            |
| 5       |                      |             | Specialization-IV                  | 3            |
| 6       |                      |             | Capstone Project                   | 3            |

|  |  |         |           |   |
|--|--|---------|-----------|---|
|  |  | ISL 114 | Seerah-ii | 0 |
|--|--|---------|-----------|---|

### **Field Experience / Internship**

| <b>Sr. No.</b> | <b>Prerequisite Courses</b> | <b>Course Code</b> | <b>Course Title</b>            | <b>Credit Hours</b> | <b>HEC Category</b>           | <b>UNSDGs</b> |
|----------------|-----------------------------|--------------------|--------------------------------|---------------------|-------------------------------|---------------|
| 1              |                             | SDW 498            | Field Experience / Internship* | 3                   | Field Experience / Internship | SDG 4         |

- 6 weeks Internship after 4th Semester in the Summer semester, preferably.
- Honors, Awards, & scholarships will be calculated on the basis of coursework only, excluding internship credit hours.
- The Quran and Seerah program are optional for non-Muslim students.
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### **BS-BIT (ELECTIVES LIST)**

#### **Marketing**

| <b>Course Code</b> | <b>Course Title</b>                  | <b>Credit Hours</b> | <b>HEC Category</b> | <b>UN SDGs</b> |
|--------------------|--------------------------------------|---------------------|---------------------|----------------|
| MKT 610            | International Marketing              | 3                   | Electives           | SDG 4          |
| MKT 655            | Services Marketing                   | 3                   | Electives           | SDG 9, 17      |
| MKT 660            | Strategic Marketing                  | 3                   | Electives           | SDG 8, 17      |
| MKT 665            | Cases in Marketing                   | 3                   | Electives           | SDG 9, 10      |
| MKT 635            | New Product Development              | 3                   | Electives           | SDG 4,7 and 8  |
| MKT 662            | Brand Management                     | 3                   | Electives           | SDG 12,9       |
| MKT 688            | Social Media Marketing               | 3                   | Electives           | SDG 2,17       |
| MKT 699            | Consumer Behaviour and Psychology    | 3                   | Electives           | SDG 10         |
| MKT 690            | Integrated Marketing Communication   | 3                   | Electives           | SDG 10, 17     |
| MKT 650            | Sales Management                     | 3                   | Electives           |                |
| MKT 620            | Marketing Research                   | 3                   | Electives           | SDG 9          |
| MKT 693            | B to B and Personal Selling          | 3                   | Electives           | SDG 12         |
| MKT 663            | Promotion and Advertising Management | 3                   | Electives           | SDG 4,17       |
| MKT 689            | Digital Marketing                    | 3                   | Electives           | SDG 4, 7       |
| MKT 691            | Retail and Sales Management          | 3                   | Electives           | SDG 8          |
| MKT 692            | Export Marketing                     | 3                   | Electives           | SDG 9,17       |

|         |   |   |           |           |
|---------|---|---|-----------|-----------|
| MKT 693 | Marketing Issues in Pakistan                  | 3 | Electives | SDG 4, 12 |
| MKT 694 | Public Rationing and Relationship Marketing   | 3 | Electives | SDG 4,17  |
| MKT 695 | Agriculture Marketing                         | 3 | Electives | SDG 1,4   |
| MKT 603 | Product Management                            | 3 | Electives | SDG 12    |
| MKT 604 | Distribution Management                       | 3 | Electives | SDG 8     |
| MKT 605 | Digital Analytics                             | 3 | Electives | SDG 9,12  |
| MKT 606 | Electronic CRM                                | 3 | Electives | SDG 7,17  |
| MKT 697 | Social Marketing                              | 3 | Electives | SDG 4,8   |
| MKT 681 | Copywriting Concepts, Protocols and Practices | 3 | Electives | SDG 4     |

### Human Resource Management

| Course Code | Course Title  | Credit Hours | HEC Category | UN SDGs |
|-------------|---|--------------|--------------|---------|
| HRM 666     | Negotiations and Conflict Management                  | 3            | Electives    | SDG 16  |
| HRM 648     | Organizational Development                            | 3            | Electives    | SDG 10  |
| HRM 676     | International Human Resource Management               | 3            | Electives    | SDG 4   |
| HRM 677     | Seminars In HRM                                       | 3            | Electives    | SDG 4   |
| HRM 689     | Recruitment and Selection                             | 3            | Electives    | SDG 10  |
| HRM 679     | Performance Management                                | 3            | Electives    | SDG 10  |
| HRM 690     | HRM and HRD   | 3            | Electives    | SDG 4   |
| HRM 691     | Career Planning and Strategic Compensation Management | 3            | Electives    | SDG 4   |
| HRM 660     | Training and Development                              | 3            | Electives    | SDG 8   |
| HRM 670     | HR Planning   | 3            | Electives    | SDG 4   |
| HRM 664     | Job Analysis and Design                               | 3            | Electives    |         |
| HRM 649     | HR Research Methods                                   | 3            | Electives    | SDG 8   |
| HRM 682     | Industrial Relations and Employment Laws              | 3            | Electives    | SDG 8   |
| HRM 671     | HR Information Systems                                | 3            | Electives    | SDG 9   |
| HRM 681     | Strategic HRM   | 3            | Electives    | SDG 10  |

|         |                           |   |           |        |
|---------|---------------------------|---|-----------|--------|
| HRM 665 | HR Theory and Practice    | 3 | Electives | SDG 10 |
| HRM 692 | Organizational Psychology | 3 | Electives | SDG 10 |
| HRM 695 | HR Analytics              | 3 | Electives | SDG 9  |

## Finance

| Course Code    | Course Title                                 | Credit Hours | HEC Category | UNSDGs        |
|----------------|--|--------------|--------------|---------------|
| FIN 690        | Financial Modelling                          | 3            | Electives    | SDG 4         |
| FIN 698        | Strategic Finance                            | 3            | Electives    | SDG 4         |
| FIN 612        | Analysis of Financial Statements             | 3            | Electives    | SDG 4         |
| FIN 619        | Financial Derivatives                        | 3            | Electives    | SDG 8         |
| FIN 611        | Corporate Finance                            | 3            | Electives    | SDG 4         |
| FIN 692        | Financial Markets and Institutions           | 3            | Electives    | SDG 10        |
| FIN 693        | Cases in Corporate Finance                   | 3            | Electives    | SDG 4         |
| <b>FIN 523</b> | <b>FinTech</b>                               | <b>3</b>     | Electives    | <b>SDG 10</b> |
| FIN 695        | Investment Analysis and Portfolio Management | 3            | Electives    | SDG 4         |
| FIN 635        | Management Corporate Turnaround              | 3            | Electives    | SDG 4         |
| FIN 696        | Financial Reporting                          | 3            | Electives    | SDG 4, 8      |
| FIN 697        | Taxation and Auditing                        | 3            | Electives    | SDG 10        |
| ACC 622        | Accounting Information Systems               | 3            | Electives    | SDG 9         |
| FIN 682        | Corporate Restructuring                      | 3            | Electives    | SDG 9         |
| FIN 688        | Islamic Finance Theory and Practices         | 3            | Electives    |               |
| ACC 608        | Advanced Corporate Reporting                 | 3            | Electives    | SDG 4         |
| FIN 616        | Management of Financial Institutions         | 3            | Electives    | SDG 4         |
| FIN 600        | Entrepreneurial Finance                      | 3            | Electives    | SDG 4, 8      |
| FIN 601        | Debt Capital Markets                         | 3            | Electives    | SDG 4         |
| FIN 608        | Mutual and Pension Funds                     | 3            | Electives    | SDG 4, 9      |
| FIN 604        | Equity Capital Markets                       | 3            | Electives    | SDG 4, 8      |
| FIN 665        | Behavioural Finance & Wealth Management      | 3            | Electives    | SDG 4, 9      |
| FIN 625        | Commodities and Derivatives Markets          | 3            | Electives    | SDG 8         |
| FIN 461        | Fundamentals of Behavioural Finance          | 3            | Electives    | SDG 8, 4      |

|         |  |   |           |          |
|---------|--|---|-----------|----------|
| FIN 522 | SAP Financial Data Analytics                         | 3 | Electives | SDG 4    |
| FIN 524 | Shariah Standards for Islamic Financial Institutions | 3 | Electives | SDG 9    |
| FIN 684 | Financial Engineering                                | 3 | Electives | SDG 8, 4 |
| FIN 685 | Business Intelligence                                | 3 | Electives | SDG 4    |

### Entrepreneurship

| Course Code | Course Title                                 | Credit Hours | HEC Category | UNSDGs   |
|-------------|--|--------------|--------------|----------|
| ENT 602     | Cases in Entrepreneurship                    | 3            | Electives    | SDG 8    |
| ENT 603     | Developing New Products and Services         | 3            | Electives    | SDG 4, 8 |
| ENT 620     | Entrepreneurial Strategy in Emerging Markets | 3            | Electives    | SDG 4, 9 |
| ENT 606     | Innovation s and Entrepreneurship            | 3            | Electives    | SDG 4,8  |
| ENT 607     | Managing Entrepreneurial Firms               | 3            | Electives    | SDG 4    |
| ENT 608     | Social Responsibility and Entrepreneurship   | 3            | Electives    | SDG 4, 8 |
| ENT 622     | Business Growth and Entrepreneurial Finance  | 3            | Electives    | SDG 9    |
| ENT 612     | Entrepreneurial Marketing                    | 3            | Electives    | SDG 4    |
| ENT 613     | Organizations and Leading Change             | 3            | Electives    | SDG 4,9  |
| ENT 614     | Economic of Location and Transportation      | 3            | Electives    | SDG 4,17 |
| ENT 621     | Retailing and International Entrepreneurship | 3            | Electives    | SDG 4,9  |
| ENT 617     | Corporate Entrepreneurship                   | 3            | Electives    | SDG 4,8  |
| ENT 619     | Technology Entrepreneurship                  | 3            | Electives    | SDG 4,9  |

### Supply Chain Management

| Course Code | Course Title                         | Credit Hours | HEC Category | UNSDGs |
|-------------|--------------------------------------|--------------|--------------|--------|
| SCM 619     | Strategic SCM                        | 3            | Electives    | SDG 9  |
| OPM 611     | Operations and Production Management | 3            | Electives    | SDG 12 |
| SCM 650     | Total Quality Management             | 3            | Electives    | SDG 4  |
| SCM 600     | Inventory Management                 | 3            | Electives    | SDG 4  |
| SCM 614     | Strategic Operation Management       | 3            | Electives    | SDG 4  |
| SCM 615     | Sourcing and Logistics Management    | 3            | Electives    | SDG 4  |
| SCM 616     | Supply Chain Modelling               | 3            | Electives    | SDG 12 |
| SCM 617     | Demand Forecasting                   | 3            | Electives    | SDG 12 |
| SCM 618     | Pricing In SCM                       | 3            | Electives    | SDG 4  |

|         |  |   |           |        |
|---------|--|---|-----------|--------|
| SCM 520 | Purchasing                                   | 3 | Electives | SDG 12 |
| SCM 630 | Strategic Procurement in Supply Chain        | 3 | Electives | SDG 12 |
| SCM 631 | Operational Planning in Supply Chain         | 3 | Electives | SDG 4  |
| SCM 632 | Execution and Control of Operations in SCM   | 3 | Electives | SDG 12 |
| SCM 633 | Master Planning of Resources in SCM          | 3 | Electives | SDG 12 |
| SCM 634 | Detailed Scheduling and Planning In SCM      | 3 | Electives | SDG 12 |
| SCM 635 | Strategic Management of Resources In SCM     | 3 | Electives | SDG 12 |
| SCM 636 | Green Supply Chain Management – GSCM         | 3 | lectives  | SDG 14 |
| SCM 637 | Shipping in SCM                              | 3 | Electives | SDG 14 |
| SCM 639 | Operational Planning in Supply Chain         | 3 | Electives | SDG 4  |
| SCM 638 | Supply Chain Strategy, Design and Compliance | 3 | Electives | SDG 12 |
| SCM 640 | Supply Chain Implementation and Operations   | 3 | Electives | SDG 12 |
| SCM 641 | Fundamentals of Supply Chain Management      | 3 | Electives | SDG 4  |
| SCM 621 | Operations Research                          | 3 | Electives | SDG 4  |

### Management Information System

| Course Code | Course Title                                      | Credit Hours | HEC Category | UNSDGs    |
|-------------|---|--------------|--------------|-----------|
| MIS 655     | Database Management System                        | 3            | Electives    | SDG 9     |
| MIS 620     | System Analysis and Design                        | 3            | Electives    | SDG 8,7   |
| MIS 679     | Enterprise Resource Planning (ERP) Implementation | 3            | Electives    | SGD 8,4   |
| MIS 672     | Web Application Development                       | 3            | Electives    | SDG 9     |
| MIS 625     | Business Process Re-Engineering                   | 3            | Electives    | SDG 9,7   |
| MIS 680     | Data Communication and Networking                 | 3            | Electives    | SDG 17,9  |
| MIS 681     | Information Security and System Auditing          | 3            | Electives    | SDG 9, 12 |
| MIS 657     | Knowledge Management Systems and Technologies     | 3            | Electives    | SDG 8, 9  |
| MIS 658     | Business Intelligence and Decisions Support       | 3            | Electives    | SDG 9,4   |
| MIS 608     | Digital Analytics                                 | 3            | Electives    | SDG 9,7   |
| MKT 607     | Electronic CRM                                    | 3            | Electives    | SDG 17,4  |

**Maritime**

| <b>Course Code</b> | <b>Course Title</b>  | <b>Credit Hours</b> | <b>HEC Category</b> | <b>UNSDGs</b> |
|--------------------|--|---------------------|---------------------|---------------|
| MTM 101            | Introduction to Maritime Industry                                  | 3                   | Electives           | SDG 4         |
| MTM 230            | Introduction to Maritime Law and International Maritime Convention | 3                   | Electives           | SDG 16        |
| MTM202             | Economics of Sea Transport & International Trade                   | 3                   | Electives           | SDG 14        |
| MTM 222            | Introduction to Coastal Zone Management                            | 3                   | Electives           | SDG 14        |
| MTM 304            | Port Operations and Management                                     | 3                   | Electives           | SDG 4         |
| MTM 306            | Shipping Operations and Management                                 | 3                   | Electives           | SDG 4         |
| MTM 322            | Fisheries Resources & Management                                   | 3                   | Electives           | SDG 14        |
| MTM 401            | Coastal Eco-Tourism Development and Management                     | 3                   | Electives           | SDG 14        |
| MTM 403            | Maritime Innovation & Entrepreneurship                             | 3                   | Electives           | SDG 9         |
| MTM 501            | Maritime Business: China Pakistan Perspective under CPEC           | 3                   | Electives           | SDG 4         |
| MTM 521            | Maritime Business and HRM  |                     | Electives           | SDG 10        |
| MTM 504            | Maritime Management: Concept and Applications                      | 3                   | Electives           | SDG 10        |
| MTM 505            | Contemporary Issues of Maritime Management                         | 3                   | Electives           | SDG 16        |
| MTM 506            | Maritime Management in Pakistan: Past, Present and Future          | 3                   | Electives           | SDG 16        |
| HRM 508            | Marine Environments and Administration                             | 3                   | Electives           | SDG 13        |
| ECO-363            | Introduction to Blue and Green Economy                             | 3                   | Electives           | SDG 13        |

**Foreign Language**

| <b>Course Code</b> | <b>Course Title</b> | <b>Credit Hours</b> | <b>HEC Category</b> | <b>UNSDGs</b> |
|--------------------|---------------------|---------------------|---------------------|---------------|
| CLE 401            | Chinese Language    | 3                   | Elective            |               |

**Artificial Intelligence**

| <b>Pre-Requisite</b> | <b>Course Code</b> | <b>Course Title</b>  | <b>Credit Hours</b> | <b>HEC Category</b> | <b>UNSDGs</b> |
|----------------------|--------------------|----------------------|---------------------|---------------------|---------------|
| CEN 223              | CSC 450            | Internet of Things   | 3                   | Elective            |               |
| SEN 220              | CSC 489            | Ubiquitous Computing | 3                   | Elective            |               |

|         |         |   |   |          |  |
|---------|---------|---|---|----------|--|
| CSC 411 | CSC 413 | Introduction to Machine Learning            | 2 | Elective |  |
| CSC 411 | CSL 413 | Introduction to Machine Learning Lab        | 1 | Elective |  |
| CSC 411 | CSC 466 | Introduction to Biometrics                  | 2 | Elective |  |
| CSC 411 | CSL 466 | Introduction to Biometrics lab`             | 1 | Elective |  |
| CSC 411 | AIC 401 | Deep Learning                               | 2 | Elective |  |
| CSC 411 | AIL 401 | Deep Learning Lab                           | 1 | Elective |  |
| None    | AIC 202 | Programming for Artificial Intelligence     | 2 | Elective |  |
| None    | AIL 202 | Programming for Artificial Intelligence Lab | 1 | Elective |  |

### Data Analytics

| Pre-Requisite | Course Code | Course Title                               | Credit Hours | HEC Category | UNSDGs |
|---------------|-------------|--|--------------|--------------|--------|
| None          | ITC 457     | Knowledge Management System & Technologies | 3            | Elective     |        |
| CSC 220       | CSC 452     | Data Mining                                | 3            | Elective     |        |
| CSC 220       | CSC 454     | Data Warehousing                           | 3            | Elective     |        |
| CSC 220       | CSC 426     | Business Intelligence and Analytic         | 3            | Elective     |        |
| CSC 221       | CSC 404     | Blockchain Technologies                    | 3            | Elective     |        |
| CSC 221       | CSC 448     | Introduction to Bioinformatics             | 3            | Elective     |        |
| None          | CSC 458     | Management Information System              | 3            | Elective     |        |
| CSC 220       | CSC 487     | Introduction to Data Science               | 2            | Elective     |        |
| CSC 220       | CSL 487     | Introduction to Data Science Lab           | 1            | Elective     |        |
| CSC 220       | CSC 488     | Big Data Analytics                         | 2            | Elective     |        |
| CSC 220       | CSL 488     | Big Data Analytics Lab                     | 1            | Elective     |        |
| CSC 220       | CSC 490     | Introduction to Cloud Computing            | 3            | Elective     |        |
| CEN 223       | ITC 411     | Cyber Security                             | 3            | Elective     |        |

### Software Engineering

| Pre-Requisite | Course Code | Course Title                   | Credit Hours | HEC Category | UNSDGs |
|---------------|-------------|--------------------------------|--------------|--------------|--------|
|               | ITC 226     | Web Systems & Technologies     | 3            | Elective     |        |
|               | ITL 226     | Web Systems & Technologies Lab | 3            | Elective     |        |
| ITC 226       | SEN 421     | Semantic Web                   | 3            | Elective     |        |
| SEN 220       | SEN 411     | Software Testing               | 3            | Elective     |        |

|         |         |  |   |          |  |
|---------|---------|--|---|----------|--|
| SEN 220 | SEN 456 | Usability Engineering                      | 3 | Elective |  |
| None    | SEN 427 | Information Systems Auditing and Assurance | 3 | Elective |  |
| SEN 220 | SEN 428 | Service Oriented Architecture              | 3 | Elective |  |
| SEN 220 | SEN 420 | Software Quality Assurance                 | 3 | Elective |  |
| None    | SEN 320 | Human Computer Interaction                 | 3 | Elective |  |
| CEN 223 | SEN 459 | Software Defined Network                   | 3 | Elective |  |
| SEN 220 | SEN 410 | Software Project Management                | 3 | Elective |  |
| SEN 220 | SEN 457 | Software Design and Architecture           | 2 | Elective |  |
| SEN 220 | SEL 457 | Software Design and Architecture Lab       | 1 | Elective |  |

### **List of Social Sciences Courses**

| <b>Course Code</b> | <b>Course Title</b> | <b>Credit Hours</b> |
|--------------------|---------------------|---------------------|
| HSS 109            | Arabic              | 2                   |
| HSS 163            | Chinese             | 2                   |
| HSS 160            | French              | 2                   |
| HSS 164            | German              | 2                   |
| HSS 161            | Russian             | 2                   |
| HSS 162            | Spanish             | 2                   |
| HSS 214            | Turkish             | 2                   |

## MS (Business Analytics)

**Program Title :** MS (Business Analytics)

**Duration :** 1.5 Years Total

**Eligibility Criteria:** A bachelor's degree (16 Years of Education) in Business Related Education recognized by HEC. An overall grade-point-average (GPA) of at least 2.0/4 or 50% percent marks in last degree. As per MS program

### Semester 1

| Sr. No. | Prerequisite Courses | Course Code | Course Title                                  | Credit Hours |
|---------|----------------------|-------------|---|--------------|
| 1       |                      | MGT 734     | Business Math's and Statistics                | 3            |
| 2       |                      | MGT 735     | Advanced Research Methodology and Application | 3            |
| 3       |                      | MGT 736     | Strategic Decision Making                     | 3            |
| 4       |                      | MGT 737     | Data Mining                                   | 3            |

### Semester 2

| Sr. No. | Prerequisite Courses | Course Code | Course Title                 | Credit Hours |
|---------|----------------------|-------------|------------------------------|--------------|
| 1       |                      | MGT 738     | Tools for Business Analytics | 3            |
| 2       |                      | MGT 739     | Programming using Python/R   | 3            |
| 3       |                      | MGT XXX     | Elective-I                   | 3            |
| 4       |                      |             | *Fehm ul Quran 1             | 1            |

### Semester 3

| Sr. No. | Pre requisite Courses | Course Code | Course Title              | Credit Hours |
|---------|-----------------------|-------------|---------------------------|--------------|
| 1       |                       |             | *Fehm ul Quran 2          | 1            |
| 2       |                       | THS 702     | Thesis / Capstone Project | 6            |
| 3       |                       | MGT XXX     | Elective-II               | 3            |
|         | Total Credit Hours    |             |                           | 10           |

**\*For non-Muslim:** Any University approved 02 (or more) credit hours of Interdisciplinary Course

## (ELECTIVES LIST) MS (Business Analytics)

| Course Code | Course Title | Credit Hours |
|-------------|--------------|--------------|
|-------------|--------------|--------------|

|         |  |   |
|---------|--|---|
| MSF 729 | Fin tech/Data Science for Finance                        | 3 |
| MSF 730 | Applied Time Series Analysis for Forecasting             | 3 |
| MSF 731 | Risk Management  | 3 |
| MSF 732 | Financial Modeling                                       | 3 |
| MSM 741 | Digital Marketing and social media                       | 3 |
| MSM 742 | Retailing and Analytics                                  | 3 |
| MSM 743 | Market Strategy and Forecasting                          | 3 |
| MSM 744 | Customer Relations Management                            | 3 |
| MGT 740 | Decision Support System                                  | 3 |
| MGT 741 | Management Models  | 3 |
| MGT 742 | HR Analytics   | 3 |
| MGT 743 | Performance Management                                   | 3 |
| MTM     | Maritime Innovation & Entrepreneurship                   | 3 |
| MTM     | Maritime Business: China Pakistan Perspective under CPEC | 3 |
| MTM     | Maritime Business and HRM                                | 3 |
| MTM     | Maritime Management: Concept and Applications            | 3 |
| MTM     | Contemporary Issues of Maritime Management               | 3 |

### MS (Finance) (1.5 year MS Degree Program)

**Program Title :** MS (Finance) (1.5 year MS Degree Program)  
**Duration :** 1.5 Years Total  
**Eligibility Criteria:** 16 years of business/relevant education. Students with 16 years of non-business education will be required to do 30 credit hours of deficiency courses to become eligible for the MS Finance program.

#### Semester 1

| Sr. No. | Prerequisite Courses | Course Code | Course Title               | Credit Hours |
|---------|----------------------|-------------|----------------------------|--------------|
| 1       |                      | MSF 700     | Research Methods           | 3            |
| 2       |                      | MSF 733     | Econometrics               | 3            |
| 3       |                      | MSF 702     | Financial Modeling and VBA | 3            |
| 4       |                      | MSF XXX     | Elective-I                 | 3            |

#### Semester 2

| Sr. No. | Prerequisite Courses | Course Code | Course Title           | Credit Hours |
|---------|----------------------|-------------|------------------------|--------------|
| 1       |                      | MSF 704     | Financial Econometrics | 3            |
| 2       |                      | MSF XXX     | Elective-II            | 3            |
| 3       |                      | MSF XXX     | Elective-III           | 3            |
| 4       |                      |             | *Fehm ul Quran 1       | 1            |

#### Semester 3

| Sr. No. | Pre requisite Courses | Course Code | Course Title              | Credit Hours |
|---------|-----------------------|-------------|---------------------------|--------------|
| 1       |                       |             | Fehm ul Quran 2           | 1            |
| 2       |                       | MSF XXX     | Elective-IV               | 3            |
| 3       |                       | THS 702     | Thesis / Capstone Project | 6            |
|         | Total Credit Hours    |             |                           | 10           |

**\*For non-Muslim:** Any University approved 02 (or more) credit hours of Interdisciplinary Course

#### (ELECTIVES LIST) MS (Finance)

| Course Code | Course Title                              | Credit Hours |
|-------------|---|--------------|
| MSF 710     | Advance Portfolio Analysis and Management | 3            |

|         |  |   |
|---------|--|---|
| MSF 711 | Derivatives Investments                                  | 3 |
| MSF 712 | Alternative Investments                                  | 3 |
| MSF 713 | Fixed Income Investments and Analysis                    | 3 |
| MSF 714 | Asset Pricing Theory                                     | 3 |
| MSF 715 | Real Estate Investments                                  | 3 |
| MSF 716 | Behavioral Finance & Decision Making                     | 3 |
| MSF 717 | Advance Topics in Corporate Finance                      | 3 |
| MSF 718 | Case Studies in Corporate Finance                        | 3 |
| MSF 719 | Mergers and Acquisition Analysis                         | 3 |
| MSF 720 | International Finance and Investments                    | 3 |
| MSF 721 | Theory of Finance  | 3 |
| MSF 722 | Financial Restructuring                                  | 3 |
| MSF 723 | Asset Valuation  | 3 |
| MSF 724 | Strategic Financial Management                           | 3 |
| MSF 725 | Financial System and Regulations                         | 3 |
| MSF 726 | Financial Risk Management and Derivatives                | 3 |
| MSF 727 | Insurance and Risk Management                            | 3 |
| MSF 728 | Structured Securities                                    | 3 |
| MSF 710 | Advance Portfolio Analysis and Management                | 3 |
| MTM     | Maritime Innovation & Entrepreneurship                   | 3 |
| MTM     | Maritime Business: China Pakistan Perspective under CPEC | 3 |
| MTM     | Maritime Management: Concept and Applications            | 3 |
| MTM     | Contemporary Issues of Maritime Management               | 3 |

#### **List of Social Sciences Courses**

| <b>Course Code</b> | <b>Course Title</b> | <b>Credit Hours</b> |
|--------------------|---------------------|---------------------|
| HSS 109            | Arabic              | 2                   |
| HSS 163            | Chinese             | 2                   |
| HSS 160            | French              | 2                   |
| HSS 164            | German              | 2                   |
| HSS 161            | Russian             | 2                   |
| HSS 162            | Spanish             | 2                   |
| HSS 214            | Turkish             | 2                   |

### MS-Marketing & Sales

**Program Title :** MS-Marketing & Sales

**Duration :** 1.5 Years Total

**Eligibility Criteria:** 16 years of Business or Management education equivalent degree with 2.0/4 CGPA or 50% marks. Students with non-business background will take deficiency courses as per HEC rules.

#### Semester 1

| Sr. No. | Prerequisite Courses | Course Code | Course Title                                    | Credit Hours |
|---------|----------------------|-------------|---|--------------|
| 1       |                      | MSM 701     | Applied Approaches to Branding & Communication  | 3            |
| 2       |                      | MSM 704     | Research Philosophy and Quantitative Techniques | 3            |
| 3       |                      | MSM 721     | Advanced Marketing research & Consumer Behavior | 3            |
| 4       |                      |             | Elective 1                                      | 3            |

#### Semester 2

| Sr. No. | Prerequisite Courses | Course Code | Course Title                                 | Credit Hours |
|---------|----------------------|-------------|--|--------------|
| 1       |                      | MSM 722     | Emerging Concepts of Channels & Distribution | 3            |
| 2       |                      | MSM 795     | Independent Market Study                     | 3            |
| 3       |                      |             | Elective 2                                   | 3            |
| 4       |                      |             | Elective 3                                   | 3            |
| 5       |                      | ISL 203     | *Fehm ul Quran 1                             | 1            |

#### Semester 3

| Sr.No. | Pre requisite Courses | Course Code | Course Title             | Credit Hours |
|--------|-----------------------|-------------|--------------------------|--------------|
| 1      |                       |             | Elective 4               | 3            |
| 2      |                       | ISL 204     | *Fehm ul Quran 2         | 1            |
|        |                       | THS 799     | Thesis/ Capstone Project | 6            |

**\*For non-Muslim:** Any University approved 02 (or more) credit hours of Interdisciplinary Course  
(ELECTIVES LIST)

### MS Marketing & Sales

| Course Code | Course Title                        | Credit Hours |
|-------------|-------------------------------------|--------------|
| MSM 731     | Seminar in Sales Force Management   | 3            |
| MSM 732     | Marketing Analytics and Data Mining | 3            |
| MSM 733     | Entrepreneurial Marketing           | 3            |

|         |  |   |
|---------|--|---|
| MSM 734 | Topics in Strategic Sales Management                     | 3 |
| MSM 735 | Philosophy of Customer Relationship Management           | 3 |
| MSM 736 | Perspectives of Retailing & Franchise Management         | 3 |
| MSM 737 | Corporate Sales & Key Account Management                 | 3 |
| MSM 738 | Marketing Modeling                                       | 3 |
| MSM 739 | Discourse of Personal Selling                            | 3 |
| MSM 740 | Digital Marketing  | 3 |
| MTM     | Maritime Innovation & Entrepreneurship                   | 3 |
| MTM     | Maritime Business: China Pakistan Perspective under CPEC | 3 |
| MTM     | Maritime Management: Concept and Applications            | 3 |
| MTM     | Contemporary Issues of Maritime Management               | 3 |

### **List of Social Sciences Courses**

| <b>Course Code</b> | <b>Course Title</b> | <b>Credit Hours</b> |
|--------------------|---------------------|---------------------|
| HSS 109            | Arabic              | 2                   |
| HSS 163            | Chinese             | 2                   |
| HSS 160            | French              | 2                   |
| HSS 164            | German              | 2                   |
| HSS 161            | Russian             | 2                   |
| HSS 162            | Spanish             | 2                   |
| HSS 214            | Turkish             | 2                   |

## MS (Management Sciences) (1.5 year MS Degree Program)

**Program Title :** MS (Management Sciences) (1.5 year MS Degree Program)

**Duration :** 1.5 Years Total

**Eligibility Criteria:** 16 years education from HEC recognized educational universities / institutes, students with business / management sciences backgrounds with the minimum of 50% marks or CGPA 2.00/4.0 in a discipline. must pass Bahria University admission test. **AND/OR** NTS – GAT general with 50 Marks obtained in less than two years prior to admissions. (Policies of HEC shall apply as amended from time to time).

### Semester 1

| Sr. No. | Prerequisite Courses | Course Code | Course Title   | Credit Hours |
|---------|----------------------|-------------|--|--------------|
| 1       |                      | MGT 705     | Strategic Management: Contemporary Concepts, Theories and Applications | 3            |
| 2       |                      | MGT 702     | Advanced Research Methodology and Proposal Development                 | 3            |
| 3       |                      | MGT 706     | Advance Marketing Management: Concept and Applications                 | 3            |
| 4       |                      | MGT XXX     | Elective-I   | 3            |

### Semester 2

| Sr. No. | Prerequisite Courses | Course Code | Course Title   | Credit Hours |
|---------|----------------------|-------------|--|--------------|
| 1       |                      | MGT 707     | Strategic Finance: Concepts and Applications of Contemporary Views | 3            |
| 2       |                      | MGT XXX     | Elective-II  | 3            |
| 3       |                      | MGT XXX     | Elective-III   | 3            |
| 4       |                      | ISL 203     | Fehm ul Quran 1  | 1            |

### Semester 3

| Sr. No. | Pre requisite Courses | Course Code | Course Title              | Credit Hours |
|---------|-----------------------|-------------|---------------------------|--------------|
| 1       |                       | ISL 204     | Fehm ul Quran 2           | 1            |
| 2       |                       | THS 702     | Thesis / Capstone Project | 6            |
| 3       |                       | MSF XXX     | Elective-IV               | 3            |

**\*For non-Muslim:** Any University approved 02 (or more) credit hours of Interdisciplinary Course

**(ELECTIVES LIST)  
MS (Management Sciences)**

| Course Code     | Course Title  | Credit Hours | HEC Category | UN SDGs |
|-----------------|---|--------------|--------------|---------|
| MGT 717         | Contemporary Issues in International Marketing: Concepts and Applications | 3            | Electives    | 8       |
| MGT 718         | Corporate Governance and Sustainability                                   | 3            | Electives    | 8       |
| MGT 725         | Globalization   | 3            | Electives    | 8       |
| MGT 721         | HRM: Concepts and Applications  | 3            | Electives    | 8       |
| MGT 715         | Change Management: Concepts and Applications                              | 3            | Electives    | 8       |
| MGT 711         | Leadership Issues in Organizations: Concepts & Applications               | 3            | Electives    | 8       |
| MGT 731         | Organizational Behavior and Management                                    | 3            | Electives    | 8       |
| MGT 732         | Financial Institution Management  | 3            | Electives    | 8       |
| MGT 733         | International Business and Economics Perspectives                         | 3            | Electives    | 8       |
| MGT 729         | Financial Econometrics  | 3            | Electives    | 8       |
| <b>MARITIME</b> |   |              |              |         |
| MTM             | Maritime Innovation & Entrepreneurship                                    | 3            | Electives    | 9       |
| MTM             | Maritime Business: China Pakistan Perspective under CPEC                  | 3            | Electives    | 17      |
| MTM             | Maritime Business and HRM   | 3            | Electives    | 8       |
| MTM             | Maritime Management: Concept and Applications                             | 3            | Electives    | 9       |
| MTM             | Contemporary Issues of Maritime Management                                | 3            | Electives    | 14      |

**List of Social Sciences Courses**

| Course Code | Course Title | Credit Hours |
|-------------|--------------|--------------|
| HSS 109     | Arabic       | 2            |
| HSS 163     | Chinese      | 2            |
| HSS 160     | French       | 2            |
| HSS 164     | German       | 2            |
| HSS 161     | Russian      | 2            |
| HSS 162     | Spanish      | 2            |
| HSS 214     | Turkish      | 2            |

## MS in Project Management

**Program Title:** MS in Project Management

**Duration:** 1.5 Years Total

**Eligibility Criteria:** Minimum 16 years of education from HEC recognized educational institutes in any discipline, CGPA 2.0/4.0 or 50% marks in non-CGPA degree. GAT General with 50% Marks (is accepted but not mandatory). or 50% minimum passing marks in BU Entry Test.

### Roadmap of MS-PM

#### Semester 1

| Sr. No. | Prerequisite Courses | Course Code | Course Title                                | Credit Hours |
|---------|----------------------|-------------|---|--------------|
| 1       |                      | MSP 703     | Project HR and Stakeholder Management       | 3            |
| 2       |                      | MSP 750     | Project Management Principles and Practices | 3            |
| 3       |                      | MSP 702     | Project Cost and Finance Management         | 3            |
| 4       |                      | ISL 203     | Fehm-e- Quran 1                             | 1            |
| 5       |                      | MSP 797     | Research Methodology                        | 3            |

**\*For non-Muslim:** Any University approved 02 (or more) credit hours of Interdisciplinary Course

#### Semester 2

| Sr. No. | Prerequisite Courses | Course Code         | Course Title                                | Credit Hours |
|---------|----------------------|---------------------|---|--------------|
| 1       |                      | MSP 706             | Project Procurement and Contract Management | 3            |
| 2       |                      | MSP 704             | Project Planning and Development            | 3            |
| 3       |                      | MSP 705             | Project Risk Management                     | 3            |
| 4       |                      | MSP 798/<br>MSP XXX | Thesis/Project I                            | 3            |
| 5       |                      | ISL 204             | Fehm-e- Quran II                            | 1            |

**\*For non-Muslim:** Any University approved 02 (or more) credit hours of Interdisciplinary Course

#### Semester 3

| Sr. No. | Pre-requisite Courses | Course Code | Course Title                                   | Credit Hours |
|---------|-----------------------|-------------|--|--------------|
| 1       |                       | MSP 707     | Project Quality Management and Lean Operations | 3            |

|   |  |                     |   |   |
|---|--|---------------------|---|---|
| 2 |  | MSP 708             | Project Evaluation and Control Management | 3 |
| 3 |  | MSP 798/<br>MSP XXX | Thesis/Project                            | 3 |
| 4 |  | MSP XXX             | Elective                                  | 3 |

| <b>List of Electives</b> |  |            |                |
|--------------------------|--|------------|----------------|
| <b>Course Code</b>       | <b>Course Title</b>                              | <b>CHs</b> | <b>SDG No.</b> |
| MSP721                   | Disaster Management for Disasters                | 3          | 11             |
| MSP722                   | Innovation and Technology Management             | 3          | 9              |
| MSP723                   | NGO Management                                   | 3          | 11             |
| MSP724                   | Scope and Integration Management                 | 3          | 11             |
| MSP725                   | Government Projects (PC1- PC5)                   | 3          | 9              |
| MSP726                   | Project Supply Chain Management                  | 3          | 12             |
| MSP727                   | Project Review, Assurance and Governance         | 3          | 9              |
| MSP728                   | Project Communication and Stakeholder Management | 3          | 8              |
| MSP729                   | Project in controlled environment (Prince 2)     | 3          | 9              |
| MSP730                   | Agile Project Management                         | 3          | 8              |
| <b>List of Projects</b>  |  |            |                |
| <b>Course Code</b>       | <b>Course Title</b>                              | <b>CHs</b> | <b>SDG No.</b> |
| MSP731                   | Primavera CBT                                    | 3          | 9              |
| MSP732                   | EPM Microsoft Project Server (2010) CBT          | 3          | 8              |
| MSP733                   | Share Point Solutions CBT                        | 3          | 9              |
| MSP734                   | Available for CBT Projects                       | 3          | 9              |
| MSP735                   | Project Management Office (PMO) Classroom based  | 3          | 8              |

|        |  |   |   |
|--------|--|---|---|
| MSP736 | Advance Skills for Project Management Professionals<br>Classroom based | 3 | 9 |
|--------|--|---|---|

### Maritime

| Course Title   | Credit Hours |
|--|--------------|
| Introduction to Maritime Industry                                  | 3            |
| Introduction to Maritime Law and International Maritime Convention | 3            |
| Economics of Sea Transport & International Trade                   | 3            |
| Introduction to Coastal Zone Management                            | 3            |
| Port Operations and Management                                     | 3            |
| Shipping Operations and Management                                 | 3            |
| Fisheries Resources & Management                                   | 3            |
| Coastal Eco-Tourism Development and Management                     | 3            |
| Maritime Innovation & Entrepreneurship                             | 3            |
| Maritime Business: China Pakistan Perspective under CPEC           | 3            |
| Maritime Business and HRM  |              |
| Maritime Management: Concept and Applications                      | 3            |
| Contemporary Issues of Maritime Management                         | 3            |
| Maritime Management in Pakistan: Past, Present and Future          | 3            |
| Marine Environments and Administration                             | 3            |
| Introduction to Blue and Green Economy                             | 3            |

### List of Social Sciences Courses

| Course Code | Course Title | Credit Hours |
|-------------|--------------|--------------|
| HSS 109     | Arabic       | 2            |
| HSS 163     | Chinese      | 2            |
| HSS 160     | French       | 2            |
| HSS 164     | German       | 2            |
| HSS 161     | Russian      | 2            |
| HSS 162     | Spanish      | 2            |
| HSS 214     | Turkish      | 2            |

## MS- Supply Chain Management

**Program Title:** MS (SCM)

**Duration:** 1.5 Years

**Eligibility Criteria:** Students eligible for the MS Supply Chain Management should have 16 years of business background or commerce education with minimum of 50% marks in non-CGPA degree or CGPA 2.0/4.0. GAT General with 50% Marks (is accepted but not mandatory). Candidate without business background can be admitted after completing 30-36 credit hours deficiency courses from business domain as mentioned on website.

### Semester-wise Road map

#### Semester 1

| Sr.No. | Course Code | Course Title  | Credit Hours |
|--------|-------------|---|--------------|
| 1      | SCM701      | Fundamentals of Supply Chain Management                           | 3            |
| 2      | SCM 734     | Advanced Negotiation, Contracting & Law in Procurement and Supply | 3            |
| 3      | SCM 728     | Advanced Supplier Selection & Bid Evaluation                      | 3            |
| 4      | ISL 203     | Fehm ul Quran   | 1            |

#### Semester 2

| Sr. No. | Course Code | Course Title                                      | Credit Hours |
|---------|-------------|---|--------------|
| 1       | SCM 729     | Advanced Business Research Methods (Focus on SCM) | 3            |
| 2       | SCM707      | Contemporary Issues in Supply Chain               | 3            |
| 3       | SCM 730     | Advanced Inventory & Logistics Operations         | 3            |
| 4       | SCM706      | Operations Management & Supply Chain              | 3            |
| 5       | ISL 204     | Fehm ul Quran II                                  | 1            |

#### Semester 3

| Sr.No. | Course Code | Course Title                      | Credit Hours |
|--------|-------------|-----------------------------------|--------------|
| 1      | SCM 708     | Strategic Supply Chain Management | 3            |
| 2      | SCM 731     | Advanced Supply Chain Finance     | 3            |
| 3      | SCM XXX     | Elective- 1 (Specialization)      | 3            |
| 4      | SCM XXX     | Elective- 2 (Specialization)      | 3            |

#### Semester 4

| Sr. No. | Course Code | Course Title | Credit Hours |
|---------|-------------|--------------|--------------|
|---------|-------------|--------------|--------------|

|   |         |                                   |   |
|---|---------|-----------------------------------|---|
| 1 | SCM708  | Strategic Supply Chain Management | 3 |
| 2 | SCM 731 | Advanced Supply Chain Finance     | 3 |
|   | THS 799 | Research Thesis                   | 6 |

### **List of Elective Courses**

| Course Code | Course Title   | Credit Hours |
|-------------|--|--------------|
| SCM721      | Leadership in Procurement and Supply                                       | 3            |
| SCM722      | Managing Risks in Supply Chains  | 3            |
| SCM 732     | Advanced Supply Chain Diligence  | 3            |
| SCM724      | Category Management in Procurement and Supply                              | 3            |
| SCM725      | Regulatory Framework for Trade Harmonization in International Supply Chain | 3            |
| SCM726      | Mathematical Modeling & Optimization Techniques in Supply Chain            | 3            |
| SCM 733     | Advanced Software & Simulations  | 3            |

### **Maritime**

| Course Code | Course Title   | Credit Hours |
|-------------|--|--------------|
|             | Introduction to Maritime Industry                                  | 3            |
|             | Introduction to Maritime Law and International Maritime Convention | 3            |
|             | Economics of Sea Transport & International Trade                   | 3            |
|             | Introduction to Coastal Zone Management                            | 3            |
|             | Port Operations and Management                                     | 3            |
|             | Shipping Operations and Management                                 | 3            |
|             | Fisheries Resources & Management                                   | 3            |
|             | Coastal Eco-Tourism Development and Management                     | 3            |
|             | Maritime Innovation & Entrepreneurship                             | 3            |
|             | Maritime Business: China Pakistan Perspective under CPEC           | 3            |
|             | Maritime Business and HRM  |              |
|             | Maritime Management: Concept and Applications                      | 3            |
|             | Contemporary Issues of Maritime Management                         | 3            |
|             | Maritime Management in Pakistan: Past, Present and Future          | 3            |
|             | Marine Environments and Administration                             | 3            |
|             | Introduction to Blue and Green Economy                             | 3            |

### **List of Social Sciences Courses**

| Course Code | Course Title | Credit Hours |
|-------------|--------------|--------------|
|             |              |              |

|         |         |   |
|---------|---------|---|
| HSS 109 | Arabic  | 2 |
| HSS 163 | Chinese | 2 |
| HSS 160 | French  | 2 |
| HSS 164 | German  | 2 |
| HSS 161 | Russian | 2 |
| HSS 162 | Spanish | 2 |
| HSS 214 | Turkish | 2 |

## MS HRM & Organizational Psychology

**Program Title:** MS HRM & Organizational Psychology

**Duration:** 2 Years Total

**Eligibility Criteria:** 16 years of education from HEC recognized educational universities / institutes, students with management sciences and psychology / sociology backgrounds. CGPA 2.0 or above in the final degree, if degree obtained from a CGPA based system. Minimum 50% marks if degree obtained from non-CGPA degree program / institute. Must pass Bahria University Admission Test. Or GAT General with 50 Marks obtained in less than two years prior to admissions.

### Semester 1

| Sr. No. | Prerequisite Courses | Course Code | Course Title                                       | Credit Hours |
|---------|----------------------|-------------|--|--------------|
| 1       |                      | MHO 701     | Contemporary HRM and Practices                     | 3            |
| 2       |                      | MHO 702     | Personnel Selection and Advanced Counseling Skills | 3            |
| 3       |                      | MHO 703     | Organizational Psychology and Psychometrics        | 3            |
| 4       |                      | ISL 203     | Fehm-e-Quran – I                                   | 1            |

### Semester 2

| Sr. No. | Prerequisite Courses | Course Code | Course Title                                 | Credit Hours |
|---------|----------------------|-------------|--|--------------|
| 1       |                      | MHO 704     | Applied Attitude and Behavioral Analysis     | 3            |
| 2       |                      | MHO 705     | Contemporary Issues in Business and Industry | 3            |
| 3       |                      | MHOxxx      | Elective-I                                   | 3            |
| 6       |                      | ISL 204     | Fehm-e-Quran – II                            | 1            |

**\*For non-Muslim:** Any University approved 02 (or more) credit hours of Interdisciplinary Course

### Semester 3

| Sr. No. | Pre -requisite Courses | Course Code | Course Title   | Credit Hours |
|---------|------------------------|-------------|--|--------------|
| 1       |                        | MHO 711     | Advanced Research Methodology and Proposal Development | 3            |
| 2       |                        | MHO xxx     | Elective-II  | 3            |
| 3       |                        | MHO xxx     | Elective-III   | 3            |

**Semester 4**

| Sr. No. | Pre requisite Courses | Course Code | Course Title    | Credit Hours |
|---------|-----------------------|-------------|-----------------|--------------|
| 1       |                       | SDW 796     | Internship      | 3            |
| 2       |                       | THS 799     | Research Thesis | 6            |

**ELECTIVES**

| Course Code     | Course Title   | Credit Hours | HEC Category | SDG    |
|-----------------|--|--------------|--------------|--------|
| MHO 710         | Leadership Issues in Organizations: Concepts and Applications      | 3            |              | 16     |
| MHO 712         | Theories of Learning and Conditioning                              | 3            |              | 4      |
| MHO 713         | Communication Strategies of Scholars                               | 3            |              | 4      |
| MHO 715         | Seminars in Organizational Behaviors                               | 3            |              | 8      |
| MHO 716         | Culture and Persuasion   | 3            |              | 10     |
| MHO 717         | Social and Self-Development  | 3            |              | 10     |
| MHO 718         | Abnormal Psychology  | 3            |              | 3      |
| MHO 719         | Industrial Relations and Labour Laws                               | 3            |              | 8      |
| MHO 720         | Seminars in Organizational Development                             | 3            |              | 8      |
| MHO 721         | Seminars in Human Resource Development                             | 3            |              | 9      |
| MHO 722         | Conflict Resolution Skills   | 3            |              | 10     |
| MHO 723         | HR Analytics   | 3            |              | 4      |
| MHO XXX         | Performance and Rewards Management                                 | 3            |              | 16     |
| MHO XXX         | Creativity and Innovation  | 3            |              | 10     |
| MHO XXX         | Harnessing Employee Talent: Motivating a Diverse Workforce         | 3            |              | 8      |
| MHO XXX         | The Psychology of Competition and Peak Performance                 | 3            |              | 4      |
| <b>Maritime</b> |  |              |              |        |
| Course Code     | Course   | Cr Hr        | HEC Category | SDG    |
| MTM 101         | Introduction to Maritime Industry                                  | 3            | Electives    | SDG 4  |
| MTM 230         | Introduction to Maritime Law and International Maritime Convention | 3            | Electives    | SDG 16 |

|         |   |   |           |        |
|---------|---|---|-----------|--------|
| MTM202  | Economics of Sea Transport & International Trade          | 3 | Electives | SDG 14 |
| MTM 222 | Introduction to Coastal Zone Management                   | 3 | Electives | SDG 14 |
| MTM 304 | Port Operations and Management                            | 3 | Electives | SDG 4  |
| MTM 306 | Shipping Operations and Management                        | 3 | Electives | SDG 4  |
| MTM 322 | Fisheries Resources & Management                          | 3 | Electives | SDG 14 |
| MTM 401 | Coastal Eco-Tourism Development and Management            | 3 | Electives | SDG 14 |
| MTM 403 | Maritime Innovation & Entrepreneurship                    | 3 | Electives | SDG 9  |
| MTM 501 | Maritime Business: China Pakistan Perspective under CPEC  | 3 | Electives | SDG 4  |
| MTM 521 | Maritime Business and HRM                                 | 3 | Electives | SDG 10 |
| MTM 504 | Maritime Management: Concept and Applications             | 3 | Electives | SDG 10 |
| MTM 505 | Contemporary Issues of Maritime Management                | 3 | Electives | SDG 16 |
| MTM 506 | Maritime Management in Pakistan: Past, Present and Future | 3 | Electives | SDG 16 |
| HRM 508 | Marine Environments and Administration                    | 3 | Electives | SDG 13 |
| ECO-363 | Introduction to Blue and Green Economy                    | 3 | Electives | SDG 13 |

### **List of Social Sciences Courses**

| <b>Course Code</b> | <b>Course Title</b> | <b>Credit Hours</b> |
|--------------------|---------------------|---------------------|
| HSS 109            | Arabic              | 2                   |
| HSS 163            | Chinese             | 2                   |
| HSS 160            | French              | 2                   |
| HSS 164            | German              | 2                   |
| HSS 161            | Russian             | 2                   |
| HSS 162            | Spanish             | 2                   |
| HSS 214            | Turkish             | 2                   |

## PhD (Economics)

**Program Title:** PhD (Economics)

**Duration:** 3 Years

**Eligibility Criteria:** 18 year of education (MS/MPhil/equivalent degree) in relevant discipline from an HEC recognized university with a minimum CGPA of 3.00/4.00 (Semester System) or 60% marks (Annual System). NTS-GAT (General) or GRE (General) Test passed with minimum 60% marks or BU Admission Test (60% passing marks). Initial Research Proposal/Statement of Purpose is required at the time of PhD admission.

### Semester 1

| Sr. No. | Prerequisite Course Code | Course Code | Course Title                 | Credit Hours |
|---------|--------------------------|-------------|------------------------------|--------------|
| 1       |                          | ECO 801     | Applied Microeconomic Theory | 3            |
| 2       |                          | ECO 802     | Applied Macroeconomic Theory | 3            |
| 3       |                          | ISL 203     | Fehm-e-Quran 1               | 1            |
| 4       |                          |             | Elective 1                   | 3            |

### Semester 2

| Sr. No. | Prerequisite Course Code | Course Code | Course Title                 | Credit Hours |
|---------|--------------------------|-------------|------------------------------|--------------|
| 1       |                          | ECO 803     | Advanced Econometric Methods | 3            |
| 1       |                          | ISL 204     | Fehm-e-Quran 2               | 1            |
| 3       |                          |             | Elective II                  | 3            |
| 4       |                          |             | Elective III                 | 3            |

**\*For non-Muslim:** Any University approved 02 (or more) credit hours of Interdisciplinary Course

### Semester 3

| S.# | Prerequisite Course Code | Course Code | Course Title | Credit Hours |
|-----|--------------------------|-------------|--------------|--------------|
|-----|--------------------------|-------------|--------------|--------------|

|   |  |        |            |   |
|---|--|--------|------------|---|
| 1 |  | THS900 | PhD Thesis | 9 |
|---|--|--------|------------|---|

**Semester 4**

| S.# | Prerequisite Course Code | Course Code | Course Title | Credit Hours |
|-----|--------------------------|-------------|--------------|--------------|
| 1   |                          | THS900      | PhD Thesis   | 9            |

**Semester 5**

| S.# | Prerequisite Course Code | Course Code | Course Title | Credit Hours |
|-----|--------------------------|-------------|--------------|--------------|
| 1   |                          | THS900      | PhD Thesis   | 9            |

**Semester 6**

| S.# | Prerequisite Course Code | Course Code | Course Title | Credit Hours |
|-----|--------------------------|-------------|--------------|--------------|
| 1   |                          | THS900      | PhD Thesis   | 9            |

**ELECTIVES**

| Course Code | COURSE TITLE                        | Credit Hours | Category |
|-------------|-------------------------------------|--------------|----------|
| ECO 811     | Agricultural Development and Policy | 3            | Elective |
| ECO 812     | Development Economics               | 3            | Elective |
| ECO 813     | Economic Growth and Distribution    | 3            | Elective |
| ECO 814     | Economics of Population             | 3            | Elective |
| ECO 815     | Environmental Economics             | 3            | Elective |
| ECO 816     | International Economics             | 3            | Elective |
| ECO 817     | Mathematical Economics              | 3            | Elective |
| ECO 818     | Monetary Economics                  | 3            | Elective |
| ECO 819     | Topics in Advanced Econometrics     | 3            | Elective |

**Maritime**

| Course Code | Course Title                      | Credit Hours |
|-------------|-----------------------------------|--------------|
|             | Introduction to Maritime Industry | 3            |

|  |  |   |
|--|--|---|
|  | Introduction to Maritime Law and International Maritime Convention | 3 |
|  | Economics of Sea Transport & International Trade                   | 3 |
|  | Introduction to Coastal Zone Management                            | 3 |
|  | Port Operations and Management                                     | 3 |
|  | Shipping Operations and Management                                 | 3 |
|  | Fisheries Resources & Management                                   | 3 |
|  | Coastal Eco-Tourism Development and Management                     | 3 |
|  | Maritime Innovation & Entrepreneurship                             | 3 |
|  | Maritime Business: China Pakistan Perspective under CPEC           | 3 |
|  | Maritime Business and HRM  |   |
|  | Maritime Management: Concept and Applications                      | 3 |
|  | Contemporary Issues of Maritime Management                         | 3 |
|  | Maritime Management in Pakistan: Past, Present and Future          | 3 |
|  | Marine Environments and Administration                             | 3 |
|  | Introduction to Blue and Green Economy                             | 3 |

**List of Social Sciences Courses**

| Course Code | Course Title | Credit Hours |
|-------------|--------------|--------------|
| HSS 109     | Arabic       | 2            |
| HSS 163     | Chinese      | 2            |
| HSS 160     | French       | 2            |
| HSS 164     | German       | 2            |
| HSS 161     | Russian      | 2            |
| HSS 162     | Spanish      | 2            |
| HSS 214     | Turkish      | 2            |

## PhD Management Science

**Program Title:** PhD (Management Science)

**Duration:** 3 Years

**Eligibility Criteria:** 18 years of MS/MPhil or equivalent education from an HEC- recognized university in relevant discipline with a minimum CGPA of 3.00/4.00 (Semester System) or 60% marks (Annual System).

- NTS-GAT (General) or GRE (General) Test passed with minimum 60% marks or BU Admission Test (60% passing marks).
- Initial Research Proposal/Statement of Purpose is required at the time of PhD admission.

### Semester-wise Road map

#### Semester 1

| Sr. No. | Prerequisite Course Code | Course Code | Course Title                               | Credit Hours |
|---------|--------------------------|-------------|--|--------------|
| 1       |                          | MGT 802     | Advanced Qualitative Research Methods      | 3            |
| 2       |                          | MGT 805     | Contemporary Issues in Management Sciences | 3            |
| 3       |                          | MGT 806     | Advanced Quantitative Research Methods     | 3            |
| 4       |                          | ISL 203     | Fehm-e-Quran 1                             | 1            |

#### Semester 2

| Sr. No. | Prerequisite Course Code | Course Code | Course Title   | Credit Hours |
|---------|--------------------------|-------------|----------------|--------------|
| 1       |                          | ISL 204     | Fehm-e-Quran 2 | 1            |
| 2       |                          | MGTxxx      | Elective I     | 3            |
| 3       |                          | MGTxxx      | Elective II    | 3            |
| 4       |                          | MGTxxx      | Elective III   | 3            |

**\*For non-Muslim:** Any University approved 02 (or more) credit hours of Interdisciplinary Course

#### Semester 3

| S.# | Prerequisite Course Code | Course Code | Course Title | Credit Hours |
|-----|--------------------------|-------------|--------------|--------------|
| 1   |                          | THS899      | PhD Thesis   | 9            |

**Semester 4**

| S.# | Prerequisite Course Code | Course Code | Course Title | Credit Hours |
|-----|--------------------------|-------------|--------------|--------------|
| 1   |                          | THS899      | PhD Thesis   | 9            |

**Semester 5**

| S.# | Prerequisite Course Code | Course Code | Course Title | Credit Hours |
|-----|--------------------------|-------------|--------------|--------------|
| 1   |                          | THS899      | PhD Thesis   | 9            |

**Semester 6**

| S.# | Prerequisite Course Code | Course Code | Course Title | Credit Hours |
|-----|--------------------------|-------------|--------------|--------------|
| 1   |                          | THS899      | PhD Thesis   | 9            |

**ELECTIVES**

| Course Code | Course Title                                       | Credit Hours | Category |
|-------------|--|--------------|----------|
| MGT 830     | Seminars in Organizational Behavior                | 3            | Elective |
| MGT 831     | Communication Strategies for Scholars              | 3            | Elective |
| MGT 832     | Seminar in Behavioral Decision Making              | 3            | Elective |
| MGT 833     | Seminar in International Human Resource Management | 3            | Elective |
| MGT 834     | Dissertation Research                              | 3            | Elective |
| MGT 835     | Industrial / Organizational Psychology             | 3            | Elective |
| MGT 836     | Seminar in economics of Strategy and Organization  | 3            | Elective |
| MGT 837     | Seminar in Leadership and change Management        | 3            | Elective |
| MGT 838     | Advanced International Business Management         | 3            | Elective |
| MGT 839     | Intelligent Information systems Marketing Courses  | 3            | Elective |
| MGT 840     | Seminar in Entrepreneurial Communication           | 3            | Elective |

|         |  |   |          |
|---------|--|---|----------|
| MGT 841 | Behavior Research in Marketing   | 3 | Elective |
| MGT 842 | Seminar in Behavioral Research in Marketing II: Consumer Behavior          | 3 | Elective |
| MGT 843 | Seminar in Product Planning  | 3 | Elective |
| MGT 844 | Seminar in qualitative Research in Marketing: Strategic Models and Methods | 3 | Elective |
| MGT 845 | Empirical Analysis of Dynamic Decision Context                             | 3 | Elective |
| MGT 846 | Culture and Persuasion   | 3 | Elective |
| MGT 847 | Seminar in International Marketing   | 3 | Elective |
| MGT 848 | Advance topic in Marketing   | 3 | Elective |
| MGT 849 | Marketing Research and Analysis  | 3 | Elective |
| MGT 850 | Seminar in International Advertising                                       | 3 | Elective |
| MGT 851 | Behavior Research in Marketing   | 3 | Elective |
| MGT 852 | Production and Operations Management                                       | 3 | Elective |
| MGT 828 | Financial Econometrics   | 3 | Elective |
| MGT 870 | Behavioral Finance and Decision Making                                     | 3 | Elective |
| MGT 853 | Corporate Sustainability and Financial Performance                         | 3 | Elective |
| MKT     | Behavioral Approaches to Decision Making and Negotiation (Elective)        | 3 | Elective |
| MKT     | Analytical Methods in Marketing (Elective)                                 | 3 | Elective |

### Maritime

| Course Code | Course Title   | Credit Hours | HEC Category |
|-------------|--|--------------|--------------|
|             | Introduction to Maritime Industry                                  | 3            | Electives    |
|             | Introduction to Maritime Law and International Maritime Convention | 3            | Electives    |
|             | Economics of Sea Transport & International Trade                   | 3            | Electives    |
|             | Introduction to Coastal Zone Management                            | 3            | Electives    |
|             | Port Operations and Management                                     | 3            | Electives    |
|             | Shipping Operations and Management                                 | 3            | Electives    |
|             | Fisheries Resources & Management                                   | 3            | Electives    |

|  |   |   |           |
|--|---|---|-----------|
|  | Coastal Eco-Tourism Development and Management            | 3 | Electives |
|  | Maritime Innovation & Entrepreneurship                    | 3 | Electives |
|  | Maritime Business: China Pakistan Perspective under CPEC  | 3 | Electives |
|  | Maritime Business and HRM                                 |   | Electives |
|  | Maritime Management: Concept and Applications             | 3 | Electives |
|  | Contemporary Issues of Maritime Management                | 3 | Electives |
|  | Maritime Management in Pakistan: Past, Present and Future | 3 | Electives |
|  | Marine Environments and Administration                    | 3 | Electives |
|  | Introduction to Blue and Green Economy                    | 3 | Electives |

### **List of Social Sciences Courses**

| <b>Course Code</b> | <b>Course Title</b> | <b>Credit Hours</b> |
|--------------------|---------------------|---------------------|
| HSS 109            | Arabic              | 2                   |
| HSS 163            | Chinese             | 2                   |
| HSS 160            | French              | 2                   |
| HSS 164            | German              | 2                   |
| HSS 161            | Russian             | 2                   |
| HSS 162            | Spanish             | 2                   |
| HSS 214            | Turkish             | 2                   |

## Bachelor of Media Studies

**Program Title:** BS (Media Studies)

**Duration:** 4 Years (8 Semesters)

**Eligibility Criteria:** All candidates who have passed the intermediate examination or its equivalent with a minimum of 50% marks in any discipline can apply for admission to BS Media Studies.

### Road Map of BS (Media Studies)

#### Semester 1

| Sr. # | Course Code | Course Title                           | Credit Hours            |
|-------|-------------|--|-------------------------|
| 1     | ENG 101     | Functional English                     | 03                      |
| 2     | MED 109     | Computer Skills for Mass Communication | 03                      |
| 3     | MED 107     | Introduction to Mass Communication     | 03                      |
| 4     | ENV 105     | Introduction to Environmental Sciences | 03                      |
| 5     | PAK 105     | Pakistan Studies                       | 02                      |
| 6     | MED 110     | Photography                            | 03                      |
| 7     | ISL 107     | Tajweed                                | Non-Credited every week |

#### Semester 2

| Sr. # | Course Code | Course Title                    | CHs                     |
|-------|-------------|---------------------------------|-------------------------|
| 1     | ENG 133     | Writing & Presentation Skills   | 03                      |
| 2     | HSS 101     | Introduction to Philosophy      | 03                      |
| 3     | MED 211     | Introduction to Broadcast Media | 03                      |
| 4     | MAT 105     | Mathematics                     | 03                      |
| 5     | ISL 100     | Islamic Studies / Ethics        | 02                      |
| 6     |             | Elective* (Major)               | 03                      |
| 7     | ISL 108     | Understanding Quran i           | Non-Credited every week |

#### Semester 3

| Sr. # | Course Code | Course Title                            | CHs |
|-------|-------------|---|-----|
| 1     | HSS 331     | Fundamentals of International Relations | 02  |
| 2     | HSS 112     | Introduction to Political Science       | 03  |
| 3     | MAT 205     | Statistics                              | 03  |

|   |         |                                       |                         |
|---|---------|---------------------------------------|-------------------------|
| 4 | MED 210 | News Writing and Reporting            | 03                      |
| 5 |         | Elective (Arts & Humanities)          | 02                      |
| 6 |         | Elective* (Major)                     | 03                      |
| 7 | PAK 109 | Ideology and Constitution of Pakistan | 02                      |
| 8 | ISL 109 | Understanding Quran-II                | Non-Credited every week |

#### Semester 4

| <i>Sr. #</i> | <i>Course Code</i> | <i>Course Title</i>           | <i>CHs</i>              |
|--------------|--------------------|-------------------------------|-------------------------|
| 1            | MGT 363            | Entrepreneurship              | 02                      |
| 2            | HSS 219            | Civics & Community Engagement | 02                      |
| 3            | HSS 334            | Fundamentals of Sociology     | 03                      |
| 4            | HSS 107            | Introduction to Psychology    | 03                      |
| 5            | MED 208            | Introduction to Digital Media | 03                      |
| 6            |                    | Elective*(Major)              | 03                      |
| 7            | ISL 110            | Understanding Quran-III       | Non-Credited every week |

#### Semester 5

| <i>Sr. #</i> | <i>Course Code</i> | <i>Course Title</i>                              | <i>CHs</i>               |
|--------------|--------------------|--|--------------------------|
| 1            | MED 303            | Mass Communication Theories                      | 03                       |
| 2            | MED 305            | Script Writing and Editing                       | 03                       |
| 3            | MED 206            | Current Affairs                                  | 03                       |
| 4            | MED 204            | Introduction to Advertising and Public Relations | 03                       |
| 5            | MED 209            | Journalistic Language                            | 03                       |
| 6            |                    | Elective* (Major)                                | 03                       |
| 7            | ISL 111            | Understanding Quran-iv                           | Non- Credited every week |

#### Semester 6

| <i>Sr. #</i> | <i>Course Code</i> | <i>Course Title</i>   | <i>CHs</i> |
|--------------|--------------------|-----------------------|------------|
| 1            | MED 304            | Research Methods      | 03         |
| 2            | MED 306            | Photo Journalism      | 03         |
| 3            | MED 401            | Online Journalism     | 03         |
| 4            | MED 403            | Media Laws and Ethics | 03         |
| 5            |                    | Elective* (Major)     | 03         |

|   |         |                       |                         |
|---|---------|-----------------------|-------------------------|
| 6 | ISL 112 | Understanding Quran-V | Non-Credited every week |
|---|---------|-----------------------|-------------------------|

### Semester 7

| Sr. # | Course Code | Course Title                        | CHs                      |
|-------|-------------|-------------------------------------|--------------------------|
| 1     | HSS 401     | Statistical Analysis of Social Data | 03                       |
| 2     | MED 448     | Intercultural Communication         | 03                       |
| 3     |             | Elective* (Major)                   | 03                       |
| 4     |             | Elective* (Major)                   | 03                       |
| 5     |             | Elective* (Major)                   | 03                       |
| 6     | ISL 113     | Seerah-I                            | Non- Credited every week |

### Semester 8

| Sr. #     | Course Code | Course Title                                     | CHs                     |
|-----------|-------------|--|-------------------------|
| 1         | MED 402     | Research Report/ Final Project/ Research Article | 03                      |
| 2         | MED 404     | Development Support Communication                | 03                      |
| 3         | MED 446     | Digital Public Relations                         | 03                      |
| 4         |             | Elective* (Major)                                | 03                      |
| 5         |             | Elective* (Major)                                | 03                      |
| 6         | ISL 114     | Seerah-II  | Non-credited every week |
| Total Chs |             |  | 15                      |

### 1. Gen Education Courses

| S# | Course Code | Course Title                            | Credit Hours |
|----|-------------|---|--------------|
| 1  | HSS 331     | Fundamentals of International Relations | 02           |
| 2  | ENV 105     | Introduction to Environmental Sciences  | 03           |
| 3  | MAT 105     | Mathematics                             | 03           |
| 4  | MAT 205     | Statistics                              | 03           |
| 5  | MED 109     | Computer Skills for Mass Communication  | 03           |
| 6  | ENG 100     | Functional English                      | 03           |
| 7  | ENG 133     | Writing & Presentation Skills           | 03           |
| 8  | ISL 101     | Islamic Studies                         | 02           |
| 9  | PAK 102     | Pakistan Studies                        | 02           |
| 10 | HSS 219     | Civics and Community Engagement         | 02           |
| 11 | MGT 363     | Entrepreneurship                        | 02           |
| 12 |             | Physical Education & Sports / Language* | 02           |

| <b>List of Elective Course</b> |             |  |            |
|--------------------------------|-------------|--|------------|
| <b>S#</b>                      | <b>Code</b> | <b>Title</b>                                     | <b>CHs</b> |
| 1                              | MED 107     | Introduction to Mass Communication               | 03         |
| 2                              | MED 110     | Photography                                      | 03         |
| 3                              | MED 209     | Journalistic Language                            | 03         |
| 4                              | MED 211     | Introduction to Broadcast Media                  | 03         |
| 5                              | MED 210     | News Writing and Reporting                       | 03         |
| 6                              | MED 204     | Introduction to Advertising and Public Relations | 03         |
| 7                              | MED 208     | Introduction to Digital Media                    | 03         |
| 8                              | MED 303     | Mass Communication Theories                      | 03         |
| 9                              | MED 305     | Script Writing and Editing                       | 03         |
| 10                             | MED 206     | Current Affairs                                  | 03         |
| 11                             | Med 304     | Research Methods                                 | 03         |
| 12                             | MED 306     | Photojournalism                                  | 03         |
| 13                             | MED 402     | Online Journalism                                | 03         |
| 14                             | MED 403     | Media Laws and Ethics                            | 03         |
| 15                             | MED 404     | Development Support Communication                | 03         |
| 16                             | HSS 401     | Statistical Analysis of Social Data              | 03         |
| 17                             | MED 448     | Intercultural Communication                      | 03         |
| 18                             | MED 446     | Digital Public Relations                         | 03         |
| 19                             | MED 308     | Video Editing                                    | 03         |
| 20                             | MED 309     | World Cinema                                     | 03         |
| 21                             | MED 311     | 2D Animation                                     | 03         |
| 22                             | MED 312     | Principles of Public Relations                   | 03         |
| 23                             | MED 313     | Musicology                                       | 03         |
| 24                             | MED 314     | Media, Culture and Society                       | 03         |
| 25                             | MED 315     | Sound Design                                     | 03         |
| 26                             | MED 113     | Introduction to Film Studies                     | 03         |
| 27                             | MED 111     | Media and Society                                | 03         |
| 28                             | MTB 318     | Film Analysis                                    | 03         |
| 29                             | MTB 319     | Introduction to Theatre                          | 03         |
| 30                             | MTB 420     | Media Entrepreneurship                           | 03         |

|    |         |   |    |
|----|---------|---|----|
| 31 | MED 302 | Feature, Column and Editorial Writing           | 03 |
| 32 | MED 307 | Elements of Advertising                         | 03 |
| 33 | MED 301 | Sub-Editing and Page Designing                  | 03 |
| 34 | MED 440 | Copy and Layout Designing                       | 03 |
| 35 | MED 202 | Functional Urdu                                 | 03 |
| 36 | MED 437 | 2D / 3D Animation                               | 03 |
| 37 | MED 444 | Persuasive Writing                              | 03 |
| 38 | MED 445 | PR Campaign Designing                           | 03 |
| 39 | MED 447 | International Public Relations                  | 03 |
| 40 | MED 417 | Advanced cinematography                         | 03 |
| 41 | MED 418 | Art Direction                                   | 03 |
| 42 | MED 421 | Motion graphics and compositing                 | 03 |
| 43 | MED 411 | Magazine Production/Magazine Program Production | 03 |
| 44 | MED 408 | Community Journalism                            | 03 |
| 45 | MED 413 | Newspaper Production                            | 03 |
| 46 | MTB 426 | Digital Journalism                              | 03 |
| 47 | MTB 434 | Multimedia Skills                               | 03 |
| 48 | MTB 331 | Environmental Communication                     | 03 |
| 49 | MED 340 | Acting  | 03 |
| 50 | MED 225 | Basic Drawing and Design                        | 03 |
| 51 | MED 226 | AI and Media                                    | 03 |

**Arts and Humanities Electives General Education Courses**

|    |         |                             |    |
|----|---------|-----------------------------|----|
| 52 | HSS 330 | Physical Education & Sports | 02 |
| 53 | HSS 109 | Arabic                      | 02 |
| 54 | HSS 163 | Chinese                     | 02 |
| 55 | HSS 160 | French                      | 02 |
| 56 | HSS 164 | German                      | 02 |
| 57 | HSS 161 | Russian                     | 02 |
| 58 | HSS 162 | Spanish                     | 02 |
| 59 | HSS 214 | Turkish                     | 02 |

**BS Media Studies Minor (12 Credit Hours)**

|         |                                  |
|---------|----------------------------------|
| Minor 1 | Electronic Media                 |
| Minor 2 | Media Management                 |
| Minor 3 | Advertising and Public Relations |

|         |                        |
|---------|------------------------|
| Minor 4 | Film & Performing Arts |
| Minor 5 | Animation              |

| <b>1. Electronic Media – Minor Courses</b> |             |                             |            |
|--|-------------|-----------------------------|------------|
| <b>S#</b>                                  | <b>Code</b> | <b>Title</b>                | <b>CHs</b> |
| 1  | MED 415     | Television Journalism       | 03         |
| 2  | MED 416     | News writing and production | 03         |
| 3  | MED 419     | Documentary Production      | 03         |
| 4  | MED 422     | Music video production      | 03         |
| 5  | MED 424     | Storyboarding               | 03         |
| 6  | MED 409     | Data Journalism             | 03         |
| 7  | MED 412     | Multimedia Journalism       | 03         |
| 8  | MED 414     | Peace Journalism            | 03         |
| 9  | MED 423     | Product Development         | 03         |

| <b>2. Media Management – Minor Courses</b> |             |                                    |            |
|--|-------------|------------------------------------|------------|
| <b>S#</b>                                  | <b>Code</b> | <b>Title</b>                       | <b>CHs</b> |
| 1  | MED 455     | Media Management and Marketing     | 03         |
| 2  | MED 423     | Product Development                | 03         |
| 3  | MED 457     | Integrated Marketing Communication | 03         |
| 4  | MGT 130     | Management                         | 03         |
| 5  | HRM 353     | Human Resource Management          | 03         |
| 6  | ENG 243     | Business Communication Skills      | 03         |

| <b>3. Advertising and Public Relations</b> |             |                                     |            |
|--|-------------|-------------------------------------|------------|
| <b>S#</b>                                  | <b>Code</b> | <b>Title</b>                        | <b>CHs</b> |
| 1  | MED 430     | Media Planning & Buying             | 03         |
| 2  | MED 431     | Campaign Designing                  | 03         |
| 3  | MED 432     | Market Research                     | 03         |
| 4  | MED 433     | TVC Production                      | 03         |
| 5  | MED 429     | Copy Writing                        | 03         |
| 6  | MED 435     | Advertising Strategy & Planning     | 03         |
| 7  | MED 437     | 2D/3D Animation                     | 03         |
| 8  | MED 438     | Brand Management                    | 03         |
| 9  | ADM 439     | Digital Advertising                 | 03         |
| 10   | MED 442     | Crisis Communication and Management | 03         |
| 11   | MED 442     | Event Management                    | 03         |
| 12   | MED 443     | Media Management & Relations        | 03         |

| <b>4. Animation (ANM)</b> |             |                                   |            |
|---------------------------|-------------|-----------------------------------|------------|
| <b>S#</b>                 | <b>Code</b> | <b>Title</b>                      | <b>CHs</b> |
| 1                         | MED 449     | Character Modeling                | 03         |
| 2                         | MED 450     | 3D Modeling                       | 03         |
| 3                         | MED 425     | 3d Lighting/ Texturing/ Rendering | 03         |
| 4                         | MED 426     | Character Animation               | 03         |
| 5                         | MED 421     | Motion Graphic/ Compositing       | 03         |
| 6                         | MED 436     | Advanced Free Hand Drawing        | 03         |
| 7                         | MED 452     | Digital Illustrations             | 03         |
| 8                         | MED 453     | 3D Animation                      | 03         |
| 9                         | MED 454     | 3D Character Animation            | 03         |
| 10                        | MED 429     | Virtual Reality                   | 03         |

| <b>5. Film &amp; Performing Arts</b> |             |   |            |
|--------------------------------------|-------------|---|------------|
| <b>S#</b>                            | <b>Code</b> | <b>Title</b>  | <b>CHs</b> |
| 1                                    | MED 354     | Film & Screen Adaptation                              | 03         |
| 2                                    | MED 355     | New Media and Cinema                                  | 03         |
| 3                                    | MED 458     | Contemporary Film Movements and Auteurs               | 03         |
| 4                                    | MED 459     | Multidisciplinary Performing Arts                     | 03         |
| 5                                    | MED 460     | Acting and Performance Techniques                     | 03         |
| 6                                    | MED 461     | Contemporary Music and Soundscapes in Performing Arts | 03         |
| 7                                    | MED 420     | Film Direction  | 03         |

#### **Internship**

| <b>Sr. #</b> | <b>Course Code</b> | <b>Course Title</b> | <b>Course Category</b> | <b>CHs</b> |
|--------------|--------------------|---------------------|------------------------|------------|
| 1            | SDW 496            | Internship          | Internship             | 03         |

1. Students are eligible for a 3 CHs 6-8 weeks Internship after the 4<sup>th</sup> Semester.

**Total Credit Hours 132 (including capstone project and Internship)**

#### **Community Support Program:**

Students will be required to complete 40 hours of the Mandatory Community Support Program as per BU rules.

## Bachelor of TV Broadcasting & Digital Media

**Program Title:** BS (TV Broadcasting & Digital Media)

**Duration:** 4 Years (8 Semesters)

**Eligibility Criteria:** All candidates who have passed the intermediate examination or its equivalent with a minimum of 50% marks in any discipline can apply for admission to BS TV Broadcasting & Digital Media.

### Road Map of BS (TV Broadcasting & Digital Media)

#### Semester 1

| S# | Course Code | Course Title                           | Credit Hours |
|----|-------------|--|--------------|
| 1  | ENG 101     | Functional English                     | 03           |
| 2  | MED 109     | Computer Skills for Mass Communication | 03           |
| 3  | MTB 109     | Introduction to Television             | 03           |
| 4  | ENV 105     | Introduction to Environmental Sciences | 03           |
| 5  | PAK 105     | Pakistan Studies                       | 02           |
| 6  |             | Elective*                              | 03           |
| 7  | ISL 107     | Tajweed                                | Non-Credited |

#### Semester 2

| S# | Course Code | Course Title                                     | Credit Hours |
|----|-------------|--|--------------|
| 1  | ENG 133     | Writing & Presentation Skills                    | 03           |
| 2  | HSS 112     | Introduction to Political Science                | 03           |
| 3  | MTB 108     | News Writing & Reporting in Broadcast Journalism | 03           |
| 4  | MAT 105     | Mathematics                                      | 03           |
| 5  | ISL 100     | Islamic Studies / Ethics                         | 02           |
| 6  |             | Elective*  | 03           |
| 7  | ISL 108     | Understanding Quran-I                            | Non-Credited |

#### Semester 3

| S# | Course Code | Course Title                            | Credit Hours |
|----|-------------|---|--------------|
| 1  | HSS 331     | Fundamentals of International Relations | 02           |
| 2  | HSS 102     | Introduction to Philosophy              | 03           |
| 3  | MAT 205     | Statistics                              | 03           |
| 4  | MED 113     | Introduction to Film Studies            | 03           |

|   |         |                                       |              |
|---|---------|---------------------------------------|--------------|
| 5 |         | Elective (Arts & Humanities)          | 02           |
| 6 |         | Elective*                             | 03           |
| 7 | PAK 109 | Ideology and Constitution of Pakistan | 02           |
| 8 | ISL 109 | Understanding Quran-II                | Non-Credited |

| <b>Semester 4</b> |                    |                                 |                     |
|-------------------|--------------------|---------------------------------|---------------------|
| <b>S#</b>         | <b>Course Code</b> | <b>Course Title</b>             | <b>Credit Hours</b> |
| 1                 | HSS 423            | Entrepreneurship                | 02                  |
| 2                 | CCE 310            | Civics and Community Engagement | 02                  |
| 3                 | HSS 334            | Fundamentals of Sociology       | 03                  |
| 4                 | MTB 317            | Videography                     | 03                  |
| 5                 | ENV 112            | Introduction to Psychology      | 03                  |
| 6                 |                    | Elective*                       | 03                  |
| 7                 | ISL 110            | Understanding Quran-III         | Non-Credited        |

| <b>Semester 5</b> |                    |  |                     |
|-------------------|--------------------|--|---------------------|
| <b>S#</b>         | <b>Course Code</b> | <b>Course Title</b>                      | <b>Credit Hours</b> |
| 1                 | MTB 313            | Graphic Designing & Visual Communication | 03                  |
| 2                 | MTB 319            | Introduction to Theater                  | 03                  |
| 3                 | MTB 215            | Digital Marketing & Public Relations     | 03                  |
| 4                 | MED 208            | Introduction to Digital Media            | 03                  |
| 5                 | MTB 313            | Elective*                                | 03                  |
| 6                 | ISL 111            | Understanding Quran-IV                   | Non- Credited       |

| <b>Semester 6</b> |                    |                                   |                     |
|-------------------|--------------------|-----------------------------------|---------------------|
| <b>S#</b>         | <b>Course Code</b> | <b>Course Title</b>               | <b>Credit Hours</b> |
| 1                 | MED 455            | Media Management and Marketing    | 03                  |
| 2                 | MED 409            | Data Journalism                   | 03                  |
| 3                 | MTB 314            | TV Program Production             | 03                  |
| 4                 | MTB 309            | TV News Production & Presentation | 03                  |
| 5                 |                    | Elective*                         | 03                  |
| 6                 | ISL 112            | Understanding Quran-V             | Non-Credited        |

| <b>Semester 7</b> |                    |                             |                     |
|-------------------|--------------------|-----------------------------|---------------------|
| <b>S#</b>         | <b>Course Code</b> | <b>Course Title</b>         | <b>Credit Hours</b> |
| 1                 | MTB 418            | Mass Media Research Methods | 03                  |
| 2                 | MTB 402            | Documentary Production      | 03                  |

|   |         |                         |               |
|---|---------|-------------------------|---------------|
| 3 | MTB 415 | Digital Media Analytics | 03            |
| 4 | MTB 320 | Screenplay Writing      | 03            |
| 5 |         | Elective*               | 03            |
| 6 | ISL 113 | Seerah-I                | Non- Credited |

| <b>Semester 8</b> |                    |                                  |                     |
|-------------------|--------------------|----------------------------------|---------------------|
| <b>S#</b>         | <b>Course Code</b> | <b>Course Title</b>              | <b>Credit Hours</b> |
| 1                 | MTB 421            | Podcast Development & Production | 03                  |
| 2                 | MTB 416            | Digital Storytelling             | 03                  |
| 3                 | MTB 409            | Capstone Project                 | 03                  |
| 4                 | MTB 403            | Drama Production                 | 03                  |
| 5                 |                    | Elective*                        | 03                  |
| 6                 | ISL 114            | Seerah-II                        | Non-credited        |

| <b>Gen Education Courses</b>                                   |                    |   |                     |
|--|--------------------|---|---------------------|
| <b>S#</b>  | <b>Course Code</b> | <b>Course Title</b>                     | <b>Credit Hours</b> |
| 1  | HSS 331            | Fundamentals of International Relations | 02                  |
| 2  | ENV 105            | Introduction to Environmental Sciences  | 03                  |
| 3  | MAT 105            | Mathematics                             | 03                  |
| 4  | MAT 205            | Statistics                              | 03                  |
| 5  | MED 109            | Computer Skills for Mass Communication  | 03                  |
| 6  | ENG 101            | Functional English                      | 03                  |
| 7  | ENG 133            | Writing & Presentation Skills           | 03                  |
| 8  | ISL 100            | Islamic Studies / Ethics                | 02                  |
| 9  | PAK 105            | Pakistan Studies                        | 02                  |
| 10   | HSS 219            | Civics and Community Engagement         | 02                  |
| 11   | HSS 423            | Entrepreneurship                        | 02                  |
| <b>Arts and Humanities Electives General Education Courses</b> |                    |   |                     |
| 12   | HSS 330            | Physical Education & Sports             | 02                  |
| 53   | HSS 109            | Arabic                                  | 03                  |
| 54   | HSS 163            | Chinese                                 | 03                  |
| 55   | HSS 160            | French                                  | 03                  |
| 56   | HSS 164            | German                                  | 03                  |
| 57   | HSS 161            | Russian                                 | 03                  |
| 58   | HSS 162            | Spanish                                 | 03                  |
| 59   | HSS 214            | Turkish                                 | 03                  |

### Interdisciplinary Courses

| S# | Course Code | Course Title                      | CHs |
|----|-------------|-----------------------------------|-----|
| 1  | ENV 112     | Introduction to Psychology        | 03  |
| 2  | HSS 112     | Introduction to Political Science | 03  |
| 3  | HSS 102     | Introduction to Philosophy        | 03  |
| 4  | HSS 334     | Fundamentals of Sociology         | 03  |

### BS TV BROADCASTING AND DIGITAL MEDIA Courses to be offered in Major Core Category

| S# | Course Code | Course Title                                     | CHs |
|----|-------------|--|-----|
| 1  | MTB 109     | Introduction to Television                       | 03  |
| 2  | MED 208     | Introduction to Digital Media                    | 03  |
| 3  | MTB 108     | News Writing & Reporting in Broadcast Journalism | 03  |
| 4  | MED 113     | Introduction to Film Studies                     | 03  |
| 5  | MTB 317     | Videography                                      | 03  |
| 6  | MTB 215     | Digital Marketing & Public Relations             | 03  |
| 7  | MTB 320     | Screenplay Writing                               | 03  |
| 8  | MTB 313     | Graphic Designing & Visual Communication         | 03  |
| 9  | MED 455     | Media Management and Marketing                   | 03  |
| 10 | MED 409     | Data Journalism                                  | 03  |
| 11 | MTB 314     | TV Program Production                            | 03  |
| 12 | MTB 309     | TV News Production & Presentation                | 03  |
| 13 | MTB418      | Mass Media Research Methods                      | 03  |
| 14 | MTB 402     | Documentary Production                           | 03  |
| 15 | MTB 415     | Digital Media Analytics                          | 03  |
| 16 | MTB 319     | Introduction to Theater                          | 03  |
| 17 | MTB 421     | Podcast Development & Production                 | 03  |
| 18 | MTB 416     | Digital Storytelling                             | 03  |
| 19 | MTB 403     | Drama Production                                 | 03  |

### LIST OF ELECTIVE COURSES

| S # | Course Code | Course Title                      | CH |
|-----|-------------|-----------------------------------|----|
| 1   | MTB 104     | Mass Media in Pakistan            | 03 |
| 2   | MED 401     | Online Journalism                 | 03 |
| 3   | MED 404     | Development Support Communication | 03 |
| 4   | MED 207     | Social Psychology                 | 03 |
| 5   | MTB 208     | Comparing Media Systems           | 03 |

|    |         |  |    |
|----|---------|--|----|
| 6  | MTB 205 | International Media Regulations          | 03 |
| 7  | MTB 204 | Writing for Internet                     | 03 |
| 8  | MED 306 | Photojournalism                          | 03 |
| 9  | MED 437 | 2D/3D Animation                          | 03 |
| 10 | MTB 310 | Television Commercial (TVC)              | 03 |
| 11 | MTB 405 | Television Program Analysis (Seminar)    | 03 |
| 12 | MTB 410 | Media Semiotics                          | 03 |
| 13 | MTB 411 | Introduction to Film Making and Analysis | 03 |
| 14 | MTB 412 | Electronic News Gathering (ENG)          | 03 |
| 15 | MTB 413 | Music Video Creation (MVC)               | 03 |
| 16 | MTB 209 | Evolution of Television                  | 03 |
| 17 | MTB 302 | Process & Effects of Communication       | 03 |
| 18 | MTB 311 | Media & Social Psychology                | 03 |
| 19 | MTB 404 | TV & Globalization                       | 03 |
| 20 | MTB 414 | Film and Cinematography                  | 03 |
| 21 | MED 110 | Photography                              | 03 |
| 22 | MED 308 | Video Editing                            | 03 |
| 23 | MED 315 | Sound Design                             | 03 |
| 24 | MTB 213 | Introduction to Digital Gaming           | 03 |
| 25 | MTB 304 | Television Lighting System               | 03 |
| 26 | MTB 417 | TV Post Production                       | 03 |
| 27 | MTB 401 | TV Studio & Floor Management             | 03 |
| 28 | MTB 315 | Television, Digital Media & Society      | 03 |
| 29 | MTB 422 | Film Analysis                            | 03 |
| 30 | MTB 420 | Media Entrepreneurship                   | 03 |
| 31 | MTB 419 | Digital Media Literacy                   | 03 |
| 32 | MED 448 | Intercultural Communication              | 03 |
| 33 | MED 209 | Journalistic Language                    | 03 |
| 34 | MTB 312 | Set Designing                            | 03 |
| 35 | MTB 316 | Web Designing                            | 03 |
| 36 | MED 309 | World Cinema                             | 03 |
| 37 | MED 206 | Current Affairs                          | 03 |
| 38 | MED 303 | Mass Communications Theories             | 03 |
| 39 | MED 403 | Media Laws and Ethics                    | 03 |
| 40 | MTB 330 | Immersive Media                          | 03 |
| 41 | MTB 331 | Environmental Communication              | 03 |
| 42 | MTB 332 | Visual Effects                           | 03 |
| 43 | MTB 333 | Social Media and Society                 | 03 |
| 44 | MTB 426 | Digital Journalism                       | 03 |
| 45 | MTB 434 | Multimedia Skills                        | 03 |

## BS TV Broadcasting & Digital Media Minor (12 Credit Hours)

|         |                                  |
|---------|----------------------------------|
| Minor 1 | Electronic Media                 |
| Minor 2 | Media Management                 |
| Minor 3 | Advertising and Public Relations |
| Minor 4 | Animation                        |

### 1. Electronic Media – Minor Courses

| S# | Code    | Title                       | Credit Hours |
|----|---------|-----------------------------|--------------|
|    |         | Television Journalism       | 03           |
| 1  | MED 415 | News writing and production | 03           |
| 2  | MED 416 | Documentary Production      | 03           |
| 3  | MED 419 | Music video production      | 03           |
| 4  | MED 422 | Storyboarding               | 03           |
| 5  | MED 424 | Data Journalism             | 03           |
| 6  | MED 409 | Multimedia Journalism       | 03           |
| 7  | MED 412 | Peace Journalism            | 03           |
| 8  | MED 414 | Product Development         | 03           |
| 9  | MED 423 | Television Journalism       | 03           |

### 2. Media Management – Minor Courses

| S# | Code    | Title                              | Credit hours |
|----|---------|------------------------------------|--------------|
| 1  | MED 455 | Media Management and Marketing     | 03           |
| 2  | MED 423 | Product Development                | 03           |
| 3  | MED 457 | Integrated Marketing Communication | 03           |
| 4  | HRM 353 | Human Resource Management          | 03           |
| 5  | ENG     | Business Communication Skills      | 03           |

### 3. Advertising and Public Relations – Minor Courses

| S# | Code    | Title                               | Credit Hours |
|----|---------|-------------------------------------|--------------|
| 1  | MED 430 | Media Planning & Buying             | 03           |
| 2  | MED 431 | Campaign Designing                  | 03           |
| 3  | MED 432 | Market Research                     | 03           |
| 4  | MED 433 | TVC Production                      | 03           |
| 5  | MED 634 | Copy Writing                        | 03           |
| 6  | MED 435 | Advertising Strategy & Planning     | 03           |
| 7  | MED 437 | 2D/3D Animation                     | 03           |
| 8  | MED 438 | Brand Management                    | 03           |
| 9  | ADM 439 | Digital Advertising                 | 03           |
| 10 | MED 442 | Crisis Communication and Management | 03           |

|                  |         |                                   |    |
|------------------|---------|-----------------------------------|----|
| 11               | MED 442 | Event Management                  | 03 |
| 12               | MED 443 | Media Management & Relations      | 03 |
| <b>Animation</b> |         |                                   |    |
| 01               | MED 449 | Character Modeling                | 03 |
| 02               | MED 450 | 3D Modeling                       | 03 |
| 03               | MED 425 | 3d Lighting/ Texturing/ Rendering | 03 |
| 04               | ANM 622 | Character Animation               | 03 |
| 05               | MED 421 | Motion Graphic/ Compositing       | 03 |
| 06               | MED 436 | Advanced Free Hand Drawing        | 03 |
| 07               | MED 452 | Digital Illustrations             | 03 |
| 08               | MED 453 | 3D Animation                      | 03 |
| 09               | MED 454 | 3D Character Animation            | 03 |
| 10               | MED 729 | Virtual Reality                   | 03 |

**Total Credit hours for Major Courses + Capstone Project + Inter Disciplinary + Gen Ed = 131+ 12 (Minor)=  
143**

\*Students are eligible for a 3 CHs 6-8 weeks Internship after the 4<sup>th</sup> Semester preferably during summer Break

**\*Total Credit Hours 131 (including capstone project and Internship)**

#### **Community Support Program:**

Students will be required to complete 40 hours of the Mandatory Community Support Program as per BU rules.

## MS Media Studies

**Program Title:** MS Media Studies  
**Duration:** 2 years (4 Semesters)  
**Eligibility Criteria:** 16 years of education with Bachelors/ equivalent degree from HEC-recognized university in Media Studies/Social Sciences discipline with the minimum CGPA of 2.0/4.0 or 50% marks where CGPA is not given.

### Semester-wise Road map

#### Semester 1

| S.# | Course Code | Course Title                          | Credit Hours |
|-----|-------------|---------------------------------------|--------------|
| 1   | MSM 700     | Theories of Traditional Media         | 3            |
| 2   | MSM 708     | Research Methods in Traditional Media | 3            |
| 3   |             | Elective -I                           | 3            |
| 4   |             | Elective -II                          | 3            |

#### Semester 2

| S.# | Course Code | Course Title  | Credit Hours |
|-----|-------------|---|--------------|
| 1   | MSM 701     | Social Media Theories                               | 3            |
| 2   | MSM 703     | Social Media Research Methods                       | 3            |
| 3   | MSM 707     | Contemporary issues and Challenges in Communication | 3            |
| 4   |             | Elective-III  | 3            |

#### Semester 3

| S.# | Course Code | Course Title                 | Credit Hours |
|-----|-------------|------------------------------|--------------|
| 1   |             | Thesis/Final Project/Courses | 3            |

#### Semester 4

| S.# | Course Code | Course Title                 | Credit Hours |
|-----|-------------|------------------------------|--------------|
| 1   |             | Thesis/Final Project/Courses | 3            |

#### List of Elective Courses

| S.# | Course Code | Course Title                              | Credit Hours |
|-----|-------------|---|--------------|
| 1   | MSM 710     | Social Media and Society                  | 3            |
| 2   | MSM 704     | Global Communication                      | 3            |
| 3   | MSM 705     | Media Landscape in Pakistan               | 3            |
| 4   | MSM 706     | Peace Communication                       | 3            |
| 5   | MSM 713     | Communication, Activism and Social Change | 3            |
| 6   | MSM 712     | Philosophical debates in social sciences  | 3            |
| 7   | MSM 721     | Critical Journalism Studies               | 3            |
| 8   | MSM 714     | Health Communication                      | 3            |

|    |         |   |   |
|----|---------|---|---|
| 9  | MSM 715 | Climate Communication                             | 3 |
| 10 | MSM 718 | Debates in Political Communication                | 3 |
| 11 | MSM 717 | Media Culture and Society: A Critical Analyses    | 3 |
| 12 | MSM 719 | Film Studies: A Comparative and Critical Analysis | 3 |
| 13 | MSM 720 | Human Rights Communication                        | 3 |
| 14 | MSM 723 | Gender in Media and Communication                 | 3 |
| 15 | MSM 724 | Environmental Communication                       | 3 |
| 16 | MSM 722 | Science Communication                             | 3 |
| 17 | MSM 716 | Communication and Technology                      | 3 |
| 18 | MSM 725 | Digital Media Analytics                           | 3 |
| 19 | MSM 726 | Cinematography: The Art of Visual Storytelling    | 3 |
| 20 | MSM 727 | Disaster Communication                            | 3 |
| 21 | MSM 728 | Advertising and Brand Strategy                    | 3 |
| 22 | MSM 729 | Mobile Media and Communication                    | 3 |
| 23 | MSM 730 | Strategic Communication                           | 3 |
| 24 | MSM 731 | Digital Media and Society                         | 3 |
| 25 | MSM 732 | Media and Public Diplomacy                        | 3 |
| 26 | MSM 799 | Final Project                                     | 6 |
| 27 | MED 742 | AI, Media and Society                             | 3 |
| 28 | MED 741 | Digital Media Production                          | 3 |
| 29 | MED 740 | Media Economics                                   | 3 |

### **List of Core Courses**

| <b>S.#</b> | <b>Course Code</b> | <b>Course Title</b>                                 | <b>Credit Hours</b> |
|------------|--------------------|---|---------------------|
| 1          | MSM 700            | Theories of Traditional Media                       | 3                   |
| 2          | MSM 702            | Research Methods in Traditional Media               | 3                   |
| 3          | MSM 701            | Social Media Theories                               | 3                   |
| 4          | MSM 703            | Social Media Research Methods                       | 3                   |
| 5          | MSM 707            | Contemporary issues and Challenges in Communication | 3                   |

### **List of Deficiency Courses**

| <b>S.#</b> | <b>Course Code</b> | <b>Course Title</b>                | <b>Credit Hours</b> |
|------------|--------------------|------------------------------------|---------------------|
| 1          | MSM 600            | Introduction to Mass communication | 3                   |
| 2          | MSM 601            | Approaches to Mass Communication   | 3                   |
| 3          | MSM 602            | Media and society                  | 3                   |
| 4          | MSM 603            | Introduction to Research Methods   | 3                   |

## PhD Media Studies

**Program Title:** PhD Media Studies  
**Duration:** 3 Years  
**Eligibility Criteria:** 18 year of education (MS/MPhil/equivalent degree) in relevant discipline from an HEC recognized university with a minimum CGPA of 3.00/4.00 (Semester System) or 60% marks (Annual System). NTS-GAT (General) or GRE (General) Test passed with minimum 60% marks or BU Admission Test (60% passing marks). Initial Research Proposal/Statement of Purpose is required at the time of PhD admission.

### Road Map of PhD Media Studies

| <b>Semester-1</b> |  |              |
|-------------------|--|--------------|
| Course Code       | Subject  | Credit Hours |
| MSM 818           | Applied Research Methods in Communication              | 3            |
| MSM 819           | Contemporary Debates in Communication                  | 3            |
| -                 | (Elective)* 1  | 3            |
| <b>Semester-2</b> |  |              |
| Course Code       | Subject  | Credit Hours |
| MSM 820           | Computational Communication Research in Media Sciences | 3            |
| MSM 821           | Theories of Emerging Media and Communication           | 3            |
| -                 | (Elective)*2   | 3            |
| <b>Semester-3</b> |  |              |
| Course Code       | Subject  | Credit Hours |
| -                 | Comprehensive exam                                     | 0            |
| THS 900           | Phd Thesis   | 9            |

| <b>Semester-4</b>         |  |                     |
|---------------------------|--|---------------------|
| <b>Course Code</b>        | <b>Subject</b>   | <b>Credit Hours</b> |
| THS 900                   | PhD thesis   | 9                   |
| <b>Semester-5</b>         |  |                     |
| <b>Course Code</b>        | <b>Subject</b>   | <b>Credit Hours</b> |
| THS 900                   | PhD thesis   | 9                   |
| <b>Semester-6</b>         |  |                     |
| <b>Course Code</b>        | <b>Subject</b>   | <b>Credit Hours</b> |
| THS 900                   | PhD thesis   | 9                   |
| <b>Compulsory Courses</b> |  |                     |
| <b>Course Code</b>        | <b>Subject</b>   | <b>Credit Hours</b> |
| MSM 818                   | Applied Research Methods in Communication              | 3                   |
| MSM 819                   | Contemporary Debates in Communication                  | 3                   |
| MSM 820                   | Computational Communication Research in Media Sciences | 3                   |
| MSM 821                   | Theories of Emerging Media and Communication           | 3                   |
| <b>Elective Courses</b>   |  |                     |
| <b>Course Code</b>        | <b>Subject</b>   | <b>Credit Hours</b> |
| MSM 806                   | Political Communication                                | 3                   |
| MSM 818                   | Social Media and Society                               | 3                   |
| MSM 819                   | Communication and Technology                           | 3                   |

|         |   |   |
|---------|---|---|
| MSM 820 | Critical Perspectives in Communication    | 3 |
| MSM 813 | Media and Globalization                   | 3 |
| MSM 821 | Communication for Development             | 3 |
| MSM 822 | Communication, Activism and Social Change | 3 |
| MSM 823 | Media and Diplomacy                       | 3 |
| MSM 824 | Visual Communication                      | 3 |
| MSM 825 | Environmental Communication               | 3 |
| MSM 826 | Communication Theories                    | 3 |
| MSM 827 | Minorities in Mass Media                  | 3 |
| MSM 828 | Gender, Media and Society                 | 3 |
| MED 832 | Digital Media and Emerging Technology     | 3 |
| MED 833 | Visual Communication in Media Studies     | 3 |
| MED 831 | Media and Public Opinion                  | 3 |

## Advanced Diploma in Infant, Child and Adolescent Mental Health

### Important for all candidates

Applicant for admission MUST MEET THE ELIGIBILITY REQUIREMENTS set-forth by Bahria University.

Candidates are advised to CONFIRM THEIR ELIGIBILITY prior apply.

In case of annual system, eligibility will be determined on the basis of result in percentages.

In case of semester system, eligibility will be determined on the basis of CGPA obtained out of 4.00.

In case the result is shown both in CGPA and percentage, CGPA will be considered.

### Advanced Diploma in Infant, Child and Adolescent Mental Health

- Minimum 16 years of education in the relevant field of Psychology with a minimum of 50% marks (in annual system) or CGPA 2.00/4.0 (in semester system).
- BU Admission Test or GAT (General) with minimum 50% marks required at the time of admission.

### Semester 1

| Course Title   | Total Credit Hrs |
|--|------------------|
| Child and Adolescent Psychopathology                           | 3                |
| Child and Adolescent Development                               | 3                |
| Psychological Assessment in Child and Adolescent Mental Health | 3                |
| Applied Behavior Analysis                                      | 3                |
| <b>Total</b>   | <b>12</b>        |

### Semester 2

| Course Title                                       | Total Credit Hrs |
|--|------------------|
| Infant Mental Health and Early Environments        | 3                |
| CBT with Children and Adolescents                  | 3                |
| Art and Play Therapy with Children and Adolescents | 3                |
| Internship   | 3                |
| <b>Total</b>                                       | <b>12</b>        |

Coursework = 21

Credit Hours Internship = 03

Credit Hours Total = 24

## BS in Psychology

**Program Title:** BS Psychology  
**Duration:** 4 Years (8 Semesters)  
**Eligibility Criteria:** Intermediate/A-level/Equivalent with at least 50% marks.

### Roadmap of BS Psychology

#### Semester 1

| Course Code | Name of Subject                      | Credit Hours |
|-------------|--------------------------------------|--------------|
| PSY 107     | Introduction to Psychology           | 3 (3-0)      |
| PSY 501     | Schools & Perspectives in Psychology | 3 (3-0)      |
| MAT 205     | Statistics                           | 3 (3-0)      |
| ENV 100     | Fundamentals of Biology              | 3 (2-1)      |
| ENG 101     | Functional English                   | 3 (3-0)      |
| BES 101     | Introduction to Computers            | 3 (2-1)      |
| ISL 107     | Tajweed                              | 0 (0-1)      |

#### Semester 2

| Course Code | Name of Subject                       | Credit Hours |
|-------------|---------------------------------------|--------------|
| NEU 332     | Neurological Basis of Behavior        | 3 (3-0)      |
| SOP 105     | Introduction to Social Psychology     | 3 (3-0)      |
| PER 220     | Theories of Personality               | 3 (3-0)      |
| STA 330     | Statistical Tools for Social Sciences | 3 (3-0)      |
| ENG 102     | English Writing Skills                | 3 (3-0)      |
| PAK 105     | Pakistan Studies                      | 2 (2-0)      |
| ISL 108     | Understanding Quran I                 | 0 (0-1)      |

#### Semester 3

| Course Code      | Name of Subject                                    | Credit Hours |
|------------------|--|--------------|
| PSY 502          | Experimental Psychology                            | 3 (3-0)      |
| COG 326          | Cognitive Psychology                               | 3 (3-0)      |
| PSY 503          | Psychology of Gender                               | 3 (3-0)      |
| PSY 504          | Ethics in Psychology                               | 3 (3-0)      |
| HSS 130          | Introduction to Arts and Design                    | 2 (2-0)      |
| ISL 101/ HSS 116 | Islamic Studies / (Ethics for non-Muslim students) | 2 (2-0)      |

|         |                                     |         |
|---------|-------------------------------------|---------|
| PAK 109 | Ideology & Constitution of Pakistan | 2 (2-0) |
| ISL 109 | Understanding Quran II              | 0 (0-1) |

#### Semester 4

| Course Code | Name of Subject               | Credit Hours |
|-------------|-------------------------------|--------------|
| PSY 506     | Cross Cultural Psychology     | 3 (3-0)      |
| PSY 507     | Developmental Psychology      | 3 (3-0)      |
| PSY 508     | Psychopathology               | 3 (3-0)      |
| ENV 449     | Environmental Psychology      | 3 (3-0)      |
| HSS 109     | Deviant Behavior              | 2 (2-0)      |
| HSS 423     | Entrepreneurship              | 2 (2-0)      |
| HSS 219     | Civics & Community Engagement | 2 (2-0)      |
| ISL 110     | Understanding Quran III       | 0 (0-1)      |

#### Semester 5

| Course Code | Name of Subject                        | Credit Hours |
|-------------|--|--------------|
| PSY 509     | Psychological Testing                  | 3            |
| PSY 510     | Industrial & Organizational Psychology | 3 (3-0)      |
| PSY 511     | Sports Psychology                      | 3 (3-0)      |
| PSY 512     | Clinical Psychology                    | 3 (2-1)      |
| HSS 131     | Data Analysis                          | 3 (2-1)      |
| ISL 111     | Understanding Quran IV                 | 0 (0-1)      |

#### Semester 6

| Course Code | Name of Subject                     | Credit Hours |
|-------------|-------------------------------------|--------------|
| POS 327     | Positive Psychology                 | 3 (3-0)      |
| COU 443     | Counseling                          | 3 (2-1)      |
|             | Elective – I                        | 3            |
|             | Elective – II                       | 3            |
| PSY 515     | Academic Writing & Research Methods | 3 (3-0)      |
| ISL 112     | Understanding Quran V               | 0 (0-1)      |
|             | Total                               | 15           |

#### Semester 7

| Course Code | Name of Subject | Credit Hours |
|-------------|-----------------|--------------|
|-------------|-----------------|--------------|

|         |                                |         |
|---------|--------------------------------|---------|
| FRP 456 | Forensic Psychology            | 3 (3-0) |
|         | Elective – III                 | 3       |
|         | Elective – IV                  | 3       |
|         | Interdisciplinary Course – III | 3       |
|         | Interdisciplinary Course – IV  | 3       |
| INT 437 | Internship                     | 3       |
| ISL 113 | Seerah I                       | 0 (0-1) |

### Semester 8

| Course Code | Name of Subject                    | Credit Hours |
|-------------|------------------------------------|--------------|
| PSY 516     | Psychology & Emerging Technologies | 3 (3-0)      |
|             | Elective – V                       | 3            |
|             | Elective – VI                      | 3            |
|             | Elective – VII                     | 3            |
| RGS 490     | Capstone                           | 3            |
| ISL 114     | Seerah II                          | 0 (0-1)      |

### List of Electives

| Course Code | Course Title                                     |
|-------------|--|
| PSY 517     | Adult Psychopathology                            |
| PSY 518     | Child Psychopathology                            |
| PSY 519     | Cognitive Development & Aging                    |
| PSY 520     | Neuropsychological Assessment                    |
| PSY 521     | Cognitive Development in Children                |
| PSY 522     | Social & Emotional Development in Childhood      |
| PSY 523     | Behavioral Interventions in Educational Settings |
| PSY 524     | Inclusive Education & Diversity                  |
| PSY 525     | Criminal Profiling & Crime Linkage               |
| PSY 526     | Juvenile Delinquency & Rehabilitation            |
| PSY 527     | Community, Culture & Public Health               |
| PSY 528     | Nutrition & Mental Health                        |
| PSY 529     | Career Development & Training                    |
| HRM 353     | Human Resource Management                        |

### List of Interdisciplinary Electives

| Course Codes | Course Title                     |
|--------------|----------------------------------|
| HSS 132      | Conflict Studies & Peacebuilding |

|         |                                       |
|---------|---------------------------------------|
| HSS 133 | Human Rights & Social Justice         |
| HSS 201 | Introduction to Anthropology          |
| HSS 134 | Introduction to Cultural Anthropology |
| HSS 135 | Introduction to Cultural Studies      |
| HSS 110 | Introduction to Development Studies   |
| HSS 136 | Introduction to Digital Cultures      |
| HSS 117 | Introduction to Economics             |
| HSS 137 | Introduction to Environmental Studies |
| HSS 138 | Introduction to Gender Studies        |
| HSS 139 | Introduction to Geography             |
| HSS 140 | Introduction to Global History        |
| HSS 141 | Introduction to Human Geography       |
| HSS 142 | Introduction to Media Psychology      |
| HSS 102 | Introduction to Philosophy            |
| HSS 322 | Introduction to Social Work           |
| HSS 202 | Introduction to Sociology             |
| HSS 143 | Population Studies                    |
| ENV 507 | Sustainable Development               |
| HSS 144 | Technology & Society                  |

## BS in Psychology (Clinical Psychology)

|                                      |  |
|--------------------------------------|--|
| <b>Program Title:</b>                | BS Psychology (Clinical Psychology)                      |
| <b>Duration:</b>                     | 4 Years (8 Semesters)                                    |
| <b>Eligibility Criteria:</b>         | Intermediate/A-level/Equivalent with at least 50% marks. |
| <b>Eligibility Criteria at BULC:</b> | Intermediate/A-level/Equivalent with at least 45% marks. |

### Roadmap for BS in Psychology (Clinical)

#### Semester 1

| Course Code | Name of Subject                      | Credit Hours |
|-------------|--------------------------------------|--------------|
| PSY 107     | Introduction to Psychology           | 3 (3-0)      |
| PSY 501     | Schools & Perspectives in Psychology | 3 (3-0)      |
| MAT 205     | Statistics                           | 3 (3-0)      |
| ENV 100     | Fundamentals of Biology              | 3 (2-1)      |
| ENG 101     | Functional English                   | 3 (3-0)      |
| BES 101     | Introduction to Computers            | 3 (2-1)      |
| ISL 107     | Tajweed                              | 0 (0-1)      |

#### Semester 2

| Course Code | Name of Subject                       | Credit Hours |
|-------------|---------------------------------------|--------------|
| NEU 332     | Neurological Basis of Behavior        | 3 (3-0)      |
| SOP 105     | Introduction to Social Psychology     | 3 (3-0)      |
| PER 220     | Theories of Personality               | 3 (3-0)      |
| STA 330     | Statistical Tools for Social Sciences | 3 (3-0)      |
| ENG 102     | English Writing Skills                | 3 (3-0)      |
| PAK 105     | Pakistan Studies                      | 2 (2-0)      |
| ISL 108     | Understanding Quran I                 | 0 (0-1)      |

#### Semester 3

| Course Code | Name of Subject                 | Credit Hours |
|-------------|---------------------------------|--------------|
| PSY 502     | Experimental Psychology         | 3 (3-0)      |
| COG 326     | Cognitive Psychology            | 3 (3-0)      |
| PSY 503     | Psychology of Gender            | 3 (3-0)      |
| PSY 504     | Ethics in Psychology            | 3 (3-0)      |
| HSS 130     | Introduction to Arts and Design | 2 (2-0)      |

|                  |  |         |
|------------------|--|---------|
| ISL 101/ HSS 116 | Islamic Studies / (Ethics for non-Muslim students) | 2 (2-0) |
| PAK 109          | Ideology & Constitution of Pakistan                | 2 (2-0) |
| ISL 109          | Understanding Quran II                             | 0 (0-1) |

#### Semester 4

| Course Code | Name of Subject               | Credit Hours |
|-------------|-------------------------------|--------------|
| PSY 506     | Cross Cultural Psychology     | 3 (3-0)      |
| PSY 507     | Developmental Psychology      | 3 (3-0)      |
| PSY 508     | Psychopathology               | 3 (3-0)      |
| ENV 449     | Environmental Psychology      | 3 (3-0)      |
| HSS 109     | Deviant Behavior              | 2 (2-0)      |
| HSS 423     | Entrepreneurship              | 2 (2-0)      |
| HSS 219     | Civics & Community Engagement | 2 (2-0)      |
| ISL 110     | Understanding Quran III       | 0 (0-1)      |

#### Semester 5

| Course Code | Name of Subject                        | Credit Hours |
|-------------|--|--------------|
| PSY 509     | Psychological Testing                  | 3            |
| PSY 510     | Industrial & Organizational Psychology | 3 (3-0)      |
| PSY 511     | Sports Psychology                      | 3 (3-0)      |
| PSY 512     | Clinical Psychology                    | 3 (2-1)      |
| HSS 131     | Data Analysis                          | 3 (2-1)      |
| ISL 111     | Understanding Quran IV                 | 0 (0-1)      |

#### Semester 6

| Course Code | Name of Subject                     | Credit Hours |
|-------------|-------------------------------------|--------------|
| POS 327     | Positive Psychology                 | 3 (3-0)      |
| COU 443     | Counseling                          | 3 (2-1)      |
|             | Elective – I                        | 3            |
|             | Elective – II                       | 3            |
| PSY 515     | Academic Writing & Research Methods | 3 (3-0)      |
| ISL 112     | Understanding Quran V               | 0 (0-1)      |

#### Semester 7

| Course Code | Name of Subject     | Credit Hours |
|-------------|---------------------|--------------|
| FRP 456     | Forensic Psychology | 3 (3-0)      |

|         |                                |         |
|---------|--------------------------------|---------|
|         | Elective – III                 | 3       |
|         | Elective – IV                  | 3       |
|         | Interdisciplinary Course – III | 3       |
|         | Interdisciplinary Course – IV  | 3       |
| INT 437 | Internship                     | 3       |
| ISL 113 | Seerah I                       | 0 (0-1) |

### Semester 8

| Course Code | Name of Subject                    | Credit Hours |
|-------------|------------------------------------|--------------|
| PSY 516     | Psychology & Emerging Technologies | 3 (3-0)      |
|             | Elective – V                       | 3            |
|             | Elective – VI                      | 3            |
|             | Elective – VII                     | 3            |
| RGS 490     | Capstone                           | 3            |
| ISL 114     | Seerah II                          | 0 (0-1)      |

### List of Electives

| Course Codes | Course Title                              |
|--------------|---|
| PSY 517      | Adult Psychopathology                     |
| PSY 518      | Child Psychopathology                     |
| PSY 543      | Clinical Assessment & Diagnosis           |
| PSY 544      | Clinical Supervision & Consultation       |
| PSY 545      | Crisis Intervention & Management          |
| PSY 546      | Ethical Issues in Clinical Practice       |
| PSY 547      | Psychoanalysis & Psychodynamic Approaches |
| PSY 548      | Psychological Interventions & Therapies   |
| PSY 549      | Psychopharmacology in Clinical Practice   |
| PSY 550      | Substance Use Disorders & Management      |

### List of Interdisciplinary Electives

| Course Codes | Course Title                     |
|--------------|----------------------------------|
| HSS 132      | Conflict Studies & Peacebuilding |
| HSS 133      | Human Rights & Social Justice    |
| HSS 201      | Introduction to Anthropology     |

|         |                                       |
|---------|---------------------------------------|
| HSS 134 | Introduction to Cultural Anthropology |
| HSS 135 | Introduction to Cultural Studies      |
| HSS 110 | Introduction to Development Studies   |
| HSS 136 | Introduction to Digital Cultures      |
| HSS 117 | Introduction to Economics             |
| HSS 137 | Introduction to Environmental Studies |
| HSS 138 | Introduction to Gender Studies        |
| HSS 139 | Introduction to Geography             |
| HSS 140 | Introduction to Global History        |
| HSS 141 | Introduction to Human Geography       |
| HSS 142 | Introduction to Media Psychology      |
| HSS 102 | Introduction to Philosophy            |
| HSS 322 | Introduction to Social Work           |
| HSS 202 | Introduction to Sociology             |
| HSS 143 | Population Studies                    |
| ENV 507 | Sustainable Development               |
| HSS 144 | Technology & Society                  |

## MPhil in Professional Psychology

**Program Title:** MPhil (Professional Psychology)

**Duration:** 2 Years (4 Semesters)

**Eligibility Criteria:** Minimum 16 years of education in the relevant field of Psychology with a minimum of 50% marks (in annual system) or CGPA 2.0/4.0 (in semester system). BU Admission Test or GAT (General) with minimum 50% marks required at the time of admission.

### Semester wise Roadmap

#### First Year

##### Semester 1

| Course Code | Course Title                 | Credit Hours |
|-------------|------------------------------|--------------|
| PPY 702     | Research Methods             | 3            |
| PPY 703     | Measurement and Assessment I | 3            |
|             | Elective I                   | 3            |
|             | Elective II                  | 3            |

##### Semester 2

| Course Code | Course Title                         | Credit Hours |
|-------------|--------------------------------------|--------------|
| PPY 710     | Statistical Inferences in Psychology | 3            |
| PPY 711     | Measurement and Assessment II        | 3            |
|             | Elective III                         | 3            |
|             | Elective IV                          | 3            |

##### Summer Semester

| Course Code | Course Title | Credit Hours |
|-------------|--------------|--------------|
| PPY 719     | Internship I | -            |

##### Semester 3

| Course Code | Course Title  | Credit Hours |
|-------------|---------------|--------------|
| PPY 720     | Internship II | 6            |
| THS 799     | Thesis        | 3            |

##### Semester 4

| Course Code | Course Title   | Credit Hours |
|-------------|----------------|--------------|
| PPY 721     | Internship III | 6            |
| THS 799     | Thesis         | 3            |

Elective Courses (**Clinical Psychology**) **04** courses shall be chosen as per advice of the supervisor.

| Course Code | Electives Course                         | Credit Hours |
|-------------|--|--------------|
| PPY 704     | Classical Approaches to Psychotherapies  | 3            |
| PPY 707     | Neurophysiology                          | 3            |
| PPY 712     | Contemporary Approaches to Psychotherapy | 3            |
| PPY 715     | Pharmacology                             | 3            |
| PPY 722     | Cognitive Behavioural Therapy            | 3            |
| PPY 723     | Humanistic and Existential Therapies     | 3            |

Elective Courses (**Educational Psychology**) **04** courses shall be chosen as per advice of the supervisor.

| Course Code | Elective Courses   | Credit Hours |
|-------------|--|--------------|
| PPY 705     | Theories of Counselling                                      | 3            |
| PPY 708     | Patterns of Child Rearing and Development of Personality     | 3            |
| PPY 724     | Educational Coaching and Consultancy                         | 3            |
| PPY 725     | Educational Neuroscience                                     | 3            |
| PPY 726     | Cognitive Behavioural Therapies for Children and Adolescents | 3            |
| PPY 727     | Group Process in Educational Settings                        | 3            |

Elective Courses (**Organizational Psychology**) **04** courses shall be chosen as per advice of the supervisor.

| Course Code | Elective Courses                        | Credit Hours |
|-------------|---|--------------|
| PPY 706     | Vocational Guidance and Counselling     | 3            |
| PPY 709     | Personnel Selection and Job analysis    | 3            |
| PPY 717     | Organizational Leadership and Marketing | 3            |
| PPY 728     | Organizational Consulting Skills        | 3            |
| PPY 729     | Human Factors in Work Environment       | 3            |
| PPY 730     | Organizational Development and Change   | 3            |

## MS in Clinical Psychology

**Program Title:** MS Clinical Psychology

**Duration:** 2 Years (4 semesters)

**Eligibility Criteria:** Minimum 16 years of education in the relevant field of Psychology with a minimum of 50% marks (in annual system) or CGPA 2.0/4.0 (in semester system). BU Admission Test or GAT (General) with minimum 50% marks required at the time of admission.

### Semester wise Roadmap

#### Semester 1

| Course Code | Course Title                    | Credit Hours |
|-------------|---------------------------------|--------------|
| CPY 758     | Advanced Theories of Psychology | 3            |
|             | Elective I                      | 3            |
|             | Elective II                     | 3            |
|             | Elective III                    | 3            |

#### Semester 2

| Course Code | Course Title                            | Credit Hours |
|-------------|---|--------------|
| CPY 701     | Advanced Research Methods in Psychology | 3            |
|             | Elective IV                             | 3            |
|             | Elective V                              | 3            |
|             | Elective VI                             | 3            |
| CPY 754     | Internship I                            | 2            |

#### Semester 3

| Course Code | Course Title  | Credit Hours |
|-------------|---------------|--------------|
| CPY 758     | Internship II | 2            |
| THS 799     | Thesis        | 3            |

#### Semester 4

| Course Code | Course Title   | Credit Hours |
|-------------|----------------|--------------|
| CPY 759     | Internship III | 2            |
| THS 799     | Thesis         | 3            |

## List of Elective Courses

### Semester 1

|         |                                      |   |
|---------|--------------------------------------|---|
| CPY 759 | Applied Behavioural Analysis         | 3 |
| PPY 750 | Humanistic and Existential Therapies | 3 |
| CPY 760 | Psychopathology                      | 3 |
| CPY 761 | Psychological Assessment             | 3 |
| CPY 762 | Neurological Basis of Behaviour      | 3 |
| CPY 763 | Ethics and Professional Issues       | 3 |

### Semester 2

|         |  |   |
|---------|--|---|
| PPY 722 | Cognitive Behavioural Therapy                                | 3 |
| CPY 748 | Personality Assessment                                       | 3 |
| CPY 764 | Psychopharmacology   | 3 |
| CPY 749 | Psychodynamic Therapies                                      | 3 |
| CPY 750 | Psychopathology and Psychotherapies of Children/ Adolescents | 3 |

## PhD in Professional Psychology

**Program Title:** PhD in Professional Psychology

**Duration:** 3 Years (6 Semesters)

**Eligibility Criteria:** 18 years of education in Clinical Psychology or relevant field of Psychology including clinical internship and course contents from an HEC-recognized university with a minimum CGPA of 3.00/4.00 (Semester System) or 60% marks (Annual System).

NTS-GAT (General) or GRE (General) Test passed with minimum 60% marks or BU Admission Test (60% passing marks).

An initial Research Proposal/Statement of Purpose is required at the time of Ph.D. admission.

### Semester wise Roadmap

#### First Year

##### Semester 1

| Course Code | Course Title                                       | Credit Hours |
|-------------|--|--------------|
| PPY 801     | Advanced Quantitative Research and Research Ethics | 3            |
|             | Elective I   | 3            |
|             | Elective II  | 3            |

##### Semester 2

| Course Code | Course Title                                      | Credit Hours |
|-------------|---|--------------|
| PPY 810     | Advanced Qualitative Research and Research Ethics | 3            |
|             | Elective III                                      | 3            |
|             | Elective IV                                       | 3            |

#### Summer Semester

| Course Code | Course Title | Credit Hours |
|-------------|--------------|--------------|
| PPY 819     | Internship I | 9            |

#### Second Year

##### Semester 3

| Course Code | Course Title  | Credit Hours |
|-------------|---------------|--------------|
| PPY 820     | Internship II | 3            |

|         |        |   |
|---------|--------|---|
| THS 900 | Thesis | 9 |
|---------|--------|---|

#### Semester 4

| Course Code | Course Title   | Credit Hours |
|-------------|----------------|--------------|
| PPY 821     | Internship III | 3            |
| THS 900     | Thesis         | 9            |

#### Third Year

##### Semester 5

| Course Code | Course Title  | Credit Hours |
|-------------|---------------|--------------|
| PPY 822     | Internship IV | 3            |
| THS 900     | Thesis        | 9            |

##### Semester 6

| Course Code | Course Title                              | Credit Hours |
|-------------|---|--------------|
| THS 900     | Thesis                                    | 9            |
| PPY 823     | Didactic Analysis / Professional Training | 3            |

Elective Courses (**Clinical Psychology**). **04** courses shall be chosen as per advice of the supervisor.

| Course Code | Elective Courses                                | Credit Hours |
|-------------|---|--------------|
| PPY 804     | Expressive Art Therapy                          | 3            |
| PPY 813     | Complementary and Alternative Healing Therapies | 3            |
| PPY 836     | Psychological Rehabilitation                    | 3            |
| PPY 837     | Hypnotherapy                                    | 3            |
| PPY 838     | Group Psychotherapy                             | 3            |
| PPY 839     | System/Family Therapy                           | 3            |
| PPY 840     | Diversity in Assessment and Intervention        | 3            |
| PPY 841     | Clinical Consultation and Supervision           | 3            |

Elective Courses (**Educational Psychology**) **04** courses shall be chosen as per advice of the supervisor.

| Course Code | Elective Courses | Credit Hours |
|-------------|------------------|--------------|
|-------------|------------------|--------------|

|         |   |   |
|---------|---|---|
| PPY 806 | Vocational Guidance                                   | 3 |
| PPY 815 | Educational Counselling                               | 3 |
| PPY 817 | Psychotherapy with Children and Adolescents           | 3 |
| PPY 842 | Learning Process in Relation to Educational Practices | 3 |
| PPY 843 | Instructional Systems Design                          | 3 |
| PPY 844 | Developmental Issues in Instruction                   | 3 |
| PPY 845 | Creativity For Teachers                               | 3 |
| PPY 846 | Diversity and Equity Issues in Education              | 3 |

Elective Courses (**Organizational Psychology**) **04** courses shall be chosen as per advice of the supervisor.

| Course Code | Elective Courses                              | Credit Hours |
|-------------|---|--------------|
| PPY 809     | Work Team Dynamics                            | 3            |
| PPY 847     | Leadership Development and Assessment         | 3            |
| PPY 848     | Diversity, Inclusion and Change               | 3            |
| PPY 849     | Crisis Management                             | 3            |
| PPY 854     | Organizational Design and Process Improvement | 3            |
| PPY 851     | Positive Organizational Psychology            | 3            |
| PPY 852     | Theory and Practice of Counselling            | 3            |
| PPY 853     | HR Strategic Management                       | 3            |

## **BACHELOR OF COMPUTER ENGINEERING**

The Department of Computer Engineering at Bahria University is home to multidisciplinary research and academic units that address issues and recent advances in Computer Engineering. The department provides research areas and cutting edge facilities in Computer engineering. Our Goal has been, and continues to be, to provide a high degree programme in Computer and Software Engineering, a programme that prepares students for lifelong learning as they take on professional careers in computing.

If you are interested in math, science, and computers, you should consider a degree in computer engineering. Engineers like to innovate, be creative, work in teams, explore how things work, design new products, and solve problems. As computers continue to integrate themselves into our everyday lives there is a need for engineers who understand their principles of operation and how to innovate new applications. Computer engineers continually push the capability and applicability of computers in every industry and every facet of modern life.

### **Vision Statement**

The Computer Engineering Department is committed to prepare students for professional and research activities with an ability to learn independently, within a diverse multi-cultural environment, and enabling them to become global leaders in their respective fields.

### **Mission Statement**

The mission of Bachelor Computer Engineering program is to produce ethically sound and technically competent graduates who can fulfill the evolving needs of academia, industry and society.

### **Program Educational Objectives (PEOs)**

Graduates of Computer Engineering Program are expected to achieve the following Program Educational Objectives for BCE program.

**PEO 1:** Demonstrate excellence in the profession through in-depth knowledge and skills in the field of Computer Engineering.

**PEO 2:** Demonstrate effective management and communication skills being an individual or a team member.

**PEO 3:** Show professional integrity and commitment to social and ethical responsibilities.

**PEO 4:** Engage in continuous professional development for their personal growth and the betterment of society.

### **Program Learning Outcomes (PLOs)**

The Computer Engineering program prepares students to attain the program educational objectives by ensuring that students demonstrate achievement of the following graduate attributes.

**PLO-1 Engineering Knowledge:** An ability to apply knowledge of mathematics, computer engineering fundamentals and computer engineering specialization to the solution of complex engineering problems.

**PLO-2 Problem Analysis:** An ability to identify, formulate, research literature and analyze complex computer engineering problems reaching substantiated conclusions using engineering and natural sciences principles.

**PLO-3 Design/Development of Solutions:** An ability to design solutions for complex computer engineering problems and design systems, components or processes that meet specified needs with appropriate consideration for public health & safety, cultural, societal, and environmental considerations.

**PLO-4 Investigation:** An ability to investigate complex engineering problems in a methodical way including literature survey, design and conduct of experiments, analysis and interpretation of experimental data, and synthesis of information to derive valid conclusions.

**PLO-5 Modern Tool Usage:** An ability to create, select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modeling, to complex engineering activities, with an understanding of the limitations.

**PLO-6 The Engineer and Society:** An ability to apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practice and solution to complex engineering problems.

**PLO-7 Environment and Sustainability:** An ability to understand the impact of professional engineering solutions in societal and environmental contexts and demonstrate knowledge of and need for sustainable development.

**PLO-8 Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice.

**PLO-9 Individual and Team Work:** An ability to work effectively, as an individual or in a team, on multifaceted and /or multidisciplinary settings.

**PLO-10 Communication:** Ability to communicate effectively, orally as well as in writing, on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

**PLO-11 Project Management:** Ability to demonstrate management skills and apply engineering principles to one's own work, as a member and/or leader in a team, to manage projects in a multidisciplinary environment.

**PLO-12 Lifelong Learning:** Ability to recognize importance of, and pursue lifelong learning in the broader context of innovation and technological developments.

**Program Title:** Bachelor of Computer Engineering (BCE)

**Duration:** 4 Years

**Eligibility Criteria:** Passed intermediate examination or its equivalent with a minimum of 60% marks in Pre-Engineering Group, or with Mathematics, Physics and Computer Studies.

### Semester-wise Revised Roadmap of BCE

#### **Semester 1**

| Sr.No.                    | Pre-requisite Course Code | Course Code      | Course Title                           | Credit Hours   |
|---------------------------|---------------------------|------------------|--|----------------|
| 1                         | None                      | GSC 110          | Applied Calculus & Analytical Geometry | 3              |
| 2                         | None                      | ISL 101 /HSS 116 | Islamic Studies / Ethics               | 2              |
| 3                         | None                      | CSC 110          | Computing Fundamentals                 | 2              |
| 4                         | None                      | CSL 110          | Computing Fundamentals Lab             | 1              |
| 5                         | None                      | GSC 113          | Applied Physics                        | 3              |
| 6                         | None                      | GSL 113          | Applied Physics Lab                    | 1              |
| 7                         | None                      | ENG 101          | Functional English                     | 3              |
| 8                         | None                      | EEL 112          | Workshop Practices                     | 1              |
| 9                         | None                      | ISL 107          | Tajweed                                | 1 Contact Hour |
| <b>Total Credit Hours</b> |                           |                  |  | <b>16</b>      |

#### **Semester 2**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title         | Credit Hours |
|---------|---------------------------|-------------|----------------------|--------------|
| 1       | None                      | GSC 120     | Linear Algebra       | 2            |
| 2       | GSC 113                   | CEN 121     | Circuit Analysis     | 3            |
| 3       | GSC 113                   | CEL 121     | Circuit Analysis Lab | 1            |

|                           |      |         |                              |           |
|---------------------------|------|---------|------------------------------|-----------|
| 4                         | None | CSC 113 | Computer Programming         | 3         |
| 5                         | None | CSL 113 | Computer Programming Lab     | 1         |
| 6                         | None | PAK 103 | Pakistan Studies             | 2         |
| 7                         | None | ENV 101 | Occupational Health & Safety | 1         |
| 8                         | None | CEN 120 | Digital Logic Design         | 3         |
| 9                         | None | CEL 120 | Digital Logic Design Lab     | 1         |
| 10                        | None | ISL 108 | Understanding Quran - I      | 0         |
| <b>Total Credit Hours</b> |      |         |                              | <b>18</b> |

\*Only for Muslim students

### Semester 3

| Sr. No.                   | Pre-requisite Course Code | Course Code | Course Title                      | Credit Hours |
|---------------------------|---------------------------|-------------|-----------------------------------|--------------|
| 1                         | None                      | CSC 115     | Discrete Structures               | 3            |
| 2                         | GSC 113                   | EEN 224     | Electronic Devices & Circuits     | 3            |
| 3                         | GSC 113                   | EEL 224     | Electronic Devices & Circuits Lab | 1            |
| 4                         | CSC 113                   | CSC 210     | Object Oriented Programming       | 3            |
| 5                         | CSC 113                   | CSL 210     | Object Oriented Programming Lab   | 1            |
| 6                         | None                      | HSS 118     | Communication Skills              | 2            |
| 7                         | GSC 110                   | GSC 220     | Complex Variables & Transforms    | 3            |
| 8                         | -                         | -           | Social Science Elective-I         | 2            |
| 9                         |                           | ISL 109     | Understanding Quran- II           | 0            |
| <b>Total Credit Hours</b> |                           |             |                                   | <b>18</b>    |

\*Only for Muslim students

### Semester 4

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                      | Credit Hours   |
|---------|---------------------------|-------------|-----------------------------------|----------------|
| 1       | GSC 110                   | GSC 210     | Differential Equations            | 3              |
| 2       | CSC 210                   | CSC 221     | Data Structures & Algorithms      | 3              |
| 3       | CSC 210                   | CSL 221     | Data Structures & Algorithms Lab  | 1              |
| 4       | None                      | EEN 313     | Signals & Systems                 | 3              |
| 5       | None                      | EEL 313     | Signals & Systems Lab             | 1              |
| 6       | CEN 120                   | CEN 321     | Microprocessors & Interfacing     | 3              |
| 7       | CEN 120                   | CEL 321     | Microprocessors & Interfacing Lab | 1              |
| 8       | -                         | -           | MS-Elective-I                     | 3              |
| 9       |                           | ISL 110     | Understanding Quran -III          | 1 Contact Hour |

|                           |           |
|---------------------------|-----------|
| <b>Total Credit Hours</b> | <b>18</b> |
|---------------------------|-----------|

\*Only for Muslim students

### Semester 5

| Sr. No.                   | Pre-requisite Course Code | Course Code | Course Title                             | Credit Hours   |
|---------------------------|---------------------------|-------------|--|----------------|
| 1                         | CSC 221                   | CSC 320     | Operating Systems                        | 3              |
| 2                         | CSC 221                   | CSL 320     | Operating Systems Lab                    | 1              |
| 3                         | ENG 105                   | HSS 321     | Technical Writing                        | 2              |
| 4                         | CEN 120                   | CEN 221     | Computer Architecture & Organization     | 3              |
| 5                         | CEN 120                   | CEL 221     | Computer Architecture & Organization Lab | 1              |
| 6                         | EEN 313                   | EEN 325     | Digital Signal Processing                | 3              |
| 7                         | EEN 313                   | EEL 325     | Digital Signal Processing Lab            | 1              |
| 8                         | None                      | CEN 223     | Computer Communication & Networks        | 3              |
| 9                         | None                      | CEL 223     | Computer Communication & Networks Lab    | 1              |
| 10                        |                           | ISL 111     | Understanding Quran-IV                   | 1 Contact Hour |
| <b>Total Credit Hours</b> |                           |             |  | <b>18</b>      |

\*Only for Muslim students

### Semester 6

| Sr. No.                   | Pre-requisite Course Code | Course Code | Course Title                    | Credit Hours   |
|---------------------------|---------------------------|-------------|---------------------------------|----------------|
| 1                         | -                         | -           | CEDE-I                          | 3+1            |
| 2                         | CSC 210                   | CSC 220     | Database Management Systems     | 3              |
| 3                         | CSC 210                   | CSL 220     | Database Management Systems Lab | 1              |
| 4                         | None                      | SEN 220     | Software Engineering            | 3              |
| 5                         | None                      | GSC 122     | Probability & Statistics        | 3              |
| 6                         | -                         | -           | MDEE-I                          | 3+0/2+1        |
| 7                         |                           | ISL 112     | Understanding Quran – V         | 1 Contact Hour |
| <b>Total Credit Hours</b> |                           |             |                                 | <b>17</b>      |

### Semester 7

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title              | Credit Hours |
|---------|---------------------------|-------------|---------------------------|--------------|
| 1       | CEN 221                   | CEN 442     | Digital System Design     | 3            |
| 2       | CEN 221                   | CEL 442     | Digital System Design Lab | 1            |

|                           |         |         |                                     |                |
|---------------------------|---------|---------|-------------------------------------|----------------|
| 3                         | -       | -       | MS-Elective-II                      | 2              |
| 4                         | -       | -       | CEDE-II                             | 3+1            |
| 5                         | -       | ESC 498 | Project-I                           | 3              |
| 6                         | GSC 120 | GSC 321 | Numerical Analysis                  | 2              |
| 7                         | GSC 120 | GSL 321 | Numerical Analysis Lab              | 1              |
| 8                         | None    | ISL 113 | Seerah – I                          | 1 Contact Hour |
|                           |         | PAK 109 | Ideology & Constitution of Pakistan | 2              |
| <b>Total Credit Hours</b> |         |         |                                     | <b>18</b>      |

### Semester 8

| Sr. No.                   | Pre-requisite Course Code | Course Code | Course Title               | Credit Hours   |
|---------------------------|---------------------------|-------------|----------------------------|----------------|
| 1                         | -                         | ESC 499     | Project-II                 | 3              |
| 2                         | -                         | -           | CEDE-III                   | 3+1            |
| 3                         | -                         | -           | CEDE-IV                    | 3+1            |
| 4                         | -                         | -           | MDEE-II                    | 3+0/2+1        |
| 5                         | -                         | -           | Social Science Elective-II | 2              |
| 6                         |                           | ISL 114     | Seerah – II                | 1 Contact Hour |
| <b>Total Credit Hours</b> |                           |             |                            | <b>16</b>      |

### List of Elective Courses

| Pre-requisite Course Code | Course Code | Course Title                             | Credit Hours |
|---------------------------|-------------|--|--------------|
| None                      | SEN 320     | Human Computer Interaction               | 3            |
| None                      | CEN 429     | Introduction to Block Chain Technologies | 3            |
| None                      | CSC 449     | Neural Networks & Fuzzy Logic            | 3            |
| EEN 313                   | CEN 458     | Robotics                                 | 2+1          |
| None                      | CEN 426     | Introduction to Virtual Reality          | 3            |
| None                      | SEN 420     | Software Quality Assurance               | 3            |
| EEN 224                   | CEN 457     | VLSI Design                              | 2+1          |
| None                      | CSC 457     | Data Mining & Warehousing                | 2+1          |
| None                      | GEO 437     | GIS & Remote Sensing                     | 3            |
| None                      | GEO 436     | Health Safety & Environment              | 3            |
| None                      | CEN 427     | Biomedical Engineering                   | 3            |
| None                      | SEN 449     | Business Process Automation              | 3            |
| None                      | EEN 467     | Control Engineering                      | 3            |
| None                      | SEN 448     | Software Applications and Mobile Devices | 2+1          |

|         |         |  |     |
|---------|---------|--|-----|
| SEN 220 | CSC 323 | Compiler Construction                      | 3   |
| SEN 220 | CSC 315 | Theory of Automata                         | 3   |
| CSC 320 | CEN 411 | Cloud & Distributed Computing              | 3+1 |
| CEN 321 | CEN 449 | Internet of Things                         | 3+1 |
| CEN 321 | CEN 440 | Embedded System Design                     | 3+1 |
| EEN 313 | CEN 409 | Artificial Intelligence & Machine Learning | 3+1 |
| EEN 313 | CEN 444 | Digital Image Processing                   | 3+1 |
| CSC 113 | CEN 408 | System & Network Security                  | 3+1 |
| CSC 320 | CEN 454 | System Programming                         | 3+1 |
| CSC 320 | CEN 407 | High Performance Computing                 | 3+1 |
| CSC 221 | CEN 326 | Algorithm Design and Analysis              | 3+1 |
| EEN 325 | CEN 425 | Hardware Design for DSP & ML               | 3+1 |
| CEN 442 | CEN 462 | Hardware Verification                      | 3+1 |
| None    | EMG 201 | Engineering Project Management             | 3   |
| None    | MGT 423 | Engineering Management                     | 3   |
| None    | MTM 101 | Introduction to Maritime Industry          | 3   |
| None    | EMG 222 | Principles of Management                   | 2   |
| None    | HSS 423 | Entrepreneurship                           | 2   |
| None    | HSS 412 | Engineering Economics                      | 2   |
| None    | HSS 413 | Sociology for Engineers                    | 2   |
| None    | HSS 424 | Engineering Ethics                         | 2   |
| None    | HSS 541 | Organizational Behavior                    | 2   |

## MS (Computer Engineering)

**Program Title:** MS CE

**Duration:** 2 to 3 Years

**Total Credit Hours:** Four years degree in BS/BSE/BEE/BET/CS/CE/IT/M.Sc Applied Physics/ Electronics/ equivalent with minimum 130 Credit Hours and CGPA 2.00/4.0 (Semester System) or 50% marks (Annual System).

### Semester wise Road map

#### Semester 1

| Sr. No. | Pre requisite Course Code | Course Code | Course Title         | Credit Hours |
|---------|---------------------------|-------------|----------------------|--------------|
| 1       |                           |             | Core I               | 3            |
| 2       |                           |             | Core II              | 3            |
| 3       |                           | ESC 701     | Research Methodology | 3            |

#### Semester 2

| Sr. No. | Pre requisite Course Code | Course Code | Course Title | Credit Hours |
|---------|---------------------------|-------------|--------------|--------------|
| 1       |                           |             | Core III     | 3            |
| 2       |                           |             | Elective I   | 3            |
| 3       |                           |             | Elective II  | 3            |

#### Semester 3

| Sr. No. | Pre requisite Course Code | Course Code | Course Title           | Credit Hours |
|---------|---------------------------|-------------|------------------------|--------------|
| 1       |                           |             | Elective III           | 3            |
| 2       |                           | THS 799     | Thesis I / Elective IV | 3            |

#### Semester 4

| Sr. No. | Pre requisite Course Code | Course Code | Course Title            | Credit Hours |
|---------|---------------------------|-------------|-------------------------|--------------|
| 1       |                           |             | Elective V              | 3            |
| 2       |                           | THS 799     | Thesis II / Elective VI | 3            |

**List of Core Courses**

| Sr. No. | Pre requisite Course Code | Course Code | Course Title                     | Credit Hours |
|---------|---------------------------|-------------|----------------------------------|--------------|
| 1       |                           | CEN 720     | Advanced Computer Architecture   | 3            |
| 2       |                           | CSC 711     | Advanced Artificial Intelligence | 3            |
| 3       |                           | CEN 742     | Advanced Digital System Design   | 3            |

**List of Electives Courses**

| Sr. No. | Pre requisite Course Code | Course Code | Course Title                                | Credit Hours |
|---------|---------------------------|-------------|---|--------------|
| 1       |                           | CSC 751     | Pattern Recognition                         | 3            |
| 2       |                           | CSC 764     | Computer Vision                             | 3            |
| 3       |                           | CSC 719     | Machine Learning                            | 3            |
| 4       |                           | CSC 765     | Bio Medical Image Analysis                  | 3            |
| 5       |                           | CEN 745     | Advanced Digital Image Processing           | 3            |
| 6       |                           | CEN 740     | Advanced Embedded Systems                   | 3            |
| 7       |                           | EEN 725     | Advanced Digital Signal Processing          | 3            |
| 8       |                           | CEN 707     | Advanced Distributed Systems                | 3            |
| 9       |                           | CSC 758     | Parallel Processing                         | 3            |
| 10      |                           | CEN 752     | Advanced VLSI System Design                 | 3            |
| 11      |                           | CEN 721     | Advanced Microprocessor Systems             | 3            |
| 12      |                           | CEN 753     | Design of Real Time Embedded Systems        | 3            |
| 13      |                           | EET 710     | Advanced Computer Networks                  | 3            |
| 14      |                           | EET 755     | Wireless Communication Techniques           | 3            |
| 15      |                           | EET 702     | Advanced Network Security                   | 3            |
| 16      |                           | EET 711     | Advanced Digital Communications             | 3            |
| 17      |                           | EET 769     | Mobile/Vehicular Ad Hoc Networks            | 3            |
| 18      |                           | GSC 700     | Advanced Engineering Mathematics            | 3            |
| 19      |                           | CSC 704     | Advanced Cryptography                       | 3            |
| 20      |                           | SEN 762     | Advanced Big Data Analytics                 | 3            |
| 21      |                           | DSC 707     | Deep Learning                               | 3            |
| 22      |                           | CSC 781     | Cloud Computing                             | 3            |
| 23      |                           | ISC 737     | Computer and Network Forensics              | 3            |
| 24      |                           | SEN 774     | IoTs Architecture, Protocols & Applications | 3            |
| 25      |                           | CSC 720     | Advanced Operating Systems                  | 3            |
| 26      |                           | CEN 758     | Robotics and Intelligent Sensors            | 3            |

|    |  |         |  |   |
|----|--|---------|--|---|
| 27 |  | CEN 710 | Digital Integrated Circuits            | 3 |
| 28 |  | CEN 711 | Digital and Analog IC Design           | 3 |
| 29 |  | CEN 759 | Generative AI                          | 3 |
| 30 |  | CSC 708 | Advanced Simulation and Modeling       | 3 |
| 31 |  | CSC 741 | Advanced Natural Language Processing   | 3 |
| 32 |  | CSC 746 | Advanced Data Mining                   | 3 |
| 33 |  | CSC 759 | Agent Based Modeling                   | 3 |
| 34 |  | EET 730 | AI for Internet of Things              | 3 |
| 35 |  | CSC 744 | Advanced Computer Graphics             | 3 |
| 36 |  | CSC 753 | Distributed Databases                  | 3 |
| 37 |  | CSC 760 | Advanced Data Warehousing              | 3 |
| 38 |  | SEN 720 | Advanced Human Computer Interaction    | 3 |
| 39 |  | SEN 723 | Formal Methods and Specifications      | 3 |
| 40 |  | SEN 760 | Complex Adaptive Systems               | 3 |
| 41 |  | EET 713 | Advanced Network Design                | 3 |
| 42 |  | ISC 712 | Computer and Network Security          | 3 |
| 43 |  | ISC 748 | Blockchain Essentials                  | 3 |
| 44 |  | ISC 721 | Advance Cryptography and Cryptanalysis | 3 |

## PhD Computer Engineering

**Program Title:** PhD Computer Engineering

**Duration:** 3 to 8 Years

**Eligibility Criteria:** 18 Years Education in the relevant discipline with a minimum CGPA of 3.00/4.00 (Semester System) or 60% marks (Annual System). NTS-GAT (General) or GRE (General) Test passed with minimum 60% marks or BU Admission Test (60% passing marks). Initial Research Proposal/Statement of Purpose is required at the time of PhD admission.

### Semester-wise Road map

#### Semester 1

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                    | Credit Hours |
|---------|---------------------------|-------------|---------------------------------|--------------|
| 1       | N/A                       | ESC 801     | Research Methods in PhD Studies | 3            |
| 2       |                           |             | Elective I                      | 3            |
| 3       |                           |             | Elective II                     | 3            |

#### Semester 2

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title | Credit Hours |
|---------|---------------------------|-------------|--------------|--------------|
| 1       |                           |             | Elective III | 3            |
| 2       |                           |             | Elective IV  | 3            |
| 3       |                           |             | Elective V   | 3            |

#### Semester 3

| Sr. No.  | Pre-requisite Course Code | Course Code | Course Title | Credit Hours |
|----------|---------------------------|-------------|--------------|--------------|
| <b>1</b> |                           | THS 900     | PhD Thesis   | 9            |

#### Semester 4

| Sr. No.  | Pre-requisite Course Code | Course Code | Course Title | Credit Hours |
|----------|---------------------------|-------------|--------------|--------------|
| <b>1</b> |                           | THS 900     | PhD Thesis   | 9            |

**Semester 5**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title | Credit Hours |
|---------|---------------------------|-------------|--------------|--------------|
| 1       |                           | THS 900     | PhD Thesis   | 9            |

**Semester 6**

| Sr.No. | Pre-requisite Course Code | Course Code | Course Title | Credit Hours |
|--------|---------------------------|-------------|--------------|--------------|
| 1      |                           | THS 900     | PhD Thesis   | 9            |

**List of Electives Courses**

| Course Code | Course Title  | Credit Hours |
|-------------|---|--------------|
| CEN 807     | Distributed Systems Architecture and Design           | 3            |
| CEN 808     | Advanced Techniques in System Modeling and Simulation | 3            |
| CEN 821     | Microprocessor System Optimization and customization  | 3            |
| CEN 840     | Advanced Embedded System Design                       | 3            |
| CEN 842     | Digital Systems Integration and Design                | 3            |
| CEN 845     | Image Analysis and Pattern Recognition                | 3            |
| CEN 852     | Modern Approaches in VLSI System Design               | 3            |
| CEN 853     | Real-Time Systems Engineering & Design                | 3            |
| CEN 855     | Advanced Parallel Processing Computer Systems         | 3            |
| DSC 807     | Advanced Deep Learning                                | 3            |
| CSC 820     | Advanced Topics in Operating Systems                  | 3            |
| CSC 819     | Research Trends in Machine Learning                   | 3            |
| CSC 851     | Advanced Pattern Recognition                          | 3            |
| CSC 864     | Advanced Computer Vision                              | 3            |
| CSC 881     | Advanced Cloud Computing                              | 3            |
| SEN 820     | Emerging Trends in Human Computer Interaction         | 3            |
| SEN 862     | Emerging Trends in Big Data Analytics                 | 3            |
| EET 827     | Advanced Wireless Communication Systems               | 3            |
| EET 831     | Modern Digital Communications Systems                 | 3            |
| EET 832     | Advance topics in Network Security                    | 3            |
| EET 834     | Emerging Trend in Optical Fiber Networks              | 3            |
| EET 835     | Advance Topics in 5G and Beyond Communications        | 3            |
| EET 850     | Wireless Sensor Networks                              | 3            |
| EET 851     | Mobile and ad-hoc Networks                            | 3            |
| EEN 824     | On-Chip Interconnection Networks                      | 3            |

|         |  |   |
|---------|--|---|
| EEN 829 | Design and Applications of Real Time DSP Systems                 | 3 |
| EEN 831 | Statistical Signal Processing                                    | 3 |
| CSC 800 | Advanced AI Networking   | 3 |
| CEN 820 | Advanced Computer Architecture                                   | 3 |
| CEN 854 | MOS VLSI Circuit Design  | 3 |
| EET 836 | AI for Future Communication Systems                              | 3 |
| EET 837 | Advanced Data Communication Systems                              | 3 |
| EET 829 | Optimization Techniques  | 3 |
| CSC 841 | Advanced Computational Linguistics                               | 3 |
| CSC 860 | Advanced Complexity Theory and Algorithms                        | 3 |
| DSC 800 | Advanced Data Analytics  | 3 |
| DSC 802 | Advanced Data Visualization                                      | 3 |
| SEN 810 | Secure Software Systems  | 3 |
| SEN 808 | Computer and Cybersecurity                                       | 3 |
| SEN 809 | Internet of Things: Design and Applications                      | 3 |
| EEN 832 | Fuzzy Logic and Neural Network Based Intelligent control systems | 3 |
| EEN 833 | Advanced Computer vision for Robotics                            | 3 |
| EEN 834 | Human-Robot Interaction  | 3 |
| EEN 835 | Medical Devices & Robotics                                       | 3 |
| CEN 841 | ASIC Design Methodology  | 3 |

## BS-Environmental Sciences

**Program Title:** BS Environmental Sciences

**Duration:** 4 Years

**Eligibility Criteria:** Passed intermediate with Pre–Medical/Pre–Engineering subjects or A-level/equivalent with at least 50% marks with English, Physics, Chemistry, Mathematics or Biology.

### Semester-wise Road map of BS Environmental Sciences

#### Semester 1

| Sr. No. | Pre-requisite Course Code | Course Code       | Course Title                                | Credit Hours |
|---------|---------------------------|-------------------|---|--------------|
| 1.      |                           | PAK 105           | Pakistan Studies                            | 2            |
| 2.      |                           | ISL 101           | Islamic Studies                             | 2            |
| 3.      |                           | ENG 101           | Functional English                          | 3            |
| 4.      |                           | MAT105/<br>BIO105 | Mathematics/Biology                         | 0            |
| 5.      |                           | CSC 102           | Introduction to Computers & Programming     | 2            |
|         |                           | CSL 102           | Introduction to Computers & Programming lab | 1            |
| 6.      |                           | PHY 103           | Physics                                     | 2            |
|         |                           | PHL 103           | Physics Lab                                 | 1            |
| 7.      |                           | ENV 105           | Introduction to Environmental Sciences      | 3            |
| 8.      | None                      | ISL 107           | Tajweed                                     | 0            |

#### Semester 2

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                              | Credit Hours |
|---------|---------------------------|-------------|---|--------------|
| 1.      |                           | GSC 340     | Chemistry                                 | 2            |
|         |                           | GSL 105     | Chemistry Lab                             | 1            |
| 2.      |                           | HSS 320     | Technical Writing and Presentation Skills | 3            |
| 3.      |                           | ENV 206     | Environmental Statistics                  | 3            |
| 4.      |                           | GEO 110     | Fundamental of Geography & Geomorphology  | 3            |
| 5.      |                           | ENV 230     | Environmental Issues                      | 3            |
| 6.      |                           | ENV 110     | Environmental Biology                     | 3            |
| 7.      |                           | ISL 108     | Understanding Quran – 10                  | 0            |

**Semester 3**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                    | Credit Hours |
|---------|---------------------------|-------------|---------------------------------|--------------|
| 1.      |                           | GEO 201     | Museology                       | 2            |
| 2.      |                           | GEO 206     | Civics and Community Engagement | 2            |
| 3.      |                           | PSY 102     | Introduction to Psychology      | 2            |
| 4.      | CHM 105                   | ENV 211     | Environmental Chemistry         | 2            |
|         |                           | ENL 211     | Environmental Chemistry Lab     | 1            |
| 5.      |                           | ENV 205     | Fundamentals of Ecology         | 3            |
| 6.      |                           | ENV 215     | Social Theory of Environment    | 3            |
| 7.      |                           | ENV 221     | Environmental Microbiology      | 2            |
|         |                           | ENL 221     | Environmental Microbiology Lab  | 1            |
| 8.      |                           | ISL 109     | Understanding Quran – II        | 0            |

**Semester 4**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                        | Credit Hours |
|---------|---------------------------|-------------|-------------------------------------|--------------|
| 1.      |                           | HSS 423     | Entrepreneurship                    | 2            |
| 2.      |                           | ENV 306     | Environmental Monitoring            | 2            |
|         |                           | ENL 306     | Environmental Monitoring Lab        | 1            |
| 3.      |                           | GEO 207     | Application of ICT                  | 2            |
|         |                           | GEL 207     | Application of ICT Lab              | 1            |
| 4.      |                           | ENV 315     | Environmental Management System     | 3            |
| 5.      | ENV 105                   | ENV 236     | Introduction to Climate Change      | 3            |
| 6.      |                           | ENV 310     | Environmental Toxicology            | 3            |
| 7.      |                           | PAK 109     | Ideology & Constitution of Pakistan | 2            |
| 8.      |                           | ISL 110     | Understanding Quran – III           | 0            |

**Semester 5**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title  | Credit Hours |
|---------|---------------------------|-------------|---|--------------|
| 1.      | ENV 220                   | ENV 320     | Environmental Biotechnology                         | 3            |
| 2.      |                           | ENV 330     | Environmental & Natural Resource Economics          | 3            |
| 3.      |                           | ENV 345     | Environmental Hazard & Management                   | 3            |
| 4.      |                           | ENV 325     | Environmental Engineering                           | 3            |
| 5.      |                           | ENV 336     | Analytical Techniques in Environmental Sciences     | 2            |
|         |                           | ENL 336     | Analytical Techniques in Environmental Sciences Lab | 1            |
| 6.      |                           | GEO 305     | Environmental Geology                               | 3            |

|    |  |         |                          |   |
|----|--|---------|--------------------------|---|
| 7. |  | ISL 111 | Understanding Quran – IV | 0 |
|----|--|---------|--------------------------|---|

### **Semester 6**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                      | Credit Hours |
|---------|---------------------------|-------------|-----------------------------------|--------------|
| 1.      | -                         | -           | Elective-I                        | 3            |
| 2.      |                           | ENV 341     | Solid Waste Management            | 2            |
|         |                           | ENL 341     | Solid Waste Management Lab        | 1            |
| 3.      |                           | ENV 361     | Natural Resource Management       | 3            |
| 4.      |                           | GEO 351     | Natural Disaster Management       | 3            |
| 5.      |                           | ENV 351     | Environmental Sciences Field Work | 3            |
| 6.      |                           | ISL 112     | Understanding Quran – V           | 0            |

### **Semester 7**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                               | Credit Hours |
|---------|---------------------------|-------------|--|--------------|
| 1.      |                           | ENV 410     | Environmental Impact Assessment            | 3            |
| 2.      | -                         | -           | Elective-II                                | 3            |
| 3.      |                           | ENV 420     | Research Methods in Environmental Sciences | 3            |
| 4.      |                           | GEO 420     | Hydrogeology                               | 3            |
| 5.      |                           | GEO 438     | GIS & Remote Sensing                       | 2            |
|         |                           | GEL 438     | GIS & Remote Sensing Lab                   | 1            |
| 6.      |                           | ISL 113     | Seerah -I                                  | 0            |

### **Semester 8**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                  | Credit Hours |
|---------|---------------------------|-------------|-------------------------------|--------------|
| 1.      | -                         | -           | Elective-III                  | 3            |
| 2.      |                           | ENV 441     | Energy and Environment        | 2            |
|         |                           | ENL 441     | Energy and Environment Lab    | 1            |
| 3.      |                           | ENV 430     | Environmental Policies & Laws | 3            |
| 4.      |                           | ENV 436     | Thesis                        | 3            |
| 5.      |                           | ENV 425     | Occupational Health & Safety  | 3            |
| 6.      |                           | ISL 114     | Seerah -I                     | 0            |

**List of Elective Courses**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                   | Credit Hours |
|---------|---------------------------|-------------|--------------------------------|--------------|
| 1.      |                           | ENV 355     | Urban Environmental Management | 3            |
| 2.      |                           | GEO 335     | Earthquake Seismology          | 3            |
| 3.      |                           | ENV 352     | Soil and Environment           | 3            |
| 4.      |                           | GEO 436     | Health Safety & Environment    | 3            |
| 5.      |                           | ENV 405     | Pollution Control Technology   | 3            |
| 6.      | ENV 415                   | ENV 461     | Water Resources Management     | 3            |
| 7.      |                           | ENV 465     | Public health and Environment  | 3            |
| 8.      |                           | ENV 466     | Ecotourism Management          | 3            |
| 9.      |                           | ENV 467     | Air & Noise Pollution          | 3            |

## BS Geology

**Program Title:** BS Geology

**Duration:** 4 Years

**Eligibility Criteria:** Passed intermediate with Pre–Medical/Pre–Engineering subjects or A-level/equivalent with at least 50%marks with English, Physics, Chemistry, Mathematics or Biology.

### Semester-wise Roadmap of BS Geology

#### Semester 1

| Course Code | Course Title                                | Credit Hours |
|-------------|---|--------------|
| ENG 101     | Functional English                          | 3            |
| PHY 103     | Physics                                     | 2            |
| PHL 103     | Physics Lab                                 | 1            |
| CSC 102     | Introduction to Computers & Programming     | 2            |
| CSL 102     | Introduction to Computers & Programming Lab | 1            |
| PAK 105     | Pakistan Studies                            | 2            |
| ISL 101     | Islamic Studies                             | 2            |
| GEO 105     | Physical & General Geology                  | 3            |
| MAT 106     | Mathematics                                 | 0            |
| ISL 107**   | Tajweed                                     | 0            |
| GSC 340     | Chemistry                                   | 2            |
| GSL 340     | Chemistry Lab                               | 1            |

#### Semester 2

| Course Code | Course Title                              | Credit Hours |
|-------------|---|--------------|
| HSS 320     | Technical Writing and Presentation Skills | 3            |
| GEO 151     | Geological Field Work - I                 | 2            |
| MAT 115     | Calculus & Analytical Geometry            | 3            |
| GEO 110     | Fundamental of Geography & Geomorphology  | 3            |
| GEO 115     | Introduction to Geophysics                | 3            |
| GEO 120     | Field Geology                             | 3            |
| ISL 108     | Understanding Quran - I                   | 0            |
|             | Total                                     | 17           |

#### Semester 3

| Course Code | Course Title                    | Credit Hours |
|-------------|---------------------------------|--------------|
| GEO 201     | Museology                       | 2            |
| HSS 219     | Civics and Community Engagement | 2            |
| PSY 102     | Introduction to Psychology      | 2            |
| GEO 212     | Geostatistics                   | 3            |
| GEO 205     | Structural Geology              | 3            |

|         |                              |   |
|---------|------------------------------|---|
| GEO 210 | Mineralogy & Crystallography | 3 |
| GEO 215 | Sedimentology                | 3 |
| ISL 109 | Understanding Quran - II     | 0 |

#### Semester 4

| Course Code | Course Title   | Credit Hours |
|-------------|--|--------------|
| PAK 109     | Ideology and Constitution of Pakistan                          | 2            |
| HSS 423     | Entrepreneurship   | 2            |
| GEO 207     | Applications of Information and Communication Technologies     | 2            |
| GEL 207     | Applications of Information and Communication Technologies Lab | 1            |
| GEO 230     | Geotectonics   | 3            |
| GEO 251     | Geological Field Work - II                                     | 2            |
| GEO 325     | Stratigraphy of Pakistan                                       | 3            |
| GEO 335     | Earthquake Seismology  | 3            |
| ISL 110     | Understanding Quran - III                                      | 0            |

#### Semester 5

| Course Code | Course Title                    | Credit Hours |
|-------------|---------------------------------|--------------|
| GEO 321     | Computing with Matlab           | 2            |
| GEL 321     | Computing with Matlab Lab       | 1            |
| GEO 315     | Igneous & Metamorphic Petrology | 3            |
| GEO 345     | Petroleum Geology               | 3            |
| GEO 350     | Geology of Pakistan             | 3            |
| GEO 415     | Economic Geology                | 3            |
| GEO 305     | Environmental Geology           | 3            |
| ISL 111*    | Understanding Quran - IV        | 0            |

#### Semester 6

| Course Code | Course Title                | Credit Hours |
|-------------|-----------------------------|--------------|
| GEO 425     | Research Methodology        | 3            |
| GEO 342     | Wireline logging            | 3            |
| GEO 347     | AI & Computational Geology  | 3            |
| GEO xxx     | Elective - I                | 3            |
| GEO xxx     | Elective - II               | 3            |
| GEO 351     | Geological Field Work - III | 2            |
| ISL 112     | Understanding Quran - V     | 0            |

#### Semester 7

| Course Code | Course Title | Credit Hours |
|-------------|--------------|--------------|
|-------------|--------------|--------------|

|         |                            |   |
|---------|----------------------------|---|
| GEO 451 | Geological Field Work - IV | 2 |
| GEO 405 | Petroleum Engineering      | 3 |
| GEO 420 | Hydrogeology               | 3 |
| GEO xxx | Elective - III             | 3 |
| GEO xxx | Elective - IV              | 3 |
| GEO xxx | Elective - V               | 3 |
| ISL 113 | Seerah - I                 | 0 |

#### Semester 8

| Course Code | Course Title         | Credit Hours |
|-------------|----------------------|--------------|
| GEO xxx     | Elective – VI        | 3            |
| GEO xxx     | Elective – VII       | 3            |
| GEO xxx     | Elective – VIII      | 3            |
| GEO 437     | GIS & Remote Sensing | 3            |
| GEO 442     | Capstone Project     | 3            |
| ISL 114*    | Seerah - II          | 0            |

#### List of Elective Courses

| Course Code | Course Title                             | Credit Hours |
|-------------|--|--------------|
| GEO 221     | Optical Mineralogy                       | 3            |
| GEO 225     | Geochemistry                             | 3            |
| GEO 310     | Paleontology                             | 3            |
| GEO 320     | Marine Geology                           | 3            |
| GEO 330     | Micropaleontology & Biostratigraphy      | 3            |
| GEO 336     | Neotectonics                             | 3            |
| GEO 406     | Reservoir Geology                        | 3            |
| GEO 407     | Clastic Sedimentology                    | 3            |
| GEO 408     | Carbonate Sedimentology                  | 3            |
| GEO 410     | Engineering Geology                      | 3            |
| GEO 430     | Geochemical Exploration Techniques       | 3            |
| GEO 431     | Introduction to Geotechnical Engineering | 3            |
| GEO 520     | Rock Mechanics                           | 3            |
| GEO 433     | Soil Mechanics                           | 3            |
| GEO 469     | Industrial Mineralogy                    | 3            |
| GEO 476     | Mining Geology                           | 3            |
| GEO 484     | Quaternary Geology                       | 3            |
| GEO 482     | Software Applications in Petrophysics    | 3            |

## BS Geophysics

**Program Title:** BS Geophysics

**Duration:** 4 Years

**Eligibility Criteria:** Passed intermediate with Pre–Medical/Pre–Engineering subjects or A-level/equivalent with at least 50%marks with English, Physics, Chemistry, Mathematics or Biology.

### Semester-wise Roadmap of BS Geophysics

#### Semester 1

| Course Code | Course Title                                | Credit Hours |
|-------------|---|--------------|
| ENG 101     | Functional English                          | 3            |
| PHY 103     | Physics                                     | 2            |
| PHL 103     | Physics Lab                                 | 1            |
| CSC 102     | Introduction to Computers & Programming     | 2            |
| CSL 102     | Introduction to Computers & Programming Lab | 1            |
| PAK 105     | Pakistan Studies                            | 2            |
| ISL 101     | Islamic Studies                             | 2            |
| GEO 105     | Physical & General Geology                  | 3            |
| MAT 106     | Mathematics                                 | 0            |
| ISL 107     | Tajweed                                     | 0            |
| GSC 340     | Chemistry                                   | 2            |
| GSL 340     | Chemistry Lab                               | 1            |

#### Semester 2

| Course Code | Course Title                              | Credit Hours |
|-------------|---|--------------|
| HSS 320     | Technical Writing and Presentation Skills | 3            |
| GEO 151     | Geological Field Work - I                 | 2            |
| MAT 115     | Calculus & Analytical Geometry            | 3            |
| GEO 110     | Fundamental of Geography & Geomorphology  | 3            |
| GEO 115     | Introduction to Geophysics                | 3            |
| GEO 120     | Field Geology                             | 3            |
| ISL 108     | Understanding Quran - I                   | 0            |

#### Semester 3

| Course Code | Course Title                    | Credit Hours |
|-------------|---------------------------------|--------------|
| GEO 201     | Museology                       | 2            |
| HSS 219     | Civics and Community Engagement | 2            |
| PSY 102     | Introduction to Psychology      | 2            |
| GEO 212     | Geostatistics                   | 3            |
| GEO 205     | Structural Geology              | 3            |
| GEO 210     | Mineralogy & Crystallography    | 3            |
| GEO 215     | Sedimentology                   | 3            |
| ISL 109     | Understanding Quran - II        | 0            |

**Semester 4**

| Course Code | Course Title   | Credit Hours |
|-------------|--|--------------|
| PAK 109     | Ideology and Constitution of Pakistan                          | 2            |
| HSS 423     | Entrepreneurship   | 2            |
| GEO 207     | Applications of Information and Communication Technologies     | 2            |
| GEL 207     | Applications of Information and Communication Technologies Lab | 1            |
| GEO 230     | Geotectonics   | 3            |
| GEO 251     | Geological Field Work - II                                     | 2            |
| GEO 325     | Stratigraphy of Pakistan                                       | 3            |
| GEO 335     | Earthquake Seismology  | 3            |
| ISL 110*    | Understanding Quran - III                                      | 0            |

**Semester 5**

| Course Code | Course Title                    | Credit Hours |
|-------------|---------------------------------|--------------|
| GEO 321     | Computing with Matlab           | 2            |
| GEL 321     | Computing with Matlab Lab       | 1            |
| GEO 315     | Igneous & Metamorphic Petrology | 3            |
| GEO 345     | Petroleum Geology               | 3            |
| GEO 350     | Geology of Pakistan             | 3            |
| GEO 415     | Economic Geology                | 3            |
| GEO 305     | Environmental Geology           | 3            |
| ISL 111*    | Understanding Quran - IV        | 0            |

\*Only for Muslim students

**Semester 6**

| Course Code | Course Title               | Credit Hours |
|-------------|----------------------------|--------------|
| GEO 425     | Research Methodology       | 3            |
| GEO 342     | Wireline logging           | 3            |
| GEO 347     | AI & Computational Geology | 3            |
| GEO xxx     | Elective - I               | 3            |
| GEO xxx     | Elective - II              | 3            |
| GEO 351     | Field Work - III           | 2            |
| ISL 112*    | Understanding Quran - V    | 0            |

**Semester 7**

| Course Code | Course Title               | Credit Hours |
|-------------|----------------------------|--------------|
| GEO 451     | Geological Field Work - IV | 2            |
| GEO 405     | Petroleum Engineering      | 3            |
| GEO 420     | Hydrogeology               | 3            |
| GEO xxx     | Elective - III             | 3            |
| GEO xxx     | Elective - IV              | 3            |

|          |              |   |
|----------|--------------|---|
| GEO xxx  | Elective - V | 3 |
| ISL 113* | Seerah - I   | 0 |

### Semester 8

| Course Code | Course Title         | Credit Hours |
|-------------|----------------------|--------------|
| GEO xxx     | Elective – VI        | 3            |
| GEO xxx     | Elective – VII       | 3            |
| GEO xxx     | Elective – VIII      | 3            |
| GEO 442     | Capstone Project     | 3            |
| ISL 114*    | Seerah - II          | 0            |
| GEO 437     | GIS & Remote Sensing | 3            |

### List of Elective Courses

| Course Code | Course Title                                    | Credit Hours |
|-------------|---|--------------|
| GEO 240     | Gravity and Magnetic Exploration Techniques     | 3            |
| GEO 327     | Environmental Geophysics                        | 3            |
| GEO 332     | Rock Physics                                    | 3            |
| GEO 367     | Seismic Data Acquisition & Planning             | 3            |
| GEO 379     | Introduction to Machine Learning                | 2            |
| GEL 379     | Introduction to Machine Learning Lab            | 1            |
| GEO 368     | Electrical & Radioactive Exploration Techniques | 3            |
| GEO 390     | Borehole Geophysics                             | 3            |
| GEO 470     | Seismic Data Processing                         | 3            |
| GEO 311     | Reservoir Geophysics                            | 3            |
| GEO 567     | Sequence Stratigraphy                           | 3            |
| GEO 588     | Ground Water Investigation                      | 3            |
| GEO 445     | Seismic Stratigraphy                            | 3            |
| GEO 477     | Seismic Data Interpretation                     | 3            |
| GEO 479     | Geospatial Techniques                           | 3            |
| GEO 481     | Mining Geophysics                               | 3            |
| GEO 483     | Applications of Geoscience Software             | 3            |
| GEO 485     | Shallow Surface Geophysics                      | 3            |

## BS Remote Sensing & GIS

**Program Title:** BS Remote Sensing & GIS  
**Duration:** 4 Years (8 semesters)  
**Eligibility Criteria:** Minimum 50% marks in Intermediate (HSSC) Examination (Pre-Medical / Pre-Engg. / ICS / General Science / Diploma of Associate Engineering) or equivalent qualification.

### Semester-wise Roadmap of BS Remote Sensing & GIS

#### Semester 1

| Course Code | Course Title                       | Credit Hours |
|-------------|------------------------------------|--------------|
| RGS 103     | Fundamental of GIS                 | 2            |
| RGL 103     | Fundamental of GIS Lab             | 1            |
| PHY 103     | Physics                            | 2            |
| PHL 103     | Physics Lab                        | 1            |
| ENG 103     | Functional English                 | 3            |
| MAT 105     | Mathematics*                       | 0            |
| MAT 205     | Statistics                         | 3            |
| RGS 105     | Fundamental of Earth Sciences      | 3            |
| RGS 107     | Introduction To Physical Geography | 3            |
| ISL 107     | Tajweed                            | 0            |

#### Semester 2

| Course Code | Course Title   | Credit Hours |
|-------------|--|--------------|
| MAT 115     | Calculus & Analytical Geometry                             | 3            |
| HSS 320     | Technical Writing and Presentation Skills                  | 3            |
| RGS 106     | Introduction To Remote Sensing                             | 2            |
| RGL 106     | Introduction To Remote Sensing Lab                         | 1            |
| PSY 102     | Introduction to Psychology                                 | 2            |
| CSC-114     | Introduction to Information & communication technology     | 2            |
| CSL-114     | Introduction to Information & communication technology Lab | 1            |
| RGS 108     | Map Work and Projections                                   | 2            |
| RGL 108     | Map Work and Projections Lab                               | 1            |
| ISL 108     | Understanding Quran – I                                    | 0            |

#### Semester 3

| Course Code | Course Title | Credit Hours |
|-------------|--------------|--------------|
|-------------|--------------|--------------|

|         |  |   |
|---------|--|---|
| HSS 219 | Civics And Community Engagement*                                       | 2 |
| RGS 203 | Land Surveying   | 2 |
| RGL 203 | Land Surveying Lab   | 1 |
| ISL 101 | Islamic Studies (Religious Education / Ethics for non-Muslim students) | 2 |
| PAK 105 | Pakistan Studies   | 2 |
| CEN 445 | Digital Image Processing   | 2 |
| CEL 445 | Digital Image Processing Lab   | 1 |
| RGS 205 | Global Navigation Satellite System                                     | 2 |
| RGL 205 | Global Navigation Satellite System Lab                                 | 1 |
| ENV 201 | Climatology  | 3 |
| ISL 109 | Understanding Quran – II   | 0 |

#### Semester 4

| Course Code | Course Title                           | Credit Hours |
|-------------|--|--------------|
| HSS 423     | Entrepreneurship                       | 2            |
| RGS 212     | Active Remote Sensing                  | 2            |
| RGL 212     | Active Remote Sensing Lab              | 1            |
| HSS 331     | Fundamentals of International Relation | 2            |
| PAK 109     | Ideology & Constitution of Pakistan    | 2            |
| RGS 208     | Photogrammetry                         | 2            |
| RGL 208     | Photogrammetry Lab                     | 1            |
| RGS 210     | Digital Cartography                    | 1            |
| RGL 210     | Digital Cartography Lab                | 1            |
| RGS 360     | Spatial Data Analysis                  | 2            |
| RGL 360     | Spatial Data Analysis Lab              | 1            |
| ISL 110     | Understanding Quran – III*             | 0            |

#### Semester 5

| Course Code | Course Title                                  | Credit Hours |
|-------------|---|--------------|
| RGS 303     | Spatial Data Infrastructure & Standardization | 3            |
| GEO 223     | Urban & Town Planning                         | 3            |
| RGS 320     | Geospatial Project Management                 | 3            |
| RGS 301     | Mobile Data Acquisition & Mapping             | 2            |
| RGL 301     | Mobile Data Acquisition & Mapping Lab         | 1            |

|         |                                       |   |
|---------|---------------------------------------|---|
| RGS 305 | GIS Programming and Customization     | 2 |
| RGL 305 | GIS Programming and Customization Lab | 1 |
| ISL 111 | Understanding Quran – IV              | 0 |

### Semester 6

| Course Code | Course Title                      | Credit Hours |
|-------------|-----------------------------------|--------------|
| GEO 324     | Research Methodology              | 3            |
| RGS 317     | Spatial Decision Support System   | 3            |
| RGS 302     | Spatial Database                  | 2            |
| RGL 302     | Spatial Database Lab              | 1            |
| RGS 304     | Hyper-Spectral Remote Sensing     | 2            |
| RGS 304     | Hyper-Spectral Remote Sensing Lab | 1            |
| XXX         | Elective I                        | 3            |
| XXX         | Elective II                       | 3            |
| ISL 112     | Understanding Quran – V           | 0            |

### Semester 7

| Course Code | Course Title                            | Credit Hours |
|-------------|---|--------------|
| RGS 330     | Web GIS                                 | 2            |
| RGL 330     | Web GIS Lab                             | 1            |
| RGS 401     | Artificial Intelligence in RS & GIS     | 2            |
| RGL 401     | Artificial Intelligence in RS & GIS Lab | 1            |
| RGS 454     | Spatial Data Modelling                  | 2            |
| RGS 454     | Spatial Data Modelling Lab              | 1            |
| XXX         | Elective III                            | 3            |
| XXX         | Elective IV                             | 3            |
| ISL 113     | Seerah –I*                              | 0            |

### Semester 8

| Course Code | Course Title                                  | Credit Hours |
|-------------|---|--------------|
| RGS 402     | Unmanned Aerial Vehicle & Data Processing     | 2            |
| RGL 402     | Unmanned Aerial Vehicle & Data Processing Lab | 1            |
| RGS 404     | Machine Learning in Spatial Data              | 2            |
| RGL 404     | Machine Learning in Spatial Data Lab          | 1            |
| XXX         | Elective V                                    | 3            |

|         |                  |   |
|---------|------------------|---|
| XXX     | Elective VI      | 3 |
| RGS 410 | Capstone Project | 3 |
| ISL 114 | Seerah –II       | 0 |

### **LIST OF ELECTIVES**

| S. No. | Pre-requisite Course Code | Course Code        | Course Title   | Credit Hour |
|--------|---------------------------|--------------------|--|-------------|
| 1      | RGS 106                   | RGS 319            | Multidisciplinary Application of GIS & RS                                    | 3           |
| 2      |                           | RGS 306            | GIS in Agriculture   | 3           |
| 3      |                           | ENV 361            | Natural Resource Management  | 3           |
| 4      | MAT 205                   | GEO 212            | Geostatistics  | 3           |
| 5      |                           | RGS 471            | Legal and Social Issues in Geospatial Sciences                               | 3           |
| 6      |                           | ENV 425            | Occupational Health & Safety   | 3           |
| 7      | ENV 201                   | RGS 403            | GIS in Climate Change Impact Assessment                                      | 3           |
| 8      |                           | RGS 455            | Land & Water Information System  | 3           |
| 9      |                           | ENV 412            | Environmental Impact Assessment  | 3           |
| 10     |                           | GEO 421<br>GEL 421 | Ground water Investigation<br>Ground water Investigation Lab                 | 3 (2+1)     |
| 11     | RGS 305<br>RGL 305        | RGS 456<br>RGL 456 | GIS Programming & Python<br>GIS Programming & Python Lab                     | 3 (2+1)     |
| 12     |                           | RGS 453            | GIS for Disaster Management  | 3           |
| 13     |                           | ENV 518            | Watershed management   | 3           |
| 14     | RGS 401<br>RGL 401        | AIC 303<br>AIL 303 | Artificial Neural Network<br>Artificial Neural Network Lab                   | 3           |
| 15     |                           | RGS 406            | Remote Sensing based Geographical monitoring                                 | 3           |
| 16     | RGS 108<br>RGL 108        | RGS 451<br>RGL 451 | Computer Aided Drafting/Drawing<br>Computer Aided Drafting/Drawing Lab       | 3           |
| 17     |                           | RGS 361<br>RGL 361 | Integrated Geospatial Technologies<br>Integrated Geospatial Technologies Lab | 3           |
| 18     |                           | RGS 408            | Computer Vision to Geospatial Analytics                                      | 3           |

## MS Environmental Sciences

### Important for all candidates

Applicant for admission MUST MEET THE ELIGIBILITY REQUIREMENTS set-forth by Bahria University.

Candidates are advised to CONFIRM THEIR ELIGIBILITY prior apply.

In case of annual system, eligibility will be determined on the basis of result in percentages.

In case of semester system, eligibility will be determined on the basis of CGPA obtained out of 4.00.

In case the result is shown both in CGPA and percentage, CGPA will be considered.

### Eligibility Criteria

Passed 16 years in relevant discipline (Earth Sciences/ Natural Sciences) with CGPA 2.00/4.0 or 50% marks.

| Semester           | Credit Hours (Courses)       |
|--------------------|------------------------------|
| 1                  | 12 CH (4 Compulsory courses) |
| 2                  | 12 CH (4 Elective courses)   |
| 3                  | 03 CH (Thesis)               |
| 4                  | 03 CH (Thesis)               |
| Total Credit Hours | 30                           |

### Compulsory Courses

| Course Codes | Course Title                                       | Credit Hours |
|--------------|--|--------------|
| ENV 731      | Advancement in Environmental Analytical Techniques | 3            |
| ENV 740      | Climate Change Adaptation and Mitigation           | 3            |
| ENV 702      | Environmental Management                           | 3            |
| ESC 701      | Research Methodology                               | 3            |

### Elective Courses

| Course Codes | Course Title                         | Credit Hours |
|--------------|--------------------------------------|--------------|
| ENV 730      | Advanced Environmental Biotechnology | 3            |
| ENV 703      | Ecofriendly Energy Sources           | 3            |

|         |   |   |
|---------|---|---|
| ENV 720 | Innovation in waste management approaches           | 3 |
| ENV 713 | Health, Safety and Environment                      | 3 |
| ENV 715 | Environmental Risk Assessment and Management        | 3 |
| GEO 720 | Hydrochemistry and Groundwater Pollution            | 3 |
| ENV 709 | Population Dynamics, Environment and Sustainability | 3 |
| ENV 710 | Environmental Auditing                              | 3 |
| ENV 711 | Circular and Green Economy                          | 3 |
| ENV 737 | Recent Trends in Environmental Engineering          | 3 |
| ENV 714 | Remote Sensing and GIS Applications in Environment  | 3 |
| ENV 718 | Watershed Management                                | 3 |
| ENV 719 | Environmental Epidemiology                          | 3 |
| ENV 721 | Marine Pollution                                    | 3 |
| ENV 705 | Environmental Policies and Legal Framework          | 3 |
| GEO 728 | Advanced Environmental Chemistry                    | 3 |
|         | Groundwater Modeling                                | 3 |
| ENV 704 | Environmental Impact Assessment                     | 3 |
| ENV 722 | Disaster Mitigation and Emergency Management        | 3 |
| ENV 707 | Sustainability and environmental management         | 3 |

|         |  |   |
|---------|--|---|
| ENV 708 | Emerging Trends in Environmental Sociology | 3 |
| ENV 734 | Advanced Environmental Microbiology        | 3 |
| ENV 735 | Freshwater Ecology                         | 3 |
| ENV 736 | Advanced Environmental Geology             | 3 |
| ENV 712 | Project Management                         | 3 |
| ENV 716 | Wildlife, Forestry and Wetland Management  | 3 |
| ENV 724 | Air and Noise Pollution                    | 3 |

## MS Geology

### Important for all candidates

Applicant for admission MUST MEET THE ELIGIBILITY REQUIREMENTS set-forth by Bahria University.

Candidates are advised to CONFIRM THEIR ELIGIBILITY prior apply.

In case of annual system, eligibility will be determined on the basis of result in percentages.

In case of semester system, eligibility will be determined on the basis of CGPA obtained out of 4.00.

In case the result is shown both in CGPA and percentage, CGPA will be considered.

### Eligibility Criteria

The Master of Science (M.S.) study programs in geology and geophysics are available to students who meet the admission requirements of the Bahria University and hold B S. degree in Geology or Geophysics (4 years education after F. Sc.) or an equivalent degree from recognized institutions. An applicant must have obtained at least 50% marks in his / her B.S. degree level. or obtained a CGPA of 2.00 or better (on a 4.00 scale) or equivalent.

| Semester           | Credit Hours (Courses)       |
|--------------------|------------------------------|
| 1                  | 12 CH (4 Compulsory courses) |
| 2                  | 12 CH (4 Elective courses)   |
| 3                  | 03 CH (Thesis)               |
| 4                  | 03 CH (Thesis)               |
| Total Credit Hours | 30                           |

### Compulsory Courses

| Course Codes | Course Title                        | Credit Hours |
|--------------|-------------------------------------|--------------|
| GEO 503      | Advanced Petroleum Geology          | 3            |
| GEO 501      | Global Tectonics                    | 3            |
| GEO 512      | Mineral Prospecting and Exploration | 3            |
| ESC 701      | Research Methodology                | 3            |

### Elective Courses

| Course Codes | Course Title                      | Credit Hours |
|--------------|-----------------------------------|--------------|
| GEO 741      | Applications of GIS in Geoscience | 3            |
| GEO 748      | Advanced Seismic Stratigraphy     | 3            |

|         |   |   |
|---------|---|---|
| GEO 705 | Advanced Sedimentology                    | 3 |
| GEO 706 | Hydrocarbon Geochemistry                  | 3 |
| GEO 707 | Basin Analysis                            | 3 |
| GEO 708 | Stratigraphy and Petroleum Prospects      | 3 |
| GEO 747 | Drilling Operations and Well Site Geology | 3 |
| GEO 710 | Groundwater Development and Management    | 3 |
| GEO 731 | Techniques in Structural Geology          | 3 |
| GEO 765 | Rock Mechanics                            | 3 |
| GEO 721 | Soil Mechanics                            | 3 |
| GEO 722 | Geochemical Exploration                   | 3 |
| GEO 723 | Isotope Geochemistry                      | 3 |
| GEO 724 | Clastic Sedimentology                     | 3 |
| GEO 725 | Non Clastic Sedimentology                 | 3 |
| GEO 726 | Clay Mineralogy                           | 3 |
| GEO 727 | Hydrochemistry & Groundwater Pollution    | 3 |
| GEO 728 | Groundwater Modeling                      | 3 |
| GEO 729 | Industrial Mineralogy                     | 3 |
| GEO 730 | Advanced Marine Geology                   | 3 |
| GEO 734 | Reservoir Geology                         | 3 |
| GEO 735 | Applied Mineralogy                        | 3 |

|         |  |   |
|---------|--|---|
| GEO 787 | Fundamentals of Gemology                     | 3 |
| GEO 737 | Advanced Engineering Geology                 | 3 |
| ENV 737 | Recent Trends in Environmental Engineering   | 3 |
| ENV 713 | Health Safety and Environment                | 3 |
| GEO 736 | Advanced Igneous Petrology                   | 3 |
| GEO 738 | Advanced Metamorphic Petrology               | 3 |
| GEO 739 | Ore Deposits Geology                         | 3 |
| GEO 746 | Advanced Biostratigraphy                     | 3 |
| GEO 512 | Mineral Prospecting and Exploration          | 3 |
| GEO 702 | Geophysical Exploration Techniques           | 3 |
| GEO 719 | Coal Geology                                 | 3 |
| ENV 740 | Climate Crisis Adaption and Mitigation       | 3 |
| ENV 722 | Disaster Mitigation and Emergency Management | 3 |
| ENV 704 | Environmental Impact Assessment              | 3 |
| GEO 716 | Applied Environmental Geophysics             | 3 |
| GEO 771 | Engineering Geophysics                       | 3 |
| MAT 769 | Machine Learning in Geosciences              | 3 |
| GEO 770 | Applications of Geostatistics in Geosciences | 3 |
| GEO 786 | Reservoir Geomechanics                       | 3 |
| GEO 750 | Unconventional Hydrocarbon Resources         | 3 |

|  |                                       |   |
|--|---------------------------------------|---|
| GEO 760  | Practical Applications of Geosciences | 3 |
| THS 799  | MS Thesis                             | 6 |
| Any other relevant course from Geophysics/Environmental Sciences |                                       |   |

## MS Geophysics

### Important for all candidates

Applicant for admission MUST MEET THE ELIGIBILITY REQUIREMENTS set-forth by Bahria University.

Candidates are advised to CONFIRM THEIR ELIGIBILITY prior apply.

In case of annual system, eligibility will be determined on the basis of result in percentages.

In case of semester system, eligibility will be determined on the basis of CGPA obtained out of 4.00.

In case the result is shown both in CGPA and percentage, CGPA will be considered.

### Eligibility Criteria

The Master of Science (M.S.) study programs in geology and geophysics are available to students who meet the admission requirements of the Bahria University and hold B.S. degree in Geology or Geophysics (4 years education after F. Sc.) or an equivalent degree from recognized institutions. An applicant must have obtained at least 50% marks in his / her B.S. degree level. or obtained a CGPA of 2.00 or better (on a 4.00 scale) or equivalent.

| Semester           | Credit Hours (Courses)       |
|--------------------|------------------------------|
| 1                  | 12 CH (4 Compulsory Courses) |
| 2                  | 12 CH (4 Elective Courses)   |
| 3                  | 03 CH (Thesis)               |
| 4                  | 03 CH (Thesis)               |
| Total Credit Hours | 30                           |

### Compulsory Courses

| Course Code | Course Title                    | Credit Hours |
|-------------|---------------------------------|--------------|
| GEO 761     | Unconventional energy Resources | 3            |
| GEO 748     | Advanced Seismic Stratigraphy   | 3            |
| GEO 781     | Advanced Seismic Techniques     | 3            |
| ESC 701     | Research Methodology            | 3            |

### List of Elective Courses

| Course code | Course Title | Credit Hours |
|-------------|--------------|--------------|
|-------------|--------------|--------------|

|         |  |   |
|---------|--|---|
| GEO 741 | Applications of GIS in Geoscience              | 3 |
| GEO 701 | Global Tectonics                               | 3 |
| GEO 705 | Sedimentary Petrology                          | 3 |
| GEO 766 | 3D Seismic Data interpretation                 | 3 |
| GEO 770 | Applications of Geostatistics in Geosciences   | 3 |
| GEO 786 | Reservoir Geomechanics                         | 3 |
| GEO 707 | Basin Analysis                                 | 3 |
| GEO 708 | Stratigraphic analysis and Petroleum Prospects | 3 |
| GEO 745 | Petrophysical Analysis                         | 3 |
| GEO 747 | Drilling Operations and Well Site Geology      | 3 |
| GEO 710 | Groundwater development and management         | 3 |
| GEO 731 | Techniques in Structural Geology               | 3 |
| GEO 717 | Seismic Data conditioning and analysis         | 3 |
| GEO 715 | Advances in Exploration Geophysics             | 3 |
| GEO 744 | Borehole Geophysics                            | 3 |
| GEO 713 | Applied Seismology                             | 3 |
| GEO 724 | Clastic Sedimentology                          | 3 |

|         |  |   |
|---------|--|---|
| GEO 725 | Non clastic Sedimentology                      | 3 |
| GEO 743 | Advanced Earthquake Seismology                 | 3 |
| GEO 714 | Mining Geophysics                              | 3 |
| GEO 728 | Groundwater Modeling                           | 3 |
| GEO 749 | Near Surface Geophysics                        | 3 |
| GEO 730 | Advanced Marine Geology                        | 3 |
| GEO 734 | Reservoir Geology                              | 3 |
| GEO 763 | Gravity and Magnetic<br>Exploration Techniques | 3 |
| GEO 749 | Near Surface Geophysics                        | 3 |
| GEO 757 | Electrical Exploration Techniques              | 3 |
| ENV 740 | Climate Crisis Adaption and Mitigation         | 3 |
| ENV 713 | Health Safety and<br>Environment               | 3 |
| GEO 702 | Geophysical Exploration Technique              | 3 |
| GEO 719 | Coal Geology                                   | 3 |
| GEO 760 | Practical<br>Technology Use in the Geoscience  | 3 |
| GEO 703 | Advanced petroleum system Analysis             | 3 |
| ENV 704 | Environmental Impact<br>Assessment             | 3 |

|  |  |   |
|--|--|---|
| GEO 605  | Applications of Geostatistics in Geosciences | 3 |
| GEO 716  | Environmental Geophysics                     | 3 |
| GEO 771  | Engineering Geophysics                       | 3 |
| CSC 719  | Machine Learning                             | 3 |
| GEO 712  | Mineral prospecting and Exploration          | 3 |
| THS 799  | MS Thesis                                    | 6 |
| Any other relevant course from Geology and Environmental Science disciplines |  |   |

## PhD Environmental Sciences

**Program Title:** PhD Environmental Sciences

**Duration:** 3 to 8 years

**Total Credit Hours:** 18 Years Education in the relevant discipline with a minimum CGPA of 3.00/4.00 (Semester System) or 60% marks (Annual System). NTS-GAT (General) or GRE (General) Test passed with minimum 60% marks or BU Admission Test (60% passing marks). Initial Research Proposal/Statement of Purpose is required at the time of PhD admission.

### Semester-wise Road map

#### Semester 1

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                            | Credit Hours |
|---------|---------------------------|-------------|---|--------------|
| 1       | None                      | ENV 801     | Recent Trends in Environmental Sciences | 3            |
| 2       | None                      | ENV 802     | Advanced Ecosystem Management           | 3            |
| 3       | None                      | -           | Elective course                         | 3            |

#### Semester 2

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                         | Credit Hours |
|---------|---------------------------|-------------|--------------------------------------|--------------|
| 1       | None                      | ENV 803     | Environmental Health Risk Assessment | 3            |
| 3       | None                      | -           | Elective course                      | 3            |
| 3       | None                      | -           | Elective course                      | 3            |

#### Semester 3

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title | Credit Hours |
|---------|---------------------------|-------------|--------------|--------------|
| 1       |                           | THS 900     | PhD Thesis   | 9            |

#### Semester 4

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title | Credit Hours |
|---------|---------------------------|-------------|--------------|--------------|
| 1       |                           | THS 900     | PhD Thesis   | 9            |

**Semester 5**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title | Credit Hours |
|---------|---------------------------|-------------|--------------|--------------|
| 1       |                           | THS 900     | PhD Thesis   | 9            |

**Semester 6**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title | Credit Hours |
|---------|---------------------------|-------------|--------------|--------------|
| 1       |                           | THS 900     | PhD Thesis   | 9            |

**List of Electives Courses**

| Pre-requisite Course Code | Course Code | Course Title                                       | Credit Hours |
|---------------------------|-------------|--|--------------|
| None                      | ENV 804     | Independent Research Study                         | 3            |
| None                      | ENV 805     | Air Pollution & Control                            | 3            |
| None                      | ENV 806     | Environmental Seminar                              | 3            |
| None                      | ENV 807     | Field Trips to Industries                          | 3            |
| None                      | ENV 808     | Environmental Monitoring, Sampling and Analysis    | 3            |
| None                      | ENV 809     | Environmental Data Analysis                        | 3            |
| None                      | ENV 810     | Critical Review of Literature                      | 3            |
| None                      | ENV 811     | Environmental Pollution and Climate Change         | 3            |
| None                      | ENV 812     | Advanced Environmental Legislation and Regulations | 3            |
| None                      | ENV 813     | Hazardous Solid Waste Management                   | 3            |
| None                      | ENV 814     | Natural Resources & Associated Problems            | 3            |
| None                      | ENV 815     | Environmental Social Issues                        | 3            |
| None                      | ENV 816     | Alternative Energy Sources                         | 3            |
| None                      | ENV 817     | Advanced Research Methodology                      | 3            |

## PhD Geology

**Program Title:** PhD Geology

**Duration:** 3 to 8 Years

**Eligibility Criteria:** 18 Years Education in the relevant discipline with a minimum CGPA of 3.00/4.00 (Semester System) or 60% marks (Annual System). NTS-GAT (General) or GRE (General) Test passed with minimum 60% marks or BU Admission Test (60% passing marks). Initial Research Proposal/Statement of Purpose is required at the time of PhD admission.

### Semester-wise Road map

#### Semester 1

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                   | Credit Hours |
|---------|---------------------------|-------------|--------------------------------|--------------|
| 1       |                           | GEO 801     | Tectonic Evolution of Pakistan | 3            |
| 2       |                           | GEO 802     | Geosciences Seminar            | 3            |
| 3       |                           | GEO 8XX     | Elective course-I              | 3            |

#### Semester 2

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title               | Credit Hours |
|---------|---------------------------|-------------|----------------------------|--------------|
| 1       |                           | GEO 871     | Advanced Petroleum Geology | 3            |
| 2       |                           | GEO xx      | Elective course- II        | 3            |
| 3       |                           | GEO 8xx     | Elective course-III        | 3            |

#### Semester 3

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title | Credit Hours |
|---------|---------------------------|-------------|--------------|--------------|
| 1       |                           | THS 900     | PhD Thesis   | 9            |

#### Semester 4

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title | Credit Hours |
|---------|---------------------------|-------------|--------------|--------------|
| 1       |                           | THS 900     | PhD Thesis   | 9            |

#### Semester 5

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title | Credit Hours |
|---------|---------------------------|-------------|--------------|--------------|
| 1       |                           | THS 900     | PhD Thesis   | 9            |

### **Semester 6**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title | Credit Hours |
|---------|---------------------------|-------------|--------------|--------------|
| 1       |                           | THS 900     | PhD Thesis   | 9            |

### **List of Electives Courses**

| Course Code | Course Title                        | Credit Hours |
|-------------|-------------------------------------|--------------|
| GEO 831     | Igneous Petrogenesis                | 3            |
| GEO 832     | Stable Isotope Geoscience           | 3            |
| GEO 833     | Ore Mineralogy                      | 3            |
| GEO 834     | Geochemical Prospecting             | 3            |
| GEO 835     | Radiogenic Isotopes Geoscience      | 3            |
| GEO 836     | Ore Petrology                       | 3            |
| GEO 837     | Applied Mineralogy                  | 3            |
| GEO 838     | Fluid Inclusions                    | 3            |
| GEO 839     | Gemmology                           | 3            |
| GEO 840     | Metamorphic Petrogenesis            | 3            |
| GEO 841     | Advanced Geochemistry               | 3            |
| GEO 842     | Advanced Mineralogy                 | 3            |
| GEO 843     | Mineral Prospecting and Exploration | 3            |
| GEO 844     | Mineral Deposit Evaluation          | 3            |
| GEO 845     | Carbonate Sedimentology             | 3            |
| GEO 846     | Clastic Sedimentology               | 3            |
| GEO 847     | Petroleum Geochemistry              | 3            |
| GEO 848     | Advanced Marine Geology             | 3            |
| GEO 814     | Hydrocarbon Exploration Techniques  | 3            |
| GEO 850     | Advanced Basin Analysis             | 3            |
| GEO 851     | Reservoir Characterization          | 3            |
| GEO 852     | Advanced Micropaleontology          | 3            |
| GEO 853     | Advanced Sequence Stratigraphy      | 3            |
| GEO 854     | Watershed Management                | 3            |
| GEO 855     | Contaminant Hydrogeology            | 3            |
| GEO 856     | Advanced Rock Mechanics             | 3            |
| GEO 857     | Advanced Soil Mechanics             | 3            |
| GEO 858     | Advanced Quantitative Hydrogeology  | 3            |

|         |  |   |
|---------|--|---|
| GEO 859 | Advanced Engineering Geology               | 3 |
| GEO 860 | Ground Water Modeling (Flow and Transport) | 3 |
| GEO 861 | Advanced Hydro geochemistry                | 3 |
| GEO 862 | Desertification                            | 3 |
| GEO 863 | Geotechnical Engineering                   | 3 |
| GEO 866 | Advanced Instrumentation                   | 3 |
| GEO 867 | Glaciology                                 | 3 |
| GEO 868 | Advanced Structural Geology                | 3 |
| GEO 829 | Advanced Earthquake Seismology             | 3 |
| GEO 869 | Geostatistics                              | 3 |
| GEO 826 | Disaster Risk Management                   | 3 |
| GEO 870 | Advanced Geoinformatics                    | 3 |
| GEO 810 | Petrophysics                               | 3 |

## PhD Geo-Physics

**Program Title:** PhD Geophysics

**Duration:** 3 to 8 years

**Eligibility Criteria:** 18 Years Education in the relevant discipline with a minimum CGPA of 3.00/4.00 (Semester System) or 60% marks (Annual System). NTS-GAT (General) or GRE (General) Test passed with minimum 60% marks or BU Admission Test (60% passing marks). Initial Research Proposal/Statement of Purpose is required at the time of PhD admission.

### Semester-wise Road map

#### Semester 1

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                       | Credit Hours |
|---------|---------------------------|-------------|------------------------------------|--------------|
| 1       |                           | GEO 814     | Hydrocarbon Exploration Techniques | 3            |
| 2       |                           | GEO 828     | Contemporary Trends in Geosciences | 3            |
| 3       |                           | GEO 8xx     | Elective course I                  | 3            |

#### Semester 2

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title               | Credit Hours |
|---------|---------------------------|-------------|----------------------------|--------------|
| 1       |                           | GEO 803     | Seismic Imaging Techniques | 3            |
| 2       |                           | GEO 8xx     | Elective course II         | 3            |
| 3       |                           | GEO 8xx     | Elective course III        | 3            |

#### Semester 3

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title | Credit Hours |
|---------|---------------------------|-------------|--------------|--------------|
| 1       |                           | THS 900     | PhD Thesis   | 9            |

#### Semester 4

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title | Credit Hours |
|---------|---------------------------|-------------|--------------|--------------|
| 1       |                           | THS 900     | PhD Thesis   | 9            |

#### Semester 5

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title | Credit Hours |
|---------|---------------------------|-------------|--------------|--------------|
| 1       |                           | THS 900     | PhD Thesis   | 9            |

**Semester 6**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title | Credit Hours |
|---------|---------------------------|-------------|--------------|--------------|
| 1       |                           | THS 900     | PhD Thesis   | 9            |

**List of Electives Courses**

| Course Code | Course Title   | Credit Hours |
|-------------|--|--------------|
| ESC 801     | Advanced Research Methodology                        | 3            |
| GEO 801     | Tectonic Evolution of Pakistan                       | 3            |
| GEO 804     | 3D Seismic Attributes for Reservoir Characterization | 3            |
| GEO 805     | 3D Seismic Acquisition in Offshore & Onshore         | 3            |
| GEO 806     | Reservoir Modeling                                   | 3            |
| GEO 807     | GIS applications in Geophysics                       | 3            |
| GEO 808     | Signal Processing in Geophysics                      | 3            |
| GEO 809     | Geosciences Software                                 | 3            |
| GEO 810     | Petrophysics   | 3            |
| GEO 811     | Advanced Reflection Seismology                       | 3            |
| GEO 812     | Mining Geophysics                                    | 3            |
| GEO 813     | Gravity & Magnetic Modeling                          | 3            |
| GEO 826     | Disaster Risk Management                             | 3            |
| GEO 829     | Advanced Earthquake Seismology                       | 3            |
| GEO 850     | Advanced Basin Analysis                              | 3            |
| GEO 851     | Reservoir Characterization                           | 3            |
| GEO 853     | Advanced Sequence Stratigraphy                       | 3            |
| GEO 868     | Advanced Structural Geology                          | 3            |
| GEO 869     | Geostatistics  | 3            |
| GEO 871     | Advanced Petroleum Geology                           | 3            |
| GEO 872     | Advanced Electrical Methods                          | 3            |

## BACHELOR OF ELECTRICAL ENGINEERING

**Program Title:** Bachelor of Electrical Engineering (BEE)

**Duration:** 4 years

**Eligibility Criteria:** F.Sc. (Pre-Engineering)/A-levels/relevant DAE with (Physics, Chemistry and Mathematics) with minimum 60% marks.

A combination of Physics, Mathematics and Computer Studies/ Computer Science (ICS) with minimum 60% marks are also allowed for admission in BEE program with Chemistry as a remedial subject course to be passed in 1st Semester after admission.

### **Program Educational Objectives (PEOs)**

**PEO 1:** To provide viable solutions to complex engineering problems based on systematic theoretical and technical approaches in the field of electrical engineering.

**PEO 2:** To manage and develop sustainable electrical systems to meet desired objectives and explore new entrepreneurial possibilities in a multidisciplinary environment.

**PEO 3:** To pursue academic and professional growth by taking up higher studies, discovering new technologies and developing proficiency in the usage of latest tools.

**PEO 4:** To work in a multicultural environment and be responsive to ethical, moral, and societal issues showing leadership in their domain.

### **Program Learning Outcomes (PLOs)**

| No.   | Program Learning Outcomes (PLOs)   |
|-------|--|
| PLO 1 | <b>Engineering Knowledge:</b> Apply knowledge of mathematics, natural science, engineering fundamentals and Engineering specialization to the solution of complex engineering problems   |
| PLO 2 | <b>Problem Analysis:</b> Identify, formulate, conduct research literature, and analyze complex Engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences  |
| PLO 3 | <b>Design/ Development of Solutions:</b> An ability to design solutions for complex engineering problems and design systems, components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations |
| PLO 4 | <b>Investigation:</b> Conduct investigation of complex Engineering problems using research based knowledge and research methods, including design or experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions                                 |
| PLO 5 | <b>Tool Usage:</b> Create, select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modeling, to complex Engineering problems, with an understanding of the limitations   |

|               |  |
|---------------|--|
| <b>PLO 6</b>  | <b>The Engineer and the World:</b> Analyze and evaluate sustainable development impacts to society, the economy, sustainability, health and safety, legal frameworks, and the environment while solving complex engineering problems   |
| <b>PLO 7</b>  | <b>Ethics:</b> Apply ethical principles and commit to professional ethics and norms of engineering practice and adhere to relevant national and international laws. Demonstrate an understanding of the need for diversity and inclusion.  |
| <b>PLO 8</b>  | <b>Individual and Collaborative Team Work:</b> Function effectively as an individual, and as a member or leader in diverse and inclusive teams and in multi disciplinary, face to face, remote and distributed settings.   |
| <b>PLO 9</b>  | <b>Communication:</b> Communicate effectively and inclusively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, and make effective presentations, taking into account cultural, language, and learning differences. |
| <b>PLO 10</b> | <b>Project Management and Finance:</b> Demonstrate knowledge and understanding of engineering management principles and economic decision making and apply these to one's own work, as a member and leader in a team, to manage projects in multidisciplinary environments.  |
| <b>PLO 11</b> | <b>Lifelong Learning:</b> Recognize the need for, and have the preparation and ability for <ul style="list-style-type: none"> <li>i) independent and life long learning</li> <li>ii) adaptability to new and emerging technologies and</li> <li>iii) critical thinking in the broadest context of technological change</li> </ul>                    |

### Professional Competence Profile

| <b>EC No.</b> | <b>Professional Competence Profile</b>  |
|---------------|---|
| <b>EC 1</b>   | <b>Comprehend and apply universal knowledge:</b> Comprehend and apply advanced Engineering knowledge of the widely applied principles underpinning good practices.                                      |
| <b>EC 2</b>   | <b>Comprehend and apply local knowledge:</b> Comprehend and apply advanced Engineering knowledge of the widely applied principles underpinning good practice specific to the jurisdiction of practices. |
| <b>EC 3</b>   | <b>Problem analysis:</b> Define, investigate and analyze complex Engineering problems using data and information technologies where applicable.   |
| <b>EC 4</b>   | <b>Design and development of solutions:</b> Design or develop solutions to complex Engineering problems considering a variety of perspectives and taking account of stakeholder views                   |
| <b>EC 5</b>   | <b>Evaluation:</b> Evaluate the outcomes and impacts of complex Engineering activities  |
| <b>EC 6</b>   | <b>Protection of society:</b> Recognize the foreseeable economic, social, and environmental effects of complex Engineering activities and seek to achieve sustainable outcomes.                         |
| <b>EC 7</b>   | <b>Legal, regulatory, and cultural:</b> Meet all legal, regulatory, and cultural requirements and protect public health and safety in the course of all Engineering activities.                         |

|              |   |
|--------------|---|
| <b>EC 8</b>  | <b>Ethics:</b> Conduct Engineering activities ethically.  |
| <b>EC 9</b>  | <b>Manage engineering activities:</b> Manage part or all of one or more complex Engineering activities.   |
| <b>EC 10</b> | <b>Communication and Collaboration:</b> Communicate and collaborate using multiple media clearly and inclusively with a broad range of stakeholders in the course of all Engineering activities.                                    |
| <b>EC 11</b> | <b>Continuing Professional Development (CPD) and Lifelong learning:</b> Undertake CPD activities to maintain and extend competences and enhance the ability to adapt to emerging technologies and the ever changing nature of work. |
| <b>EC 12</b> | <b>Judgement:</b> Recognize complexity and assess alternatives in light of competing requirements and incomplete knowledge. Exercise sound judgement in the course of all complex Engineering activities.                           |
| <b>EC 13</b> | <b>Responsibility for decisions:</b> Be responsible for making decisions on part or all of the complex Engineering activities   |

### Semester-wise Road map

#### Semester 1

| Sr. No.                   | Pre-requisite Course Code | Course Code | Course Title                             | Credit Hours                                  |
|---------------------------|---------------------------|-------------|--|---|
| 1                         | None                      | GSC 110     | Applied Calculus and Analytical Geometry | 3+0   |
| 2                         | None                      | CSC 111     | Introduction to Computing                | 1+0   |
| 3                         | None                      | CSL 111     | Introduction to Computing Lab            | 0+1   |
| 4                         | None                      | ENG 105     | Functional English                       | 3+0   |
| 5                         | None                      | XXXX        | Culture Elective-I                       | 2+0   |
| 6                         | None                      | XXXX        | MDEE-I                                   | 2+0   |
| 7                         | None                      | GSC 113     | Applied Physics                          | 3+0   |
| 8                         | None                      | GSL 113     | Applied Physics Lab                      | 0+1   |
| 9                         | None                      | EEL 112     | Workshop Practice                        | 0+1   |
| 10                        | None                      | ENV 101     | Occupational Health and Safety           | 1+0   |
| 11                        | None                      | ISL 107     | Tajweed*                                 | 0   |
| 12                        | None                      | GSC 340     | Chemistry                                | Non credited<br>2 hrs per week (ICS students) |
| <b>Total Credit Hours</b> |                           |             |  | <b>18</b>                                     |

**Semester 2**

| Sr. No.                   | Pre-requisite Course Code | Course Code | Course Title                            | Credit Hours |
|---------------------------|---------------------------|-------------|---|--------------|
| 1                         | None                      | EEL 121     | Engineering Drawing & CAD               | 0+1          |
| 2                         | GSC 110                   | GSC 123     | Linear Algebra & Differential Equations | 3+0          |
| 3                         | XXXX                      | XXXX        | Basic Computing Elective                | 2+0          |
| 4                         | XXXX                      | XXXX        | Basic Computing Elective Lab            | 0+1          |
| 5                         | None                      | EEN 110     | Linear Circuit Analysis                 | 3+0          |
| 6                         | None                      | EEL 110     | Linear Circuit Analysis Lab             | 0+1          |
| 7                         | None                      | CEN 120     | Digital Logic Design                    | 3+0          |
| 8                         | None                      | CEL 120     | Digital Logic Design Lab                | 0+1          |
| 9                         | None                      | PAK 109     | Ideology and Constitution of Pakistan   | 2+0          |
| 10                        | None                      | ISL 108     | Understanding Holy Quran – I            | 0+0          |
| <b>Total Credit Hours</b> |                           |             |   | <b>17</b>    |

**Semester 3**

| Sr. No.                   | Pre-requisite Course Code | Course Code | Course Title                        | Credit Hours |
|---------------------------|---------------------------|-------------|-------------------------------------|--------------|
| 1                         | XXXX                      | XXXX        | Culture Elective-II                 | 2+0          |
| 2                         | EEN 110                   | EEN 224     | Electronic Devices and Circuits     | 3+0          |
| 3                         | EEN 110                   | EEL 224     | Electronic Devices and Circuits Lab | 0+1          |
| 4                         | EEN 110                   | EEN 211     | Electrical Network Analysis         | 3+0          |
| 5                         | EEN 110                   | EEL 211     | Electrical Network Analysis Lab     | 0+1          |
| 6                         | XXXX                      | XXXX        | CIS Elective-I                      | 3+0          |
| 7                         | XXXX                      | XXXX        | CIS Elective-I Lab                  | 0+1          |
| 8                         | GSC 110                   | GSC 220     | Complex Variables and Transforms    | 3+0          |
| 9                         |                           | ISL 109     | Understanding Holy Quran – II       | 0+0          |
| <b>Total Credit Hours</b> |                           |             |                                     | <b>17</b>    |

**Semester 4**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title           | Credit Hours |
|---------|---------------------------|-------------|------------------------|--------------|
| 1       | CEN 120                   | CEN 440     | Embedded System Design | 3+0          |

|                           |         |         |   |           |
|---------------------------|---------|---------|---|-----------|
| 2                         | CEN 120 | CEL 440 | Embedded System Design Lab                    | 0+1       |
| 3                         | None    | XXXX    | Social Science Elective-I                     | 2+0       |
| 4                         | GSC 220 | EEN 313 | Signals and Systems                           | 3+0       |
| 5                         | GSC 220 | EEL 313 | Signals and Systems Lab                       | 0+1       |
| 6                         | None    | ENG 123 | Expository Writing                            | 3+0       |
| 7                         | GSC 110 | EEN 226 | Probability Methods in Engineering            | 3+0       |
| 8                         | XXXX    | XXXX    | Professional Practice / Management Elective-I | 2+0       |
| 9                         |         | ISL 110 | Understanding Quran-III                       | 0         |
| <b>Total Credit Hours</b> |         |         |   | <b>18</b> |

### Semester 5

| Sr. No.                   | Pre-requisite Course Code | Course Code | Course Title                   | Credit Hours |
|---------------------------|---------------------------|-------------|--------------------------------|--------------|
| 1                         | GSC 110                   | EEN 311     | Electromagnetic Field Theory   | 3+0          |
| 2                         | XXXX                      | XXXX        | CIS Elective-II                | 3+0          |
| 3                         | XXXX                      | XXXX        | Math/ Natural Science Elective | 3+0          |
| 4                         | EEN 313                   | EET 321     | Communication Systems          | 3+0          |
| 5                         | EEN 313                   | EEL 321     | Communication Systems Lab      | 0+1          |
| 6                         | EEN 211                   | EEN 312     | Electrical Machines            | 3+0          |
| 7                         | EEN 211                   | EEL 312     | Electrical Machines Lab        | 0+1          |
| 8                         |                           | ISL 111     | Understanding Quran-IV         | 0            |
| <b>Total Credit Hours</b> |                           |             |                                | <b>17</b>    |

### Semester 6

| Sr. No.                   | Pre-requisite Course Code | Course Code | Course Title                           | Credit Hours |
|---------------------------|---------------------------|-------------|--|--------------|
| 1                         | EEN 313                   | EEN 412     | Linear Control Systems                 | 3+0          |
| 2                         | EEN 313                   | EEL 412     | Linear Control Systems Lab             | 0+1          |
| 3                         | XXXX                      | EEXXXX      | Depth Elective Core-I                  | 3+0          |
| 4                         | XXXX                      | EEXXXX      | Depth Elective Core-I Lab              | 0+1          |
| 5                         | XXXX                      | EEXXXX      | Depth Elective Core-II                 | 3+0          |
| 6                         | XXXX                      | EEXXXX      | Depth Elective Core-II Lab             | 0+1          |
| 7                         | EEN 219                   | EEN 433     | Power Distribution and Utilization     | 3+0          |
| 8                         | EEN 219                   | EEL 433     | Power Distribution and Utilization Lab | 0+1          |
| 9                         | None                      | PAK 105     | Pakistan Studies                       | 2+0          |
| 10                        |                           | ISL 112     | Understanding Quran-V                  | 0            |
| <b>Total Credit Hours</b> |                           |             |  | <b>18</b>    |

**Semester 7**

| Sr. No.                   | Pre-requisite Course Code | Course Code | Course Title                                   | Credit Hours |
|---------------------------|---------------------------|-------------|--|--------------|
| 1                         | None                      | ESC 496     | Project-I                                      | 0+2          |
| 2                         | None                      | ENG 321     | Technical Writing & Presentation Skills        | 3+0          |
| 3                         | XXXX                      | XXXX        | Professional Practice / Management Elective-II | 2+0          |
| 4                         | XXXX                      | EEXXX       | Depth Elective-III                             | 3+0          |
| 5                         | XXXX                      | EEXXX       | Depth Elective-III Lab                         | 0+1          |
| 6                         | XXXX                      | EEXXX       | Depth Elective-IV                              | 3+0          |
| 7                         | XXXX                      | EEXXX       | Depth Elective-IV Lab                          | 0+1          |
| 8                         | XXXX                      | XXXX        | MDEE-II  | 3+0          |
| 9                         | None                      | ISL 113     | Seerah-I*                                      | 0            |
| <b>Total Credit Hours</b> |                           |             |  | <b>18</b>    |

**Semester 8**

| Sr. No.                   | Pre-requisite Course Code | Course Code | Course Title               | Credit Hours |
|---------------------------|---------------------------|-------------|----------------------------|--------------|
| 1                         | XXXX                      | ESC 497     | Project-II                 | 0+4          |
| 2                         | None                      | XXX         | Social Science Elective-II | 2+0          |
| 3                         | None                      | XXXX        | Depth Elective-V           | 3+0          |
| 4                         | XXXX                      | XXXX        | Depth Elective-VI          | 3+0          |
| 5                         | None                      | XXXX        | CIS Elective-III           | 3+0          |
| 6                         |                           | ISL 114     | Seerah-II                  | 0            |
| <b>Total Credit Hours</b> |                           |             |                            | <b>15</b>    |

**Non-Engineering Domain Electives:****List of Natural Science Electives [Math Electives]**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title           | Credit Hours |
|---------|---------------------------|-------------|------------------------|--------------|
| 1       | GSC 110                   | GSC 211     | Multivariable Calculus | 3+0          |
| 2       | GSC 210                   | GSC 320     | Numerical Analysis     | 3+0          |
| 3       | None                      | GSC 221     | Discrete Mathematics   | 3+0          |

**List of Humanities Electives**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                            | Credit Hours |
|---------|---------------------------|-------------|---|--------------|
| 1       | None                      | ISL 101     | Islamic Studies                         | 2+0          |
| 2       | None                      | HSS 116     | Ethics (For non-Muslims only)           | 2+0          |
| 3       | None                      | ENG 134     | Communication Skills                    | 2+0          |
| 4       | None                      | HSS 462     | Foreign Language                        | 2+0          |
| 7       | None                      | HSS 456     | Organizational Behavior                 | 2+0          |
| 8       | None                      | HSS 413     | Sociology for Engineers                 | 2+0          |
| 9       | None                      | SOC 112     | Critical Reasoning & Logic              | 2+0          |
| 10      | None                      | HSS 119     | Introduction to International Relations | 2+0          |
| 11      | None                      | PSY 102     | Introduction to Psychology              | 2+0          |
| 12      | None                      | HSS 424     | Engineering Ethics                      | 2+0          |
| 13      | None                      | MGT 421     | Leadership                              | 2+0          |
| 14      | None                      | MGT 422     | Personal Grooming                       | 2+0          |
| 15      | None                      | HSS 219     | Civics and Community Engagement         | 2+0          |

#### List of Management Science Electives

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                                 | Credit Hours |
|---------|---------------------------|-------------|--|--------------|
| 1       | None                      | MGT 111     | Principles of Management                     | 2+0          |
| 2       | None                      | MGT 423     | Engineering Management                       | 2+0          |
| 3       | None                      | MGT 425     | Project Management in Engineering            | 2+0          |
| 4       | None                      | HSS 412     | Engineering Economics                        | 2+0          |
| 5       | None                      | HSS 423     | Entrepreneurship                             | 2+0          |
| 6       | None                      | MGT 426     | Sales and Marketing Strategies for Engineers | 2+0          |

#### List of Basic Computing Electives

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                                | Credit Hours |
|---------|---------------------------|-------------|---|--------------|
| 1       | CSC 111                   | CSC 112     | Programming Fundamentals                    | 2+0          |
| 2       | CSC 111                   | CSL 112     | Programming Fundamentals Lab                | 0+1          |
| 3       | None                      | GEO 321     | Computing with MATLAB                       | 2+0          |
| 4       | None                      | GEL 321     | Computing with MATLAB Lab                   | 0+1          |
| 5       | None                      | AIC 202     | Programming for Artificial Intelligence     | 2+0          |
| 6       | None                      | AIL 202     | Programming for Artificial Intelligence Lab | 0+1          |

**Engineering Domain Electives:**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                               | Credit Hours |
|---------|---------------------------|-------------|--|--------------|
| 1       | CSC 112                   | CSC 210     | Object Oriented Programming                | 3+0          |
| 2       | CSC 112                   | CSL 210     | Object Oriented Programming Lab            | 0+1          |
| 3       | CSC 112                   | CSC 221     | Data Structure and Algorithm               | 3+0          |
| 4       | CSC 112                   | CSL 221     | Data Structure and Algorithm Lab           | 0+1          |
| 4       | None                      | EET 462     | Cryptography and Network Security          | 3+0          |
| 5       | None                      | ITC 411     | Cyber Security                             | 3+0          |
| 6       | None                      | CEN 409     | Artificial Intelligence & Machine Learning | 3+0          |
| 7       | None                      | CSC 488     | Big Data Analytics                         | 3+0          |

**List of Multi-Disciplinary EE (MDEE) Electives**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                           | Credit Hours |
|---------|---------------------------|-------------|--|--------------|
| 1       | None                      | ESC 111     | Basic Mechanical Engineering           | 2+0          |
| 2       | None                      | GSC 486     | Geographical Information System        | 2+0          |
| 3       | None                      | ENV 440     | Energy and Environment                 | 2+0          |
| 4       | None                      | MTE 101     | Maritime Technologies                  | 2+0          |
| 5       | None                      | EEN-450     | Introduction to Sports Engineering     | 3+0          |
| 6       | None                      | EEN 438     | Introduction to Biomedical Engineering | 3+0          |
| 7       | None                      | CSC 410     | Introduction to Cloud Computing        | 3+0          |
| 8       | None                      | EET 461     | Industrial Internet of Things (IIoTs)  | 3+0          |

**Major Based Core (MBC) Depth Electives (List of Breadth Core Elective Courses):****Telecommunication Stream**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                          | Credit Hours |
|---------|---------------------------|-------------|---------------------------------------|--------------|
| 1       | None                      | CEN 223     | Computer Communication & Networks     | 3+0          |
| 2       | None                      | CEL 223     | Computer Communication & Networks Lab | 0+1          |
| 3       | EEN 224                   | EEN 225     | Electronic Circuit Design             | 3+0          |
| 4       | EEN 224                   | EEL 225     | Electronic Circuit Design Lab         | 0+1          |
| 5       | EEN 311                   | EEN 431     | RF and Microwave Engineering          | 3+0          |
| 6       | EEN 311                   | EEL 431     | RF and Microwave Engineering Lab      | 0+1          |
| 7       | None                      | EET 463     | Optical Fiber Communication           | 3+0          |
| 8       | None                      | EEL 463     | Optical Fiber Communication Lab       | 0+1          |
| 9       | EEN 311                   | EET 447     | Radar Systems                         | 3+0          |
| 10      | EEN 311                   | EEL 447     | Radar Systems Lab                     | 0+1          |

|    |         |         |   |     |
|----|---------|---------|---|-----|
| 11 | EET 321 | EEN 436 | Wireless and Mobile Communication                       | 3+0 |
| 12 | EET 321 | EEL 436 | Wireless and Mobile Communication Lab                   | 0+1 |
| 13 | EET 321 | EET 449 | Satellite Communications                                | 3+0 |
| 14 | EET 321 | EEL 449 | Satellite Communications Lab                            | 0+1 |
| 15 | EEN 311 | EET 451 | Wave Propagation and Antennas                           | 3+0 |
| 16 | EEN 311 | EEL 451 | Wave Propagation and Antennas Lab                       | 0+1 |
| 17 | CEN 223 | EET 452 | Multimedia Communications                               | 3+0 |
| 18 | CEN 223 | EEL 452 | Multimedia Communications Lab                           | 0+1 |
| 19 | None    | CSC 453 | Information Theory                                      | 3+0 |
| 20 | None    | CSL 453 | Information Theory Lab                                  | 0+1 |
| 21 | CEN 223 | EEN 434 | Computer Networks                                       | 3+0 |
| 22 | CEN 223 | EEL 434 | Computer Networks Lab                                   | 0+1 |
| 23 | EET 321 | EET 411 | Digital Communications                                  | 3+0 |
| 24 | EET 321 | EEL 411 | Digital Communications Lab                              | 0+1 |
| 25 | CEN 120 | CEN 441 | FPGA- Based System Design                               | 3+0 |
| 26 | CEN 120 | CEL 441 | FPGA- Based System Design Lab                           | 0+1 |
| 27 | EEN 224 | EEN 469 | Linear Integrated Circuits and Applications             | 3+0 |
| 28 | EEN 224 | EEL 469 | Linear Integrated Circuits and Applications Lab         | 0+1 |
| 29 | EEN 224 | EEN 316 | Instrumentation and measurement                         | 3+0 |
| 30 | EEN 224 | EEL 316 | Instrumentation and measurement Lab                     | 0+1 |
| 31 | None    | EEN 462 | Introduction to Quantum Computing<br>Reorganization     | 3+0 |
| 32 | None    | EEL 462 | Introduction to Quantum Computing<br>Reorganization Lab | 0+1 |
| 33 | EEN 313 | EEN 325 | Digital Signal Processing                               | 3+0 |
| 34 | EEN 313 | EEL 325 | Digital Signal Processing Lab                           | 0+1 |
| 35 | EET 321 | EET XXX | Next Generation Network                                 | 3+0 |
| 36 | EET 321 | EET XXX | Internet of Things                                      | 3+0 |
| 37 | None    | EET 471 | Emerging Wireless Technologies and RF<br>planning       | 3+0 |
| 38 | None    | EET 472 | Telecommunication policies and standards                | 3+0 |
| 39 | None    | EET 459 | Introduction to Block chain                             | 3+0 |
| 40 | None    | EEN 451 | System Engineering                                      | 3+0 |
| 41 | None    | CSC-464 | Computer Vision   | 3+0 |
| 42 | None    | EET 456 | Telecom Transmission and Switching Systems              | 3+0 |
| 43 | EEN 313 | CEN 444 | Digital Image Processing                                | 3+0 |

## Electronics Stream

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                                  | Credit Hours |
|---------|---------------------------|-------------|---|--------------|
| 1       | EEN 224                   | EEP 468     | Power Electronics                             | 3+0          |
| 2       | EEN 224                   | EEL 468     | Power Electronics Lab                         | 0+1          |
| 3       | EEN 224                   | EEN 225     | Electronic Circuit Design                     | 3+0          |
| 4       | EEN 224                   | EEL 225     | Electronic Circuit Design Lab                 | 0+1          |
| 5       | EEN 224                   | EEN 316     | Instrumentation and measurement               | 3+1          |
| 6       | EEN 224                   | EEL 316     | Instrumentation and measurement Lab           | 0+1          |
| 7       | EEN 224                   | EEN 462     | Integrated Electronics                        | 3+0          |
| 8       | EEN 224                   | EEL 462     | Integrated Electronics Lab                    | 0+1          |
| 9       | None                      | EEN 441     | Industrial Process Control                    | 3+0          |
| 10      | None                      | EEL 441     | Industrial Process Control Lab                | 0+1          |
| 11      | EEN 224                   | EEN 442     | Digital Electronics                           | 3+0          |
| 12      | EEN 224                   | EEL 442     | Digital Electronics Lab                       | 0+1          |
| 13      | EEN 224                   | EEN 444     | Opto Electronics                              | 3+0          |
| 14      | EEN 224                   | EEL 444     | Opto Electronics Lab                          | 0+1          |
| 15      | EEN 224                   | CEN 452     | VLSI Design                                   | 3+0          |
| 16      | EEN 224                   | CEL 452     | VLSI Design Lab                               | 0+1          |
| 17      | EEN 224                   | EEN 445     | Industrial Electronics                        | 3+0          |
| 18      | EEN 224                   | EEL 445     | Industrial Electronics Lab                    | 0+1          |
| 19      | CEN 120                   | CEN 442     | Digital System Design                         | 3+0          |
| 20      | CEN 120                   | CEL 442     | Digital System Design Lab                     | 0+1          |
| 21      | EEN 224                   | EEN 469     | Linear Integrated Circuits & Applications     | 3+0          |
| 22      | EEN 224                   | EEL 469     | Linear Integrated Circuits & Applications Lab | 0+1          |
| 23      | EEN 224                   | EEN 435     | Solid State Devices                           | 3+0          |
| 24      | EEN 224                   | EEL 435     | Solid State Devices Lab                       | 0+1          |
| 25      | EEN 412                   | EEN 437     | Digital Control Systems                       | 3+0          |
| 26      | EEN 412                   | EEL 437     | Digital Control Systems Lab                   | 0+1          |
| 27      | CEN 120                   | CEN 441     | FPGA- Based System Design                     | 3+0          |
| 28      | CEN 120                   | CEL 441     | FPGA- Based System Design Lab                 | 0+1          |
| 29      | EEN 219                   | EEN 420     | Industrial Automation                         | 3+0          |
| 30      | EEN 219                   | EEL 420     | Industrial Automation Lab                     | 0+1          |
| 31      | EEN 224                   | EEN 471     | Microelectronics Technology                   | 3+0          |
| 32      | EEN 224                   | EEL 471     | Microelectronics Technology Lab               | 0+1          |
| 33      | None                      | CEN 223     | Computer Communication & Networking           | 3+0          |
| 34      | None                      | CEL 223     | Computer Communication & Networking Lab       | 0+1          |
| 35      | None                      | CEN 458     | Robotics                                      | 3+0          |
| 36      | None                      | CEL 458     | Robotics Lab                                  | 0+1          |
| 37      | EEN 311                   | EET 451     | Wave Propagation and Antennas                 | 3+0          |

|    |         |         |  |     |
|----|---------|---------|--|-----|
| 38 | EEN 311 | EEL 451 | Wave Propagation and Antennas Lab          | 0+1 |
| 39 | EEN 311 | EEN 431 | RF and Microwave Engineering               | 3+0 |
| 40 | EEN 311 | EEL 431 | RF and Microwave Engineering Lab           | 0+1 |
| 41 | EEN XXX | EEN XXX | Micro Electromechanical Systems (MEMS)     | 3+0 |
| 42 | EEN XXX | EEL XXX | Micro Electromechanical Systems (MEMS) Lab | 0+1 |
| 43 | EEN 313 | EEN 325 | Digital Signal Processing                  | 3+0 |
| 44 | EEN 313 | EEL 325 | Digital Signal Processing Lab              | 0+1 |
| 45 | EEN 224 | EEN 466 | Introduction to Nano Technology            | 3+0 |
| 46 | EEN 313 | CEN 444 | Digital Image Processing                   | 3+0 |
| 47 | EEN 325 | ESC 471 | Biomedical Instrumentation                 | 3+0 |
| 48 | None    | ESC 472 | Medical Robots                             | 3+0 |
| 49 | None    | CSC-464 | Computer Vision                            | 3+0 |
| 50 | None    | EEN 451 | System Engineering                         | 3+0 |

### Power Stream

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                                  | Credit Hours |
|---------|---------------------------|-------------|---|--------------|
| 1       | EEN 211                   | EEP 331     | Power System Analysis                         | 3+0          |
| 2       | EEN 211                   | EEL 331     | Power System Analysis Lab                     | 0+1          |
| 3       | EEN 219                   | EEP 442     | Power Generation                              | 3+0          |
| 4       | EEN 219                   | EEL 442     | Power Generation Lab                          | 0+1          |
| 5       | EEN 224                   | EEN 316     | Instrumentation and Measurements              | 3+0          |
| 6       | EEN 224                   | EEL 316     | Instrumentation and Measurements Lab          | 0+1          |
| 7       | EEN 219                   | EEP 441     | Advanced Electrical Machines                  | 3+0          |
| 8       | EEN 219                   | EEL 441     | Advanced Electrical Machines Lab              | 0+1          |
| 9       | EEN 219                   | EEP 442     | Power Generation                              | 3+0          |
| 10      | EEN 219                   | EEL 442     | Power Generation Lab                          | 0+1          |
| 11      | EEN 433                   | EEP 443     | Electrical Power Transmission                 | 3+0          |
| 12      | EEN 433                   | EEL 443     | Electrical Power Transmission Lab             | 0+1          |
| 13      | EEN 224                   | EEP 468     | Power Electronics                             | 3+0          |
| 14      | EEN 224                   | EEL 468     | Power Electronics Lab                         | 0+1          |
| 15      | EEP 331                   | EEP 444     | Power System Protection                       | 3+0          |
| 16      | EEP 331                   | EEL 444     | Power System Protection Lab                   | 0+1          |
| 17      | EEN 219                   | EEP 471     | Electrical Machine Design and Maintenance     | 3+0          |
| 18      | EEN 219                   | EEL 471     | Electrical Machine Design and Maintenance Lab | 0+1          |
| 19      | EEN 211                   | EEP 446     | High Voltage Engineering                      | 3+0          |

|    |         |         |  |     |
|----|---------|---------|--|-----|
| 20 | EEN 211 | EEL 446 | High Voltage Engineering Lab                           | 0+1 |
| 21 | EEN 313 | EEN 325 | Digital Signal Processing                              | 3+0 |
| 22 | EEN 313 | EEL 325 | Digital Signal Processing Lab                          | 0+1 |
| 23 | EEN 224 | EEP 472 | Industrial Drives                                      | 3+0 |
| 24 | EEN 224 | EEL 472 | Industrial Drives Lab                                  | 0+1 |
| 25 | EEP 331 | EEP 475 | FACTS and HVDC Transmission                            | 3+0 |
| 26 | EEP 331 | EEL 475 | FACTS and HVDC Transmission Lab                        | 0+1 |
| 27 | None    | CEN 223 | Computer Communication & Networking                    | 3+0 |
| 28 | None    | CEL 223 | Computer Communication & Networking Lab                | 0+1 |
| 29 | EEN 412 | EEN 437 | Digital Control System                                 | 3+0 |
| 30 | EEN 412 | EEL 437 | Digital Control System Lab                             | 0+1 |
| 31 | EET 321 | EET 474 | Digital Communication System                           | 3+0 |
| 32 | EET 321 | EEL 474 | Digital Communication System Lab                       | 0+1 |
| 33 | EEN 224 | EEN 469 | Linear Integrated Circuits and Applications            | 3+0 |
| 34 | EEN 224 | EEL 469 | Linear Integrated Circuits and Applications Lab        | 0+1 |
| 35 | EEN 224 | EEP 474 | PLC and Industrial Drives                              | 3+0 |
| 36 | EEN 224 | EEL 474 | PLC and Industrial Drives Lab                          | 0+1 |
| 37 | EEN 224 | EEN 445 | Industrial Electronics                                 | 3+0 |
| 38 | EEN 224 | EEL 445 | Industrial Electronics Lab                             | 0+1 |
| 39 | None    | EEN 434 | Computer Networks                                      | 3+0 |
| 40 | None    | EEL 434 | Computer Networks Lab                                  | 0+1 |
| 41 | None    | EEP 448 | Renewable Energy Systems                               | 3+0 |
| 42 | None    | EEL 448 | Renewable Energy Systems Lab                           | 0+1 |
| 43 | EEP 331 | EEP 445 | Power System Stability & Control                       | 3+0 |
| 44 | None    | EEP 474 | Smart Grid   | 3+0 |
| 45 | None    | EEN 446 | Industrial Process Control                             | 3+0 |
| 46 | None    | EEP 449 | Distributed Generation and its Grid Integration        | 3+0 |
| 47 | None    | EEP 450 | Power System Economics                                 | 3+0 |
| 48 | None    | EEP 451 | Optimization Methods in Modern Power Systems           | 3+0 |
| 49 | None    | EEP 452 | LV and HV Electrical Installation guides and Standards | 3+0 |

### Computer Systems Stream

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                      | Credit Hours |
|---------|---------------------------|-------------|-----------------------------------|--------------|
| 1       | None                      | CEN 223     | Computer Communication & Networks | 3+0          |

|    |         |         |                                       |     |
|----|---------|---------|---------------------------------------|-----|
| 2  | None    | CEL 223 | Computer Communication & Networks Lab | 0+1 |
| 3  | None    | CSC 320 | Operating Systems                     | 3+0 |
| 4  | None    | CSL 320 | Operating Systems Lab                 | 0+1 |
| 5  | None    | CEN 222 | Data Communication and Networking     | 3+1 |
| 6  | None    | CEL 222 | Data Communication and Networking Lab | 0+1 |
| 7  | EEN 313 | CSC XXX | Image and Video Coding                | 3+1 |
| 8  | EEN 313 | CSL XXX | Image and Video Coding Lab            | 0+1 |
| 9  | None    | EET 761 | Network Protocols and Standards       | 3+1 |
| 10 | None    | EEL 761 | Network Protocols and Standards Lab   | 0+1 |
| 11 | None    | CEN 408 | System and Network Security           | 3+1 |
| 12 | None    | CEL 408 | System and Network Security Lab       | 0+1 |
| 13 | None    | CEN 442 | Digital System Design                 | 3+1 |
| 14 | None    | CEL 442 | Digital System Design Lab             | 0+1 |
| 15 | None    | CEN 458 | Robotics                              | 3+1 |
| 16 | None    | CEL 458 | Robotics Lab                          | 0+1 |
| 17 | EEN 412 | EEN 437 | Digital Control                       | 3+1 |
| 18 | EEN 412 | EEL 437 | Digital Control Lab                   | 0+1 |
| 19 | EEN 313 | EEN 325 | Digital Signal Processing             | 3+1 |
| 20 | EEN 313 | EEL 325 | Digital Signal Processing Lab         | 0+1 |
| 21 | CSC 112 | CSC XXX | Data base systems                     | 3+0 |
| 22 | CEN 223 | CEN 444 | Digital Image Processing              | 3+0 |
| 23 | None    | CSC 444 | Computer Graphics                     | 3+0 |
| 24 | None    | CSC 464 | Computer Vision                       | 3+0 |
| 25 | CEN 120 | CSCXXX  | Computer Organization                 | 3+0 |
| 26 | None    | CSC 327 | Computer Architecture                 | 3+0 |
| 27 | None    | EEN XXX | Unmanned Aerial Vehicles              | 3+0 |
| 28 | EET 321 | EET XXX | Internet of Things                    | 3+0 |

### Electric Vehicles Stream

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                             | Credit Hours |
|---------|---------------------------|-------------|--|--------------|
| 1       | EEN XXX                   | EEN XXX     | Automotive Engineering                   | 3+0          |
| 2       | EEN XXX                   | EEL XXX     | Automotive Engineering Lab               | 0+1          |
| 3       | EEN XXX                   | EEN XXX     | EV Charging Devices and Technologies     | 3+0          |
| 4       | EEN XXX                   | EEL XXX     | EV Charging Devices and Technologies Lab | 0+1          |
| 5       | EEN 433                   | EEV XXX     | EV batteries and Ancillaries             | 3+0          |
| 6       | EEN 433                   | EEL XXX     | EV batteries and Ancillaries Lab         | 0+1          |
| 7       | EEN 412                   | EEV XXX     | EV Control Systems                       | 3+0          |
| 8       | EEN 412                   | EEL XXX     | EV Control Systems Lab                   | 0+1          |

|    |         |         |  |     |
|----|---------|---------|--|-----|
| 9  | EEN 211 | EEV XXX | EV Circuit and Electronics                             | 3+0 |
| 10 | EEN 211 | EEL XXX | EV Circuit and Electronics Lab                         | 0+1 |
| 11 | None    | EEV XXX | EV Body and Chassis Design                             | 3+0 |
| 12 | None    | EEL XXX | EV Body and Chassis Design Lab                         | 0+1 |
| 13 | EEN 312 | EEV XXX | EV Dynamics  | 3+0 |
| 14 | EEN 312 | EEL XXX | EV Dynamics Lab  | 0+1 |
| 15 | EEN 224 | EEN 316 | Instrumentation and Measurements                       | 3+0 |
| 16 | EEN 224 | EEL 316 | Instrumentation and Measurements Lab                   | 0+1 |
| 17 | EEN 219 | EEP 441 | Advanced Electrical Machines                           | 3+0 |
| 18 | EEN 219 | EEL 441 | Advanced Electrical Machines Lab                       | 0+1 |
| 19 | EEN 219 | EEP 471 | Electrical Machine Design and Maintenance              | 3+0 |
| 20 | EEN 219 | EEL 471 | Electrical Machine Design and Maintenance Lab          | 0+1 |
| 21 | EEN 313 | EEN 325 | Digital Signal Processing                              | 3+0 |
| 22 | EEN 313 | EEL 325 | Digital Signal Processing Lab                          | 0+1 |
| 23 | EEN 224 | EEP 472 | Industrial Drives                                      | 3+0 |
| 24 | EEN 224 | EEL 472 | Industrial Drives Lab                                  | 0+1 |
| 25 | EEP 331 | EEP 475 | FACTS and HVDC Transmission                            | 3+0 |
| 26 | EEP 331 | EEL 475 | FACTS and HVDC Transmission Lab                        | 0+1 |
| 27 | None    | CEN 223 | Computer Communication & Networking                    | 3+0 |
| 28 | None    | CEL 223 | Computer Communication & Networking Lab                | 0+1 |
| 29 | EEN 412 | EEN 437 | Digital Control System                                 | 3+0 |
| 30 | EEN 412 | EEL 437 | Digital Control System Lab                             | 0+1 |
| 31 | EET 321 | EET 474 | Digital Communication System                           | 3+0 |
| 32 | EET 321 | EEL 474 | Digital Communication System Lab                       | 0+1 |
| 33 | EEN 224 | EEN 469 | Linear Integrated Circuits and Applications            | 3+0 |
| 34 | EEN 224 | EEL 469 | Linear Integrated Circuits and Applications Lab        | 0+1 |
| 35 | EEN 224 | EEP 474 | PLC and Industrial Drives                              | 3+0 |
| 36 | EEN 224 | EEL 474 | PLC and Industrial Drives Lab                          | 0+1 |
| 37 | EEN 224 | EEN 445 | Industrial Electronics                                 | 3+0 |
| 38 | EEN 224 | EEL 445 | Industrial Electronics Lab                             | 0+1 |
| 39 | EEN 224 | EEV XXX | Sensors and Actuators                                  | 3+0 |
| 40 | None    | EEV XXX | Autonomous Vehicles                                    | 3+0 |
| 41 | EEN 313 | EEV XXX | Vehicular Networking                                   | 3+0 |
| 42 | GSC 113 | EEP 452 | LV and HV Electrical Installation guides and Standards | 3+0 |
| 43 | EEN 312 | EEV XXX | Automotive Engineering                                 | 3+0 |

## BS (Robotics & Intelligent Systems)

**Program Title:** BS (Robotics and Intelligent Systems)

**Duration:** 4 Years

**Eligibility Criteria:** Minimum 50% marks in Intermediate (HSSC) Examination (Pre-Engg./Comp Science/Pre-Medical/DAE in all relevant field) or equivalent qualifications with Mathematics certified by IBCC.

### Semester-wise Road map

#### Semester 1

| Sr. No. | Pre-requisite Course Code | Course Code         | Course Title                                    | Credit Hours |
|---------|---------------------------|---------------------|---|--------------|
| 1       | None                      | GSC 114             | Applied Physics                                 | 2            |
| 2       | None                      | GSL 113             | Applied Physics Lab                             | 1            |
| 3       | None                      | GSC 110             | Applied Calculus and Analytical Geometry        | 3            |
| 4       | None                      | ISL 101/<br>HSS 116 | Islamic Studies*/ Ethics (For non-Muslims only) | 2            |
| 5       | None                      | ENG 101             | Functional English                              | 3            |
| 6       | None                      | CSC 110             | Computing Fundamentals                          | 2            |
| 7       | None                      | CSL 110             | Computing Fundamentals Lab                      | 1            |
| 8       | None                      | EEL 121             | Engineering Drawing & CAD                       | 1            |
| 9       | None                      | PAK 109             | Ideology and constitution of Pakistan           | 2            |
| 10      | None                      | ISL 107             | Tajweed   | 0            |

#### Semester 2

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                              | Credit Hours |
|---------|---------------------------|-------------|---|--------------|
| 1       | XXXX                      | XXXX        | Social Sciences Elective-I                | 2            |
| 2       | None                      | GSC 123     | Linear Algebra and Differential Equations | 3            |
| 3       | None                      | GSC 115     | Circuit Analysis                          | 3            |
| 4       | None                      | GSL 115     | Circuit Analysis Lab                      | 1            |
| 5       | None                      | CSC 113     | Computer Programming                      | 3            |
| 6       | None                      | CSL 113     | Computer Programming Lab                  | 1            |
| 7       | None                      | MSC 231     | Engineering Mechanics                     | 3            |
| 8       | None                      | XXXX        | Management Elective                       | 2            |
| 9       | None                      | ISL 108     | Understanding Quran-I                     | 0            |

#### Semester 3

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                    | Credit Hours |
|---------|---------------------------|-------------|---------------------------------|--------------|
| 1       | None                      | CEN 120     | Digital Logic Design            | 3            |
| 2       | None                      | CEL 120     | Digital Logic Design Lab        | 1            |
| 3       | CSC 113                   | CSC 210     | Object Oriented Programming     | 3            |
| 4       | CSC 113                   | CSL 210     | Object Oriented Programming Lab | 1            |
| 5       | None                      | RIS 231     | Introduction to Robotics        | 3            |
| 6       | None                      | RIL 231     | Introduction to Robotics Lab    | 1            |
| 7       | None                      | GSC 122     | Probability and Statistics      | 3            |
| 8       | None                      | EEL 113     | Engineering Workshop            | 1            |
| 9       | None                      | ENG 134     | Communication Skills            | 2            |
| 10      |                           | ISL 109     | Understanding Quran-II          | 0            |

#### **Semester 4**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                             | Credit Hours |
|---------|---------------------------|-------------|--|--------------|
| 1       | GSC 110                   | GSC 220     | Complex Variable & Transforms            | 3            |
| 2       | XXXX                      | XXXX        | IDEE – I                                 | 3            |
| 3       | XXXX                      | XXXX        | IDEE - I Lab                             | 1            |
| 4       | CSC 210                   | AIC 201     | Artificial Intelligence                  | 3            |
| 5       | CSC 210                   | AIL 201     | Artificial Intelligence Lab              | 1            |
| 6       | None                      | XXXXX       | Civics and Community Engagement Elective | 2            |
| 7       | None                      | ENG 320     | Technical Writing & Presentation Skills  | 3            |
| 8       | None                      | PAK 103     | Pakistan Studies & Global Prospective    | 2            |
| 9       |                           | ISL 110     | Understanding Quran-III                  | 0            |

#### **Semester 5**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                     | Credit Hours |
|---------|---------------------------|-------------|----------------------------------|--------------|
| 1       | XXXX                      | XXXX        | IDEE – II                        | 3            |
| 2       | XXXX                      | XXXX        | IDEE - II Lab                    | 1            |
| 3       | CSC 210                   | RIS 361     | Robotic System & Programming     | 3            |
| 4       | CSC 210                   | RIL 361     | Robotic System & Programming Lab | 1            |
| 5       | GSC 220                   | EEN 412     | Linear Control System            | 3            |
| 6       | GSC 220                   | EEL 412     | Linear Control System Lab        | 1            |
| 7       | None                      | RIS 241     | Sensors & Actuators              | 3            |
| 8       | None                      | RIL 241     | Sensors & Actuators Lab          | 1            |
| 9       |                           | ISL 111     | Understanding Quran-IV           | 0            |

**Semester 6**

| Sr. no. | Pre-requisite Course Code | Course Code | Course Title                | Credit Hours |
|---------|---------------------------|-------------|-----------------------------|--------------|
| 1       | XXXX                      | XXXX        | IDEE – III                  | 3            |
| 2       | XXXX                      | XXXX        | IDEE - III Lab              | 1            |
| 3       | CEN 120                   | CEN 440     | Embedded Systems Design     | 3            |
| 4       | CEN 120                   | CEL 440     | Embedded Systems Design Lab | 1            |
| 5       | AIC 201                   | RIS 364     | Machine Learning            | 3            |
| 6       | AIC 201                   | AIL 301     | Machine Learning Lab        | 1            |
| 7       | XXXX                      | XXXX        | RIS Elective I              | 3            |
| 9       |                           | ISL 112     | Understanding Quran-V       | 0            |

**Semester 7**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                      | Credit Hours |
|---------|---------------------------|-------------|-----------------------------------|--------------|
| 1       | EEN 412                   | RIS 362     | Robot Modelling & Control         | 3            |
| 2       | EEN 412                   | RIL 362     | Robot Modelling & Control Lab     | 1            |
| 3       | XXXX                      | XXXX        | RIS Elective II                   | 3            |
| 4       | XXXX                      | XXXX        | RIS Elective II Lab               | 1            |
| 5       | AIC 301                   | RIS 474     | Introduction to Deep Learning     | 3            |
| 6       | AIC 301                   | RIL 474     | Introduction to Deep Learning Lab | 1            |
| 7       | None                      | ESC 496     | Project -I                        | 2            |
| 8       | None                      | ISL 113     | Seerah-I                          | 0            |

**Semester 8**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title              | Credit Hours |
|---------|---------------------------|-------------|---------------------------|--------------|
| 1       | XXXX                      | XXXX        | RIS Elective III          | 3            |
| 2       | RIS 231                   | RIS 481     | Machine Vision & Robotics | 3            |
| 3       | XXXX                      | XXXX        | RIS Elective IV           | 3            |
| 4       | XXXX                      | XXXX        | RIS Elective IV Lab       | 1            |
| 5       | XXXX                      | XXXX        | RIS Elective V            | 3            |
| 6       | None                      | ESC 497     | Project-II                | 4            |
| 7       |                           | ISL 114     | Seerah-II                 | 0            |

**List of Elective Courses: Interdisciplinary Courses (IDEE 12 credit hours)**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                          | Credit Hours |
|---------|---------------------------|-------------|---------------------------------------|--------------|
| 1       | CSC 210                   | CSC 221     | Data Structures & Algorithm           | 3            |
| 2       | CSC 210                   | CSL 221     | Data Structures & Algorithm Lab       | 1            |
| 3       | None                      | EEN 313     | Signal & Systems                      | 3            |
| 4       | None                      | EEL 313     | Signal & Systems Lab                  | 1            |
| 5       | GSC 115                   | EEN 224     | Electronic Devices and Circuits       | 3            |
| 6       | GSC 115                   | EEL 224     | Electronic Devices and Circuits Lab   | 1            |
| 7       | GSC 115                   | EEP 468     | Power Electronics                     | 3            |
| 8       | GSC 115                   | EEL 468     | Power Electronics Lab                 | 1            |
| 9       | None                      | CEN 223     | Computer Communication & Networks     | 3            |
| 10      | None                      | CEL 223     | Computer Communication & Networks Lab | 1            |
| 11      | GSC 114                   | EEN 312     | Electrical Machines                   | 3            |
| 12      | GSC 114                   | EEL 312     | Electrical Machines Lab               | 1            |
| 13      | GSC 114                   | EEN 316     | Instrumentation and measurement       | 3            |
| 14      | GSC 114                   | EEL 316     | Instrumentation and measurement Lab   | 1            |
| 15      | None                      | EET 321     | Communication Systems                 | 3            |
| 16      | None                      | EEL 321     | Communication Systems Lab             | 1            |
| 17      | None                      | CEN 444     | Digital Image Processing              | 3            |
| 18      | None                      | CEL 444     | Digital Image Processing Lab          | 1            |

**List of Elective Courses: Robotics & Intelligent Systems Elective Courses (5 courses 17 credit hours)**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                         | Credit Hours |
|---------|---------------------------|-------------|--------------------------------------|--------------|
| 1       | CSC 113                   | RIS 363     | Internet of things (IoT)             | 3            |
| 2       | RIS 241                   | RIS 482     | Introduction to Haptics              | 3            |
| 3       | RIS 362                   | RIS 483     | Introduction to Humanoid Robots      | 3            |
| 4       | RIS 362                   | RIS 484     | Advanced Modelling of Robotics       | 3            |
| 5       | GSC 123                   | RIS 485     | Optimal Kinematic Design of Robots   | 3            |
| 6       | RIS 361                   | RIS 486     | Distributive Robotics/Swarm Robotics | 3            |
| 7       | None                      | CSC 410     | Introduction to Cloud Computing      | 3            |
| 8       | GSC 113                   | RIS 489     | Mechanics of Materials               | 3            |
| 9       | RIS 231                   | RIS 486     | Swarm Robotics                       | 3            |
| 10      | None                      | RIS 471     | Robot Process Automation             | 3            |
| 11      | None                      | RIS 471     | Robot Process Automation Lab         | 1            |
| 12      | None                      | RIS 473     | Introduction to R Programming        | 3            |
| 13      | None                      | RIL 473     | Introduction to R Programming Lab    | 1            |
| 14      | CEN 444                   | CSC 464     | Computer Vision                      | 3            |
| 15      | CEN 444                   | CSL 464     | Computer Vision Lab                  | 1            |

|    |         |         |                               |   |
|----|---------|---------|-------------------------------|---|
| 16 | AIC 201 | RIS 475 | Human Robot Interaction       | 3 |
| 17 | AIC 201 | RIL 475 | Human Robot Interaction Lab   | 1 |
| 18 | AIC 201 | RIS 476 | Artificial Neural Network     | 3 |
| 19 | AIC 201 | RIL 476 | Artificial Neural Network Lab | 1 |
| 20 | AIC 201 | RIS 487 | AI for Computer Games         | 3 |
| 21 | AIC 201 | RIL 487 | AI for Computer Games Lab     | 1 |
| 22 | AIC 301 | RIS 488 | Chatbots                      | 3 |
| 23 | AIC 301 | RIL 488 | Chatbots Lab                  | 1 |

**List of Elective Courses: Social Science Courses (2 credit hours)**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                  | Credit Hours |
|---------|---------------------------|-------------|-------------------------------|--------------|
| 1       | None                      | HSS 424     | Engineering Ethics            | 2            |
| 2       | None                      | HSS 217     | Introduction to Sociology     | 2            |
| 3       | None                      | HSS 119     | Introduction to International | 2            |

**List of Elective Courses: Management Science Courses (2 credit hours)**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title             | Credit Hours |
|---------|---------------------------|-------------|--------------------------|--------------|
| 1       | None                      | HSS 423     | Entrepreneurship         | 2            |
| 2       | None                      | MGT 421     | Leadership               | 2            |
| 3       | None                      | EMG 222     | Principles of Management | 2            |
| 4       | None                      | HSS 412     | Engineering Economics    | 2            |

## MS (Electrical Engineering)

**Program Title:** MS (Electrical Engineering)

**Duration:** 2 Years

**Eligibility Criteria:** Four Year Degree in Electrical/Electronic/Computer or Allied Discipline with minimum CGPA 2.00/4.0 or 50% marks. Students will be required to complete deficiency in earned credit hours.

Graduates from other engineering disciplines or 16-year degree in Computer Science, Electronics, Physics or any related discipline may be eligible for this program, subject to passing the prerequisite courses with minimum GPA 3.00 of 4.0 in each course, as recommended by the departmental graduate committee at admission time.

### Roadmap of MS-EE

#### Semester 1

| Sr. No. | Pre requisite Course Code | Course Code | Course Title   | Credit Hours |
|---------|---------------------------|-------------|--|--------------|
| 1       |                           | ESC 701     | Research Methodology (Core I - University Requirement) | 3.0          |
| 2       |                           |             | Core II  | 3            |
| 3       |                           |             | Core III   | 3            |

#### Semester 2

| Sr. No. | Pre requisite Course Code | Course Code | Course Title | Credit Hours |
|---------|---------------------------|-------------|--------------|--------------|
| 1       |                           |             | Core - IV    | 3            |
| 2       |                           |             | Core - V     | 3            |
| 3       |                           |             | Elective I   | 3            |

#### Semester 3

| Sr. No. | Pre requisite Course Code | Course Code                | Course Title                | Credit Hours |
|---------|---------------------------|----------------------------|-----------------------------|--------------|
| 1       |                           |                            | Elective II                 | 3            |
| 2       |                           | THS 799 /<br>Elective Code | MS Thesis / Elective Course | 3            |

#### Semester 4

| Sr. No. | Pre requisite Course Code | Course Code                | Course Title                | Credit Hours |
|---------|---------------------------|----------------------------|-----------------------------|--------------|
| 1       |                           |                            | Elective III                | 3            |
| 2       |                           | THS 799 /<br>Elective Code | MS Thesis / Elective Course | 3            |

#### MS EE (Communication Systems and IoT Networks)

#### Core Courses

| Sr. No. | Pre requisite Course Code | Course Code | Course Title                                      | Credit Hours |
|---------|---------------------------|-------------|---|--------------|
| 1       |                           | ESC 701     | Research Methodology                              | 3            |
| 2       |                           | EEN 710     | Stochastic Process for Engineers                  | 3            |
| 3       |                           | EEN 712     | Advanced Digital Communication Systems            | 3            |
| 4       |                           | EET 755     | Wireless Communication Techniques                 | 3            |
| 5       |                           | EET 724     | Optimization Techniques in Electrical Engineering | 3            |

#### List of Electives Courses

| Pre requisite Course Code | Course Code | Course Title                                     | Credit Hours |
|---------------------------|-------------|--|--------------|
|                           | EET 850     | Wireless Sensor Networks                         | 3            |
|                           | EET 762     | Communication Network Architecture and Protocols | 3            |
|                           | EET 766     | RF System Engineering and Design                 | 3            |
|                           | EET 750     | Antennas Theory, Design and Applications         | 3            |
|                           | EET 768     | Cognitive & software Defined Radio               | 3            |
|                           | EEN 740     | Embedded System Design for Telecommunications    | 3            |
|                           | EET 756     | Telecommunication Switching Systems              | 3            |
|                           | EET 702     | Advanced Network Security                        | 3            |
|                           | CEN 745     | Advanced Digital Image Processing                | 3            |
|                           | ESC 716     | Advanced Topics in Wireless & Networking         | 3            |
|                           | EEN 725     | Advanced Digital Signal Processing               | 3            |

|  |         |  |   |
|--|---------|--|---|
|  | EET 770 | Advanced Information Theory and Coding | 3 |
|  | EET 731 | IoT for Industry 4.0                   | 3 |
|  | EET 730 | AI for Internet of Things              | 3 |
|  | EET 728 | Security for Internet of Things        | 3 |
|  | EET 725 | Advanced Routing & Switching           | 3 |
|  | EET 712 | Advanced Power Electronics             | 3 |
|  | CEN 752 | Advanced VLSI System Desing            | 3 |
|  | CSC 711 | Advanced Artificial Intelligence       | 3 |
|  | EET 757 | Mobile Computing                       | 3 |
|  | EET 769 | Mobile/Vehicular Adhoc Network         |   |
|  | EET 771 | IoE & Digital Ecosystems               | 3 |
|  | EET 772 | Data Networks & Security Technologies  | 3 |

### MS EE (Automation and Control)

#### Core Courses

| Sr. No. | Pre requisite Course Code | Course Code | Course Title                                      | Credit Hours |
|---------|---------------------------|-------------|---|--------------|
| 1       |                           | ESC 701     | Research Methodology                              | 3            |
| 2       |                           | EEN 710     | Stochastic Process for Engineers                  | 3            |
| 3       |                           | EEA 712     | AI Enhanced Control Systems                       | 3            |
| 4       |                           | EEN 726     | Modern Control Theory                             | 3            |
| 5       |                           | EET 724     | Optimization Techniques in Electrical Engineering | 3            |

#### List of Electives Courses

| Sr.No. | Pre requisite Course Code | Course Code | Course Title                                | Credit Hours |
|--------|---------------------------|-------------|---|--------------|
| 1      |                           | EEA 713     | Robust Multivariable Control System         | 3            |
| 2      |                           | EEA 703     | Dynamic Modeling system                     | 3            |
| 3      |                           | EEA 749     | Fuzzy Logic and Intelligent Control Systems | 3            |
| 4      |                           | EEA 750     | Nonlinear System Analysis & Control         | 3            |
| 5      |                           | EEA 704     | Adaptive Control Systems                    | 3            |
| 6      |                           | CEN 758     | Robotics and Intelligent Sensors            | 3            |
| 7      |                           | CEN 722     | Advanced Interfacing Techniques             | 3            |
| 8      |                           | EEA 751     | Advanced Mechatronics                       | 3            |

|    |  |         |   |   |
|----|--|---------|---|---|
| 9  |  | EEA 752 | Advanced Industrial Automation Technologies             | 3 |
| 10 |  | EEA 715 | Industrial Project Management                           | 3 |
| 11 |  | EEA 716 | Control Instrumentation and Robotics                    | 3 |
| 12 |  | EEA 717 | Process Control Commissioning and Production Management | 3 |
| 13 |  | EEA 753 | Robotics Essentials                                     | 3 |
| 14 |  | EEA 754 | Robot Motion Planning                                   | 3 |
| 15 |  | CEN 758 | Robotics & Intelligent Sensors                          | 3 |
| 16 |  | CEN 745 | Advanced Digital Image Processing                       | 3 |
| 17 |  | EEN 725 | Advanced Digital Signal Processing                      | 3 |
| 18 |  | EEP 712 | Advanced Power Electronics                              | 3 |
| 19 |  | CSC 711 | Advanced Artificial Intelligence                        | 3 |
| 20 |  | CEN 752 | Advanced VLSI System Design                             | 3 |
| 21 |  | EEA 702 | Advance Topics in Control Systems                       | 3 |

### MS EE (Power Systems)

#### Core Courses

| Sr.No. | Pre requisite Course Code | Course Code | Course Title                                      | Credit Hours |
|--------|---------------------------|-------------|---|--------------|
| 1      |                           | ESC 701     | Research Methodology                              | 3            |
| 2      |                           | EEN 710     | Stochastic Process for Engineers                  | 3            |
| 3      |                           | EEP 710     | Advanced Power Transmission & Distribution        | 3            |
| 4      |                           | EEP 711     | Advanced Power Generation and Plant Operation     | 3            |
| 5      |                           | EET 724     | Optimization Techniques in Electrical Engineering | 3            |

#### List of Electives Courses

| Sr. No. | Pre requisite Course Code | Course Code | Course Title                     | Credit Hours |
|---------|---------------------------|-------------|----------------------------------|--------------|
| 1       |                           | EEP 716     | Advanced Power System Analysis   | 3            |
| 2       |                           | EEP 717     | Advanced Power System Planning   | 3            |
| 3       |                           | EEP 718     | Advanced Power System Protection | 3            |

|    |  |         |   |   |
|----|--|---------|---|---|
| 4  |  | EEP 713 | Advanced High Voltage Engineering Design                | 3 |
| 5  |  | EEP 754 | Smart Grid System Operation                             | 3 |
| 6  |  | EEP 715 | Advanced Hydel Power Generation                         | 3 |
| 7  |  | EEP 722 | Advanced Power System Reliability                       | 3 |
| 8  |  | EEP 719 | Advanced Topics in Power Systems Engineering            | 3 |
| 9  |  | EEP 724 | Advanced Renewable Energy                               | 3 |
| 10 |  | EEP 757 | Non-Conventional Energy Systems                         | 3 |
| 11 |  | EEP 725 | Advanced Solar Power Generation                         | 3 |
| 12 |  | EEP 726 | Advanced Wind Power Generation                          | 3 |
| 13 |  | EEP 727 | Advanced Hybrid Power Generation                        | 3 |
| 14 |  | EEP 723 | Thermal and Nuclear Power Generation                    | 3 |
| 15 |  | EEP 720 | Computer Methods in Power Systems                       | 3 |
| 16 |  | EEP 721 | Insulation Coordination in Power Systems                | 3 |
| 17 |  | EEP 712 | Advanced Power Electronics                              | 3 |
| 18 |  | EEP 728 | Special Topics in Power System Operation and Control    | 3 |
| 19 |  | EEP 780 | EMS & SCADA   | 3 |
| 20 |  | EEA 713 | Robust Multivariable Control System                     | 3 |
| 21 |  | EEA 749 | Fuzzy Logic and Intelligent Control Systems             | 3 |
| 22 |  | EEA 750 | Nonlinear System Analysis & Control                     | 3 |
| 23 |  | EEP 729 | Integration of Distributed Generation in Power Systems` | 3 |
| 24 |  | EEP 775 | HVDC and Flexible AC Transmission                       | 3 |
| 26 |  | EEP 771 | Low Power System Design                                 | 3 |
| 27 |  | CEN 752 | Advanced VLSI System Design                             | 3 |
| 28 |  | CSC 711 | Advanced Artificial Intelligence                        | 3 |
| 29 |  | EEP 773 | Power System Stability and Dynamics                     | 3 |

## **PhD Electrical Engineering**

**Program Title:** PhD Electrical Engineering  
**Duration:** 3 to 8 Years  
**Eligibility Criteria:** 18 Years Education in the relevant discipline with a minimum CGPA of 3.00/4.00 (Semester System) or 60% marks (Annual System). NTS-GAT (General) or GRE (General) Test passed with minimum 60% marks or BU Admission Test (60% passing marks). Initial Research Proposal/Statement of Purpose is required at the time of PhD admission.

### **Program Educational Objectives**

The objectives of PhD (Electrical Engineering) program are

1. To equip scholars with necessary knowledge relevant tools and techniques to make significant contribution in the field of study by conducting quality research independently or in collaboration.
2. To prepare scholars to effectively disseminate result in the form of written and oral presentation
3. To produce skilled professionals who can take up the challenges associated with the advancement of science and technology in industry or in academia.

### **Program Learning Outcomes**

PhD scholars who successfully complete their PhD in Electrical Engineering will be able to:

**PLO 1:** Perform advance research that is grounded in theory, practice and further extends the existing research in the field

**PLO 2:** Produce quality research that have a positive impact toward the welfare and betterment of society

**PLO 3:** Communicate effectively both in oral and written formats to a diverse audience.

**PLO 4:** Collaborate with the peers in the domain of Electrical Engineering to integrate diverse perspectives

### **Program structure:**

The PhD program consists of 18 credit hours of course work and 36 credit hours of research work. Coursework should be completed in the first two semesters. After successful completion of coursework, a PhD scholar is required to appear in the comprehensive examination. After passing comprehensive examination PhD scholar can register in the research phase by registering THS 900 PhD Thesis course. The first milestone in research phase is to prepare and submit a research Proposal under the guidance of a supervisor. The scholar appears before a panel of examiners to defend the research proposal. After successful defense, the scholar needs to carry out his/her research and complete total 36 credits of research. The scholar will present the research finding in the form of a written thesis, which shall be evaluated as per HEC and BU rules. For further details about rules governing PhD programs refer to PhD Rules Handbook.

Semester wise breakdown of the program is as follows.

## Semester-wise Road map

### Semester 1

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                    | Credit Hours |
|---------|---------------------------|-------------|---------------------------------|--------------|
| 1       | None                      | ESC 801     | Research Methods in PhD Studies | 3            |
| 2       |                           |             | Elective I                      | 3            |
| 3       |                           |             | Elective II                     | 3            |

### Semester 2

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title | Credit Hours |
|---------|---------------------------|-------------|--------------|--------------|
| 1       |                           |             | Elective III | 3            |
| 2       |                           |             | Elective IV  | 3            |
| 3       |                           |             | Elective V   | 3            |

### Semester 3

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title | Credit Hours |
|---------|---------------------------|-------------|--------------|--------------|
| 1       |                           | THS 900     | PhD Thesis   | 9            |

### Semester 4

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title | Credit Hours |
|---------|---------------------------|-------------|--------------|--------------|
| 1       |                           | THS 900     | PhD Thesis   | 9            |

### Semester 5

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title | Credit Hours |
|---------|---------------------------|-------------|--------------|--------------|
| 1       |                           | THS 900     | PhD Thesis   | 9            |

**Semester 6**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title | Credit Hours |
|---------|---------------------------|-------------|--------------|--------------|
| 1       |                           | THS 900     | PhD Thesis   | 9            |

**List of Electives Courses**

| Course Code | Course Title  | Credit Hours |
|-------------|---|--------------|
| EEN 827     | Modern Control Theory   | 3            |
| EEN 828     | Advanced Nonlinear Control Systems                            | 3            |
| EEN 801     | Power Management in Wired and Wireless communications Systems | 3            |
| EEN 802     | Advanced Low Power System Design                              | 3            |
| EEN 803     | Advanced Power System Deregulation                            | 3            |
| EEN 829     | Design and Applications of Real Time DSP Systems              | 3            |
| EEN 830     | Emerging Trend in Cognitive Cooperative Networks              | 3            |
| EEN 831     | Modern Digital Communications Systems                         | 3            |
| EEN 830     | Dynamic Systems Modeling & Simulation                         | 3            |
| EEN 832     | Advance topics in Network Security                            | 3            |
| EEN 833     | Smart Antennas  | 3            |
| EEN 827     | Advanced Wireless Communication Systems                       | 3            |
| EEN 804     | Advanced Power System Stability and Dynamics                  | 3            |
| EEN 834     | Emerging Trend in Optical Fiber Networks                      | 3            |
| EEN 805     | Artificial Intelligence Techniques in Power Systems Design    | 3            |
| EEN 835     | Advance Topics in 5G and Beyond Communications                | 3            |
| EEN 831     | Statistical Signal Processing                                 | 3            |
| CEN 807     | Distributed Systems Architecture and Design                   | 3            |
| CEN 808     | Advanced Techniques in System Modeling and Simulation         | 3            |
| CEN 821     | Microprocessor System Optimization and customization          | 3            |
| CEN 840     | Advanced Embedded System Design                               | 3            |
| CEN 842     | Digital Systems Integration and Design                        | 3            |
| CEN 845     | Image Analysis and Pattern Recognition                        | 3            |
| CEN 852     | Modern Approaches in VLSI System Design                       | 3            |
| CEN 853     | Real-Time Systems Engineering & Design                        | 3            |
| CEN 855     | Advanced Parallel Processing Computer Systems                 | 3            |
| DSC 807     | Advanced Deep Learning  | 3            |
| CSC 819     | Research Trends in Machine Learning                           | 3            |
| CSC 851     | Advanced Pattern Recognition                                  | 3            |

|         |  |   |
|---------|--|---|
| CSC 864 | Advanced Computer Vision   | 3 |
| CSC 881 | Advanced Cloud Computing   | 3 |
| SEN 862 | Emerging Trends in Big Data Analytics                            | 3 |
| SEN 810 | Advanced Neural Networks & Fuzzy Logic                           | 3 |
| EET 829 | Optimization Techniques  | 3 |
| EEN 832 | Fuzzy Logic and Neural Network Based Intelligent control systems | 3 |
| EEN 833 | Advanced Computer vision for Robotics                            | 3 |
| EEN 834 | Human-Robot Interaction  | 3 |
| EEN 835 | Medical Devices & Robotics                                       | 3 |
| EET 836 | AI for Future Communication Systems                              | 3 |
| EET 837 | Advanced Data Communication Systems                              | 3 |
| EEP 806 | Modern Trends in Power system Analysis                           | 3 |
| EEP 807 | Modern Power System Protection                                   | 3 |
| CEN 820 | Advanced Computer Architecture                                   | 3 |
| CEN 841 | ASIC Design Methodology  | 3 |
| CEN 854 | MOS VLSI Circuit Design  | 3 |
| DSC 800 | Advanced Data Analytics  | 3 |
| CSC 800 | Advanced AI Networking   | 3 |
| SEN 809 | Internet of Things: Design and Applications                      | 3 |
| SEN 808 | Computer and Cybersecurity                                       | 3 |

## **Bachelor of Software Engineering**

**Program Title:** Bachelor of Electrical Engineering (BEE)

**Duration:** 4 years

**Eligibility Criteria:** Passed intermediate examination or it's equivalent with a minimum of 60% marks (excluding NCC) in Pre–Engineering Group, or with Mathematics, Physics & Computer Studies.

### **Program Educational Objectives (PEOs)**

**PEO 1:** To provide viable solutions to complex engineering problems based on systematic theoretical and technical approaches in the field of electrical engineering.

**PEO 2:** To manage and develop sustainable electrical systems to meet desired objectives and explore new entrepreneurial possibilities in a multidisciplinary environment.

**PEO 3:** To pursue academic and professional growth by taking up higher studies, discovering new technologies and developing proficiency in the usage of latest tools.

**PEO 4:** To work in a multicultural environment and be responsive to ethical, moral, and societal issues showing leadership in their domain.

### **Program Education Objectives (PEOs):**

**PEO-1:** Graduates should demonstrate competence in applying Software Engineering principles & practices in various phases of software/system development life cycle in their respective professional career.

**PEO-2:** Graduates should demonstrate effective team member or leadership skills with strong managerial skills and a sound sense of social responsibility for the sustainable development of society.

**PEO-3:** Graduates should demonstrate sustained career development and progression through ethical engineering practices, effective communication skills and continuous learning.

### **Program Mission:**

The mission of Bachelor of Software Engineering program is to prepare technically strong Software Engineers who can contribute effectively towards the nation, society and the world at large through effective problem-solving skills, application of engineering knowledge, leadership and healthy lifelong learning attitude.

### **Program Learning Outcomes (PLOs):**

1. **Engineering Knowledge:** An ability to apply knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.

2. **Problem Analysis:** An ability to identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.
3. **Design/Development of Solutions:** An ability to design solutions for complex engineering problems and design systems, components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.
4. **Investigation:** An ability to investigate complex engineering problems in a methodical way including literature survey, design and conduct of experiments, analysis and interpretation of experimental data, and synthesis of information to derive valid conclusions.
5. **Modern Tool Usage:** An ability to create, select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modeling, to complex engineering activities, with an understanding of the limitations.
6. **The Engineer and Society:** An ability to apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practice and solution to complex engineering problems.
7. **Environment and Sustainability:** An ability to understand the impact of professional engineering solutions in societal and environmental contexts and demonstrate knowledge of and need for sustainable development.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice.
9. **Individual and Team Work:** An ability to work effectively, as an individual or in a team, on multifaceted and /or multidisciplinary settings.
11. **Communication:** An ability to communicate effectively, orally as well as in writing, on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

12. **Project Management:** An ability to demonstrate management skills and apply engineering principles to one's own work, as a member and/or leader in a team, to manage projects in a multidisciplinary environment.
13. **Lifelong Learning:** An ability to recognize importance of, and pursue lifelong learning in the broader context of innovation and technological developments.

### Semester 1

| S No | Pre- requisite Course Code | Course Code | Course Title                           | Credit Hours |
|------|----------------------------|-------------|--|--------------|
| 1    | None                       | CSC 110     | Computing Fundamentals                 | 2            |
| 2    | None                       | CSL 110     | Computing Fundamentals Lab             | 1            |
| 3    | None                       | CSC 113     | Computer Programming                   | 3            |
| 4    | None                       | CSL 113     | Computer Programming Lab               | 1            |
| 5    | None                       | ENG 101     | Functional English                     | 3            |
| 6    | None                       | GSC 110     | Applied Calculus & Analytical Geometry | 3            |
| 7    | None                       | GSC 114     | Applied Physics                        | 2            |
| 8    | None                       | GSL 113     | Applied Physics Lab                    | 1            |
| 9    | None                       | ENV 101     | Occupational Health and Safety         | 1            |
| 10   | None                       | ISL 107     | Tajweed                                | 0            |

### Semester 2

| S No | Pre- requisite Course Code     | Course Code | Course Title                         | Credit Hours |
|------|--------------------------------|-------------|--------------------------------------|--------------|
| 1    | None                           | CSC 115     | Discrete Structures                  | 3            |
| 2    | Computer Programming (CSC 113) | CSC 210     | Object Oriented Programming          | 3            |
| 3    | Computer Programming (CSC 113) | CSL 210     | Object Oriented Programming Lab      | 1            |
| 4    | None                           | SEN 120     | Introduction to Software Engineering | 3            |
| 5    | Functional English (ENG 101)   | ENG 134     | Effective Communication Skills       | 2            |
| 6    | None                           | ISL 101     | Islamic Studies*/Ethics**            | 2            |
| 7    | None                           | GSC 121     | Linear Algebra                       | 3            |

|   |      |         |                        |   |
|---|------|---------|------------------------|---|
| 8 | None | ISL 108 | Understanding Quran- I | 1 |
|---|------|---------|------------------------|---|

### **Semester 3**

| S No | Pre- requisite Course Code | Course Code | Course Title                             | Credit Hours |
|------|----------------------------|-------------|--|--------------|
| 1    | CSC 210                    | CSC 221     | Data Structures & Algorithms             | 3            |
| 2    | CSC 210                    | CSL 221     | Data Structures & Algorithms Lab         | 1            |
| 3    | SEN 120                    | SEN 211     | Software Requirements Engineering        | 3            |
| 4    | None                       | GSC 122     | Probability & Statistics                 | 3            |
| 5    |                            | -           | Civics and Community Engagement          | 2            |
| 6    | None                       | CEN 220     | Computer Architecture & Logic Design     | 3            |
| 7    | None                       | CEL 220     | Computer Architecture & Logic Design Lab | 1            |
| 8    | None                       | ISL 109     | Understanding Quran- II                  | 1            |

### **Semester 4**

| S No | Pre- requisite Course Code | Course Code | Course Title                       | Credit Hours |
|------|----------------------------|-------------|------------------------------------|--------------|
| 1    | CEN 220                    | CSC 320     | Operating Systems                  | 3            |
| 2    | CEN 220                    | CSL 320     | Operating Systems Lab              | 1            |
| 3    | CSC 113                    | CSC 220     | Database Management Systems        | 3            |
| 4    | CSC 113                    | CSL 220     | Database Management Systems Lab    | 1            |
| 5    | CSC 221                    | CSC 321     | Design & Analysis of Algorithms    | 3            |
| 6    | SEN 211                    | SEN 221     | Software Design & Architecture     | 2            |
| 7    | SEN 211                    | SEL 221     | Software Design & Architecture Lab | 1            |
| 8    | None                       | HSS 423     | Entrepreneurship                   | 2            |
| 9    | None                       | PAK 101     | Pakistan Studies                   | 2            |
| 10   | None                       | ISL 110     | Understanding Quran- III           | 0            |

### **Semester 5**

| S No | Pre- requisite | Course Code | Course Title | Credit Hours |
|------|----------------|-------------|--------------|--------------|
|------|----------------|-------------|--------------|--------------|

|   | Course Code |         |  |   |
|---|-------------|---------|--|---|
| 1 | None        | CEN 223 | Computer Communication & Networks      | 3 |
| 2 | None        | CEL 223 | Computer Communication & Networks Lab  | 1 |
| 3 | GSC 110     | SEN 323 | Formal Methods in Software Engineering | 3 |
| 4 | SEN 221     | SEN 311 | Software Construction                  | 2 |
| 5 | SEN 221     | SEL 311 | Software Construction Lab              | 1 |
| 6 | -           | -       | Engineering Elective-I**               | 3 |
| 7 | -           | -       | MDEE-I**                               | 3 |
| 8 | -           | PAK 109 | Ideology and Constitution of Pakistan  | 2 |
| 9 | -           | ISL 111 | Understanding Quran-IV                 | 0 |

### Semester 6

| S No | Pre- requisite Course Code | Course Code | Course Title                            | Credit Hours |
|------|----------------------------|-------------|---|--------------|
| 1    | SEN 120                    | SEN 321     | Software Quality Engineering            | 3            |
| 2    | None                       | SEN 320     | Human Computer Interaction              | 3            |
| 3    | None                       | ENG 320     | Technical Writing & Presentation Skills | 3            |
| 4    | -                          | -           | Engineering Elective-II**               | 3            |
| 5    | -                          | -           | Engineering Elective-III**              | 3            |
| 6    | None                       | SEN 401     | Cloud Computing                         | 2            |
| 7    | None                       | SEL 401     | Cloud Computing Lab                     | 1            |
| 8    | -                          | ISL 112     | Understanding Quran-III                 | 0            |

### Semester 7

| S No | Pre- requisite Course Code | Course Code | Course Title                | Credit Hours |
|------|----------------------------|-------------|-----------------------------|--------------|
| 1    | None                       | FYP 400     | Final Year Project I        | 3            |
| 2    | SEN 120                    | SEN 410     | Software Project Management | 3            |
| 3    | None                       | CSC 407     | Information Security        | 3            |
| 4    | GSC 110                    | GSC 321     | Numerical Analysis          | 2            |
| 5    | GSC 110                    | GSL 321     | Numerical Analysis Lab      | 1            |

|   |   |         |                             |   |
|---|---|---------|-----------------------------|---|
| 6 | - | -       | Engineering Elective-IV**   | 3 |
| 7 | - | -       | Management Science Elective | 3 |
| 8 | - | ISL 113 | Seerah-I                    | 0 |

### **Semester 8**

| S No | Pre-requisite Course Code | Course Code | Course Title              | Credit Hours |
|------|---------------------------|-------------|---------------------------|--------------|
| 1    | None                      | FYP 400     | Final Year Project II     | 3            |
| 2    | -                         | -           | Engineering Elective-V    | 3            |
| 3    | -                         | -           | Engineering Elective-VI** | 3            |
| 4    | -                         | -           | MDEE-II                   | 3            |
| 5    | -                         | ISL 114     | Seerah-II                 | 0            |
| 6    |                           |             | Social Science Elective   | 2            |

### **List of Elective Courses**

| Sr.No. | Pre-requisite Course Code | Course Code | Course Title                     | Credit Hours |
|--------|---------------------------|-------------|----------------------------------|--------------|
| 1      | GSC 110                   | GSC 210     | Differential Equations           | 3+0          |
| 2      | GSC 110                   | GSC 220     | Complex Variables and Transforms | 3+0          |
| 3      | GSC 122                   | GSC 445     | Operations Research              | 3+0          |
| 4      | GSC 122                   | CEN 450     | Simulation and Modeling          | 2+1          |
| 5      | GSC 114                   | GSC 446     | Physics-II (Mechanics)           | 3+0          |
| 6      | GSC 122                   | GSC 440     | Stochastic Processes             | 3+0          |
| 7      | CSC 320                   | SEN 439     | System Programming               | 2+1          |
| 8      | CSC 320                   | CEN 453     | Real Time Systems                | 3+0          |
| 9      | CSC 315                   | CSC 323     | Compiler Construction            | 2+1          |
| 10     | GSC 110                   | CSC 453     | Information Theory               | 3+0          |
| 11     | CSC 113                   | SEN 460     | IoT Application Development      | 2+1          |
| 12     | None                      | CEN 122     | Digital Design                   | 2+1          |
| 13     | None                      | CSC 448     | Introduction to Bio-Informatics  | 3+0          |
| 14     | None                      | CEN 459     | Robotics                         | 2+1          |

|    |         |         |   |     |
|----|---------|---------|---|-----|
| 15 | None    | CSC 315 | Theory of Automata                          | 3+0 |
| 16 | None    | CEN 439 | Embedded System Design                      | 2+1 |
| 17 | None    | SEN 429 | Fault Tolerant Systems                      | 3+0 |
| 18 | None    | SEN 449 | Business Process Automation                 | 3+0 |
| 19 | None    | HSS 422 | Engineering Ethics                          | 3+0 |
| 20 | CSC 113 | CSC 313 | Visual Programming                          | 2+1 |
| 21 | CSC 113 | CSC 445 | Principles of Programming Languages         | 3+0 |
| 22 | CSC 210 | SEN 328 | Game Application Development                | 2+1 |
| 23 | CSC-113 | SEN 441 | Mathematical Tools for Software Engineering | 3+0 |
| 24 | GSC 122 | CSC 441 | Natural Language Processing                 | 3+0 |
| 25 | CSC 210 | CSC 456 | Distributed Computing                       | 2+1 |
| 26 | CSC 220 | CSC 460 | Data Mining                                 | 2+1 |
| 27 | CSC 220 | CSC 454 | Data Warehousing                            | 3+0 |
| 28 | SEN 120 | CSC 458 | Management Information Systems              | 3+0 |
| 29 | CSC 220 | SEN 326 | Advanced Database Management Systems        | 2+1 |
| 30 | CSC 220 | SEN 327 | Distributed Database Systems                | 3+0 |
| 31 | GSC 121 | CEN 445 | Digital Image Processing                    | 2+1 |
| 32 | CEN 445 | CSC 464 | Computer Vision                             | 3+0 |
| 33 | SEN 120 | SEN 335 | Object Oriented Software Engineering        | 2+1 |
| 34 | SEN 311 | SEN 411 | Software Re- Engineering                    | 3+0 |
| 35 | CSC 113 | SEN 310 | Web Engineering                             | 2+1 |
| 36 | CSC 113 | SEN 461 | Secure Programming                          | 2+1 |
| 37 | SEN 120 | SEN 429 | DevOps                                      | 3+0 |
| 38 | CSC 113 | AIC 301 | Machine Learning                            | 2+1 |
| 39 | None    | SEN 448 | Software Applications for Mobile Devices    | 2+1 |
| 40 | None    | SEN 324 | Software Metrics & Estimation               | 3+0 |
| 41 | None    | SEN 450 | Design Pattern                              | 3+0 |
| 42 | None    | SEN 452 | Agile Development                           | 3+0 |
| 43 | None    | CSC 411 | Artificial Intelligence                     | 2+1 |
| 44 | None    | SEN 443 | Introduction to Soft Computing              | 2+1 |

|    |      |         |   |     |
|----|------|---------|---|-----|
| 45 | None | SEN 331 | Scientific Computing                    | 3+0 |
| 46 | None | SEN 330 | Agent Based Computing                   | 3+0 |
| 47 | None | SEN 459 | Mobile and Pervasive Computing          | 3+0 |
| 48 | None | CEN 451 | Data Encryption & Security              | 3+0 |
| 49 | None | CSC 495 | Introduction to Data Science            | 2+1 |
| 50 | None | SEN 332 | Big Data Analytics                      | 3+0 |
| 51 | None | SEN 455 | Knowledge Based Management Systems      | 3+0 |
| 52 | None | SEN 453 | Information System Audit                | 3+0 |
| 53 | None | CSC 444 | Computer Graphics                       | 2+1 |
| 54 | None | SEN 329 | Digital Animation                       | 3+0 |
| 55 | None | SEN 493 | Multimedia Systems                      | 3+0 |
| 56 | None | SEN 424 | Semantic Web                            | 2+1 |
| 57 | None | SEN 456 | Usability Engineering                   | 3+0 |
| 58 | None | HSS 217 | Introduction to Sociology               | 2+0 |
| 59 | None | HSS 119 | Introduction to International Relations | 2+0 |
| 60 | None | HSS 121 | Introduction to Media Studies           | 2+0 |
| 61 | None | HSS 218 | Introduction to Anthropology            | 2+0 |
| 62 | None | HSS 457 | Organizational Behavior                 | 2+0 |
| 63 | None | HSS 107 | Introduction to Psychology              | 2+0 |
| 64 | None | HSS 413 | Sociology for Engineers                 | 2+0 |
| 65 | None | SEN 442 | Software Engineering Economics          | 2+0 |
| 66 | None | ENG 121 | English Literature                      | 2+0 |
| 67 | None | HSS 462 | Foreign Language                        | 2+0 |
| 68 | None | HSS 463 | Accounting & Finance                    | 2+0 |
| 69 | None | HSS 464 | Civics and Community Engagement         | 2+0 |
| 70 | None | MGT 111 | Principles of Management                | 3+0 |
| 71 | None | HSS 453 | Human Resource Management               | 3+0 |
| 72 | None | MGT 423 | Engineering Management                  | 3+0 |
| 73 | None | HSS 423 | Entrepreneurship                        | 2+0 |
| 76 | None | MTM 101 | Introduction to Maritime Industry       | 3+0 |

## MS Software Engineering

**Program Title:** MS Software Engineering

**Duration:** 2 Years

**Eligibility Criteria:** HEC recognized 4 years Bachelor's Degree or equivalent in a relevant computing discipline (Software Engineering, Computer Science, IT, Computer Engineering, Information Systems & Informatics) with a minimum CGPA of 2.0/4.0 or 50% marks where CGPA is not given.

### Semester-wise Road map

#### Semester 1

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title | Credit Hours |
|---------|---------------------------|-------------|--------------|--------------|
| 1       |                           |             | Core I       | 3            |
| 2       |                           |             | Core II      | 3            |
| 3       |                           |             | Core III     | 3            |

#### Semester 2

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title | Credit Hours |
|---------|---------------------------|-------------|--------------|--------------|
| 1       |                           |             | Core IV      | 3            |
| 2       |                           |             | Elective I   | 3            |
| 3       |                           |             | Elective II  | 3            |

#### Semester 3

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title            | Credit Hours |
|---------|---------------------------|-------------|-------------------------|--------------|
| 1       |                           |             | Elective III            | 3            |
| 2       |                           |             | Elective IV             | 3            |
|         |                           | THS 799     | Thesis I / (Elective V) | 3            |

#### Semester 4

| Sr. No. | Pre-requisite Course Code        | Course Code | Course Title              | Credit Hours |
|---------|----------------------------------|-------------|---------------------------|--------------|
| 1       |                                  | THS 799     | Thesis II / (Elective VI) | 3            |
| 2       | Total Credit Hours in Semester-4 |             |                           | 3            |

## **MS SE (Master of Science in Software Engineering)**

### **Core Courses**

| <b>Sr. No.</b> | <b>Pre-requisite Course Code</b> | <b>Course Code</b> | <b>Course Title</b>                             | <b>Credit Hours</b> |
|----------------|----------------------------------|--------------------|---|---------------------|
| 1              | -                                | SEN 721            | Advanced Software System Architecture           | 3                   |
| 2              | -                                | SEN 706            | Advanced Software Testing and Quality Assurance | 3                   |
| 3              | -                                | SEN 701            | Advanced Requirement Engineering                | 3                   |
| 4              | -                                | ESC 701            | Research Methodology                            | 3                   |

### **List of Electives Courses**

| <b>Sr. No.</b> | <b>Pre-requisite Course Code</b> | <b>Course Code</b> | <b>Course Title</b>                           | <b>Credit Hours</b> |
|----------------|----------------------------------|--------------------|---|---------------------|
| 1              | -                                | SEN 724            | Advanced Automated Software Engineering       | 3                   |
| 2              | -                                | SEN 746            | Advanced Software Metrics                     | 3                   |
| 3              | -                                | SEN 747            | Advanced Software Project Management          | 3                   |
| 4              | -                                | SEN 702            | Advanced Agile Software Development Methods   | 3                   |
| 5              | -                                |                    |   |                     |
| 6              | -                                | SEN 720            | Advanced Human- Computer Interaction          | 3                   |
| 7              | -                                | SEN 723            | Formal Methods and Specifications             | 3                   |
| 8              | -                                | SEN 754            | Advanced Web Computing System and Application | 3                   |
| 9              | -                                | SEN 755            | Service-Oriented Computing                    | 3                   |
| 10             | -                                | SEN 756            | Advanced Usability Engineering                | 3                   |
| 11             | -                                | SEN 758            | Component-based Software Engineering          | 3                   |
| 12             | -                                | SEN 759            | Software Re-Engineering                       | 3                   |
| 13             | -                                | SEN 760            | Complex Adaptive Systems                      | 3                   |
| 14             | -                                | SEN 762            | Advanced Big Data Analytics                   | 3                   |
| 15             | -                                | SEN 763            | Advanced Software Engineering                 | 3                   |
| 16             | -                                | SEN 764            | Ontology Engineering                          | 3                   |
| 17             | -                                | SEN 774            | IoT's Architecture, Protocols & Applications  | 3                   |
| 18             | -                                | SEN 729            | Advanced DevOps                               | 3                   |
| 19             | -                                | SEN 705            | Advanced Interaction Design                   | 3                   |

*Note: (Minimum 2 of the above courses)*

**GENERAL ELECTIVE COURSES**

|    |   |         |                                   |          |
|----|---|---------|-----------------------------------|----------|
| 20 | - | CSC 761 | Advanced Neural Networks          | <b>3</b> |
| 21 | - | CSC 751 | Pattern Recognition               | 3        |
| 22 | - | CSC 753 | Distributed Databases             | 3        |
| 23 | - | CSC 759 | Agent-based Modeling              | 3        |
| 24 | - | CSC 760 | Advanced Data Warehousing         | 3        |
| 25 | - | CSC 764 | Computer Vision                   | 3        |
| 26 | - | CSC 765 | Bio-Medical Image Analysis        | 3        |
| 27 | - | CSC 781 | Cloud Computing                   | 3        |
| 28 | - | ISC 748 | Blockchain Essentials             | 3        |
| 29 | - | DSC 707 | Deep Learning                     | 3        |
| 30 | - | CEN 707 | Advanced Distributed Systems      | 3        |
| 31 | - | CEN 720 | Advanced Computer Architecture    | 3        |
| 32 | - | CEN 745 | Advanced Digital Image Processing | 3        |
| 33 | - | GSC 700 | Advanced Engineering Mathematics  | 3        |
| 34 | - | EET 702 | Advanced Network Security         | 3        |
| 35 | - | DSC 703 | Advanced Data Visualization       | 3        |
| 36 | - | ISC 732 | Advance Computer Security         | 3        |
| 37 | - | ISC 747 | Advanced Cryptanalysis            | 3        |

## PhD Software Engineering

**Program Title:** PhD Software Engineering  
**Duration:** 3 to 8 Years  
**Eligibility Criteria:** 18 Years of education (MS/MPhil/equivalent) in the relevant discipline from an HEC recognized university with a minimum CGPA of 3.00/4.00 (Semester System) or 60% marks (Annual System).  
NTS-GAT (General) or GRE (General) Test passed with minimum 60% score in the relevant computing domain (Computer Science/Software Engineering/IT) or BU Admission Test (60% passing marks).  
Initial Research Proposal/Statement of Purpose is required at the time of PhD admission.

### Road map of PhD SE

#### Semester 1

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                    | Credit Hours |
|---------|---------------------------|-------------|---------------------------------|--------------|
| 1       | None                      | ESC 801     | Research Methods in PhD Studies | 3            |
| 2       |                           |             | Elective I                      | 3            |
| 3       |                           |             | Elective II                     | 3            |

#### Semester 2

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title | Credit Hours |
|---------|---------------------------|-------------|--------------|--------------|
| 1       |                           |             | Elective III | 3            |
| 2       |                           |             | Elective IV  | 3            |
| 3       |                           |             | Elective V   | 3            |

#### Semester 3

| Sr. No | Pre-requisite Course Code | Course Code | Course Title       | Credit Hours |
|--------|---------------------------|-------------|--------------------|--------------|
| 1      |                           |             | Comprehensive exam | 0            |

|   |  |         |            |   |
|---|--|---------|------------|---|
| 2 |  | THS 900 | PhD Thesis | 9 |
|---|--|---------|------------|---|

#### **Semester 4**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title | Credit Hours |
|---------|---------------------------|-------------|--------------|--------------|
| 1       |                           | THS 900     | PhD Thesis 9 | 9            |

#### **Semester 5**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title | Credit Hours |
|---------|---------------------------|-------------|--------------|--------------|
|         |                           | THS 900     | PhD Thesis 9 | 9            |

#### **Semester 6**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title | Credit Hours |
|---------|---------------------------|-------------|--------------|--------------|
|         |                           | THS 900     | PhD Thesis 9 | 9            |

#### **List of Electives Courses**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                                      | Credit Hours |
|---------|---------------------------|-------------|---|--------------|
| 1       |                           | SEN 820     | Emerging Trends in Human Computer Interaction     | 3            |
| 2       |                           | SEN 856     | Advance Topics in Usability Engineering           | 3            |
| 3       |                           | SEN 823     | Formal Models & Methods in Software Engineering   | 3            |
| 4       |                           | SEN 863     | Advanced Software Engineering Methods & Practices | 3            |
| 5       |                           | SEN 859     | Advanced Software Re-Engineering                  | 3            |
| 6       |                           | SEN 858     | Emerging Trends in Component -Based               | 3            |

|    |  |         |   |   |
|----|--|---------|---|---|
|    |  |         | Software Engineering                                  |   |
| 7  |  | SEN 812 | Agile Methods   | 3 |
| 8  |  | SEN 815 | Verification & Validation                             | 3 |
| 9  |  | SEN 813 | Advanced Software Requirement Engineering             | 3 |
| 10 |  | SEN 857 | Advanced Empirical Software Engineering               | 3 |
| 11 |  | SEN 801 | Model Driven Software Engineering                     | 3 |
| 12 |  | SEN 802 | Special Topics in Software Engineering                | 3 |
| 13 |  | SEN 854 | Web Computing Research Strategies                     | 3 |
| 14 |  | SEN 855 | Advanced topics in Service-Oriented Computing         | 3 |
| 15 |  | SEN 816 | Middleware For Networked and Distributed Systems      | 3 |
| 16 |  | CSC 881 | Advanced Cloud Computing                              | 3 |
| 17 |  | CEN 807 | Distributed Systems Architecture and Design           | 3 |
| 18 |  | SEN 803 | Advanced e-Learning Systems                           | 3 |
| 19 |  | SEN 861 | Semantic Web Modeling and Applications                | 3 |
| 20 |  | SEN 864 | Knowledge Representation and Reasoning                | 3 |
| 21 |  | SEN 860 | Emerging Trends in Complex Adaptive System            | 3 |
| 22 |  | CEN 808 | Advanced Techniques in System Modeling and Simulation | 3 |
| 23 |  | DSC 802 | Advanced Data Visualization                           | 3 |

|    |  |         |                                       |   |
|----|--|---------|---------------------------------------|---|
| 24 |  | SEN 862 | Emerging Trends in Big Data Analytics | 3 |
| 25 |  | DSC 807 | Advanced Deep Learning                | 3 |
| 26 |  | CSC 841 | Advanced Computational Linguistics    | 3 |
| 27 |  | CSC 851 | Advanced Pattern Recognition          | 3 |
| 28 |  | CSC 819 | Research Trends in Machine Learning   | 3 |
| 29 |  | DSC 802 | Advanced Data Visualization           | 3 |
| 30 |  | DSC 800 | Advanced Data Analytics               | 3 |

|    |  |         |   |   |
|----|--|---------|---|---|
| 31 |  | CEN 845 | Image Analysis and Pattern Recognition      | 3 |
| 32 |  | SEN 853 | Advanced Power-Aware Computing              | 3 |
| 33 |  | SEN 814 | Ubiquitous Computing and Interaction        | 3 |
| 34 |  | ISC 821 | Advance Topics in Cryptography              | 3 |
| 35 |  | CSC 820 | Advanced Topics in Operating Systems        | 3 |
| 36 |  | CEN 820 | High Performance Computer Architecture      | 3 |
| 37 |  | EET 837 | Advanced Data Communication Systems         | 3 |
| 38 |  | EET 832 | Advance topics in Network Security          | 3 |
| 39 |  | CEN 842 | Digital Systems Integration and Design      | 3 |
| 40 |  | EEN 831 | Statistical Signal Processing               | 3 |
| 41 |  | SEN 818 | Secure Software Systems                     | 3 |
| 42 |  | SEN 808 | Computer and Cybersecurity                  | 3 |
| 43 |  | SEN 809 | Internet of Things: Design and Applications | 3 |

## BS in Maritime Business & Management

**Program Title :** BS in Maritime Business & Management

**Duration :** 4 Years Total

**Eligibility Criteria:** Intermediate or its equivalent with a minimum of 45% marks in any discipline.

### Semester 1

| Sr. No. | Prerequisite Courses | Course Code | Course Title                      | Credit Hours |
|---------|----------------------|-------------|-----------------------------------|--------------|
| 1       |                      | ENG 101     | Functional English                | 3            |
| 2       |                      | MAT 105     | Mathematics                       | 3            |
| 3       |                      | ITC 101     | IT Skill                          | 2+1          |
| 4       |                      | MTM 101     | Introduction to Maritime Industry | 3            |
| 5       |                      | PHY 101     | Physics                           | 3            |
| 6       |                      | MGT 211     | Self-Management                   | 3            |
| 7       |                      | ISL 107     | Tajweed                           | 0            |

### Semester 2

| Sr. No. | Prerequisite Courses | Course Code | Course Title                               | Credit Hours |
|---------|----------------------|-------------|--|--------------|
| 1       |                      | MGT 111     | Principles of Management                   | 3            |
| 2       | ENG 101              | ENG 214     | Business Communication Skills              | 3            |
| 3       |                      | GEO 115     | Introduction to Geophysics                 | 3            |
| 4       |                      | ISL 100     | Islamic Studies/Ethics                     | 3            |
| 5       |                      | MTM 120     | Introduction to Meteorology & Oceanography | 3            |
| 6       |                      | HSS 202     | Introduction to Sociology                  | 3            |
| 7       |                      | ISL 203     | *Fehm e Quran I                            | 1            |

**\*For non-Muslim:** Any University approved 02 (or more) credit hours of Interdisciplinary Course

### Semester 3

| Sr. No. | Pre-requisite Courses | Course Code | Course Title   | Credit Hours |
|---------|-----------------------|-------------|--|--------------|
| 1       |                       | MTM 230     | Introduction to Maritime Law and International Maritime Convention | 3            |
| 2       |                       | ENG 213     | Oral Communication & Presentation Skills                           | 3            |
| 3       |                       | PAK 101     | Pakistan Studies   | 3            |
| 4       |                       | FIN 205     | Fundamentals of Accounting and Finance                             | 3            |
| 5       |                       | MGT 221     | Management and Leadership  | 3            |

|   |  |        |  |   |
|---|--|--------|--|---|
| 6 |  | MTM202 | Economics of Sea Transport & International Trade | 3 |
|---|--|--------|--|---|

#### Semester 4

| Sr. No. | Pre-requisite Courses | Course Code | Course Title                            | Credit Hours |
|---------|-----------------------|-------------|---|--------------|
| 1       |                       | MTM 222     | Introduction to Coastal Zone Management | 3            |
| 2       |                       | PAK 109     | Ideology & Constitution of Pakistan     | 2            |
| 3       |                       | MTM 403     | Maritime Innovation & Entrepreneurship  | 3            |
| 4       |                       | MTM 224     | Marine Pollution & Control              | 3            |
| 5       |                       | MAT 205     | Statistics                              | 3            |
| 6       |                       | HSS 225     | Psychological & Emotional Development   | 3            |
| 7       |                       | ISL 204     | *Fehm e Quran II                        | 1            |

**\*For non-Muslim:** Any University approved 02 (or more) credit hours of Interdisciplinary Course

#### Semester 5

| Sr. No. | Prerequisite Courses | Course Code | Course Title                    | Credit Hours |
|---------|----------------------|-------------|---------------------------------|--------------|
| 1       |                      | ECO 101     | Fundamentals of Economics       | 3            |
| 2       |                      | MTM 304     | Port Operations and Management  | 3            |
| 3       |                      | MTM 305     | Maritime Logistics              | 3            |
| 4       |                      | MKT 110     | Principles of Marketing         | 3            |
| 5       |                      | HRM353      | Human Resource Management       | 3            |
| 6       |                      | MTM 303     | Law of Carriage of Goods by Sea | 3            |

#### Semester 6

| Sr. No. | Prerequisite Courses | Course Code | Course Title                       | Credit Hours |
|---------|----------------------|-------------|------------------------------------|--------------|
| 1       |                      | MTM 306     | Shipping Operations and Management | 3            |
| 2       |                      | MTM 322     | Fisheries Resources & Management   | 3            |
| 3       |                      | MRM 302     | Research & Project Writing Methods | 3            |
| 4       |                      |             | Elective                           | 3            |
| 5       |                      |             | Elective                           | 3            |
| 6       |                      |             | Internship                         | 3            |

#### Semester 7

| Sr. No. | Prerequisite Courses | Course Code | Course Title | Credit Hours |
|---------|----------------------|-------------|--------------|--------------|
|---------|----------------------|-------------|--------------|--------------|

|   |  |         |  |   |
|---|--|---------|--|---|
| 1 |  | MTM 401 | Coastal Eco-Tourism Development and Management                   | 3 |
| 2 |  | MTM 402 | Hydrographic Data & Services Management/Hydrography & Navigation | 3 |
| 3 |  | MTM 223 | Marine Insurance   | 3 |
| 4 |  |         | Elective   | 3 |
| 5 |  |         | Elective   | 3 |
| 6 |  |         | Elective   | 3 |
| 7 |  | ISL 113 | Seerah -I  | 0 |

### Semester 8

| Sr. No. | Prerequisite Courses | Course Code | Course Title                                   | Credit Hours |
|---------|----------------------|-------------|--|--------------|
| 1       | MRM 302              | PRO 450     | Capstone Project /Thesis                       | 3            |
| 2       |                      | MTM 226     | Regulatory Framework of Maritime Organizations | 3            |
| 3       |                      |             | Elective                                       | 3            |
| 4       |                      |             | Elective                                       | 3            |
| 5       |                      | ISL 114     | Seerah - II                                    | 0            |
|         | Total Credit Hours   |             |  | 12           |

### Field Experience / Internship

| Sr. No. | Prerequisite Courses | Course Code | Course Title                   | Credit Hours | HEC Category                  | UNSDGs |
|---------|----------------------|-------------|--------------------------------|--------------|-------------------------------|--------|
| 1       |                      | SDW 498     | Field Experience / Internship* | 3            | Field Experience / Internship | SDG 4  |

### List of Elective Courses

| Course Code | Course Title  | Category | Credit Hours |
|-------------|---|----------|--------------|
| MTM 501     | Maritime Business: China Pakistan Perspective under CPEC  | Elective | 3            |
| MTM 521     | Maritime Business and HRM                                 | Elective | 3            |
| MTM 523     | Design Port Management                                    | Elective | 3            |
| MTM 505     | Contemporary Issues of Maritime Management                | Elective | 3            |
| MTM 506     | Maritime Management in Pakistan: Past, Present and Future | Elective | 3            |
| ECO 521     | Marine Technology   | Elective | 3            |

|         |  |          |   |
|---------|--|----------|---|
| ECO 515 | Union and Labor Laws   | Elective | 3 |
| ECO 502 | Industrial Economics   | Elective | 3 |
| MTM 508 | Occupational Health and Safety, Risk and Disaster Management | Elective | 3 |
| MTM 523 | Ship Chartering  | Elective | 3 |
| HRM 508 | Marine Environments and Administration                       | Elective | 3 |
| MTM 524 | Custom Documentation   | Elective | 3 |
| MTM 504 | Maritime Management: Concept and Applications                | Elective | 3 |
| MTM 601 | Conservation Ecology   | Elective | 3 |
| MTM 602 | Planktology  | Elective | 3 |
| MTM 603 | Natural Hazards and Management                               | Elective | 3 |
| MTM 604 | Coastal and Marine Sedimentology                             | Elective | 3 |
| MTM 605 | Sea Level Changes and Coastal Zones                          | Elective | 3 |
| MTM 606 | Coastal Tourism Management                                   | Elective | 3 |
| MTM 607 | Coastal Land Reclamation                                     | Elective | 3 |
| MTM 608 | Mangrove Coastal Forest Management                           | Elective | 3 |
| MTM 610 | Ocean Waves, Tides and Currents                              | Elective | 3 |
| MTM 611 | Maritime Safety and Security                                 | Elective | 3 |
| MTM 612 | Ship Brokerage, Chartering and E-Commerce                    | Elective | 3 |

#### **List of Social Sciences Courses**

| <b>Course Code</b> | <b>Course Title</b> | <b>Credit Hours</b> |
|--------------------|---------------------|---------------------|
| HSS 109            | Arabic              | 2                   |
| HSS 163            | Chinese             | 2                   |
| HSS 160            | French              | 2                   |
| HSS 164            | German              | 2                   |
| HSS 161            | Russian             | 2                   |
| HSS 162            | Spanish             | 2                   |
| HSS 214            | Turkish             | 2                   |

- 6 weeks Internship after 4th Semester in the Summer semester, preferably.

- Honors, Awards, & scholarships will be calculated on the basis of coursework only, excluding internship credit hours.

The Quran and Seerah program are optional for non-Muslim student.

Campus: Bahria University, Karachi Campus  
 Department: Maritime Sciences  
 Program Title: BS (Maritime Business and Management)  
 Total Duration of Program: 2 Years  
 Total Number of semesters: 5 Semesters  
 Total Credit Hours: 78 Credit Hours

A: Recommendations of DBOS dated **29 July 2025** (Minutes of DBOS meeting)

B: Recommendations of FBOS dated **8<sup>th</sup> August 2025** (Minutes of FBOS meeting)

### Summary of Credit Hours

| Sr. No. | Category as per HEC new UG Policy   | Credit Hours/Contact Hours |                       |
|---------|---|----------------------------|-----------------------|
|         |   | Existing Road Map          | Proposed New Road Map |
| 1.      | General Education (Mandatory)   | 9                          | 9                     |
| 2.      | Major/Disciplinary (Mandatory)  | 48                         | 48                    |
| 3.      | Interdisciplinary (Mandatory)   | 15                         | 15                    |
| 4.      | Electives toward specialization   |                            |                       |
| 5.      | Non-Credit courses (contact hours) – Tajweed, Quran and Hadith (Compulsory) |                            |                       |
| 6.      | Internship (Mandatory)  |                            | 3                     |
| 7.      | Capstone Project/Thesis (Mandatory)   | 6                          | 3                     |
| 8.      | Double Major (Optional)   |                            |                       |
| 9.      | Minor (Optional)  |                            |                       |
|         | <b>Total</b>  | <b>78</b>                  | <b>78</b>             |

| <b>Semester-5</b> |                                  |                    |  |                     |
|-------------------|----------------------------------|--------------------|--|---------------------|
| <b>Sr.No.</b>     | <b>Pre-requisite course code</b> | <b>Course Code</b> | <b>Course Title</b>                    | <b>Credit Hours</b> |
| 1                 |                                  | MTM 101            | Introduction to Maritime Industry      | 3                   |
| 2                 |                                  | ECO 101            | Fundamentals of Economics              | 3                   |
| 3                 |                                  | ENG 101            | Functional English                     | 3                   |
| 4                 |                                  | FIN 205            | Fundamentals of Accounting and Finance | 3                   |
| 5                 |                                  | MKT 110            | Principle of Marketing                 | 3                   |
| 6                 |                                  | MTM 322            | Fisheries Resources & Management       | 3                   |

| <b>Semester-6</b> |                                  |                    |  |                     |
|-------------------|----------------------------------|--------------------|--|---------------------|
| <b>Sr.No.</b>     | <b>Pre-requisite course code</b> | <b>Course Code</b> | <b>Course Title</b>                            | <b>Credit Hours</b> |
| 1                 |                                  | MTN 222            | Introduction to Coastal Zone Management        | 3                   |
| 2                 |                                  | HRM 353            | Human Resource Management                      | 3                   |
| 3                 |                                  | MAT 205            | Statistics                                     | 3                   |
| 4                 |                                  | MTM 305            | Maritime Logistics                             | 3                   |
| 5                 |                                  | MTM 304            | Port Operations and Management                 | 3                   |
| 6                 |                                  | MGT 111            | Principles of Management                       | 3                   |
| <b>Semester-7</b> |                                  |                    |  |                     |
| <b>Sr.No.</b>     | <b>Pre-requisite course code</b> | <b>Course Code</b> | <b>Course Title</b>                            | <b>Credit Hours</b> |
| 1                 |                                  | MTM 401            | Coastal Eco-Tourism Development and Management | 3                   |
| 2                 |                                  | MTM 306            | Shipping Operations and Management             | 3                   |
| 3                 |                                  | MRM 302            | Research & Project Writing Methods             | 3                   |
| 4                 |                                  | MTM 224            | Maritime Pollution & Control                   | 3                   |

|   |  |         |            |   |
|---|--|---------|------------|---|
| 5 |  |         | Elective 1 | 3 |
| 6 |  |         | Elective 2 | 3 |
|   |  | ISL 113 | Seerah I   | 0 |

### Semester-8

| Sr.No. | Pre-requisite course code | Course Code | Course Title                           | Credit Hours |
|--------|---------------------------|-------------|--|--------------|
| 1      | MRM 302                   | SDW 499     | Project / Thesis                       | 3            |
| 2      | MTM 322                   | MTM 403     | Maritime Innovation & Entrepreneurship | 3            |
| 3      |                           |             | Elective 3                             | 3            |
| 4      |                           |             | Elective 4                             | 3            |
|        |                           | ISL 114     | Seerah II                              | 0            |

| Sr.No. | Pre-requisite course code | Course Code | Course Title   | Credit Hours |
|--------|---------------------------|-------------|--|--------------|
| 1      |                           | MTM 223     | Marine Insurance   | 3            |
| 2      | MTM 101                   | GEO 115     | Introduction to Geophysics   | 3            |
| 3      |                           | MTM230      | Introduction to Maritime Law and International Maritime Convention | 3            |
| 4      |                           | SDW 898     | Internship   | 3            |

### LIST OF ELECTIVES

| Sr. # | Course Code | Course Title   | Credit Hours | SDG    |
|-------|-------------|--|--------------|--------|
| 1     | MTM 601     | Conservation Ecology   | 3            | SDG 13 |
| 2     | MTM 602     | Planktology  | 3            | SDG 14 |
| 3     | MTM 603     | Natural Hazards and Management                               | 3            | SDG 11 |
| 4     | MTM 604     | Coastal and Marine Sedimentology                             | 3            | SDG 14 |
| 5     | MTM 605     | Sea Level Changes and Coastal Zones                          | 3            | SDG 13 |
| 6     | MTM 606     | Coastal Tourism Management                                   | 3            | SDG 14 |
| 7     | MTM 607     | Coastal Land Reclamation                                     | 3            | SDG 14 |
| 8     | MTM 608     | Mangrove Coastal Forest Management                           | 3            | SDG 14 |
| 9     | MTM 610     | Ocean Waves, Tides and Currents                              | 3            | SDG 14 |
| 10    | MTM 611     | Maritime Safety and Security                                 | 3            | SDG 16 |
| 11    | MTM 612     | Ship Brokerage, Chartering and E-Commerce                    | 3            | SDG 8  |
| 12    | MTM 525     | Maritime Business: China Pakistan Perspective under CPEC     | 3            | SDG 8  |
| 13    | MTM 521     | Maritime Business and HRM                                    | 3            | SDG 10 |
| 14    | MTM 522     | Design Port Management                                       | 3            | SDG 14 |
| 15    | MTM 528     | Maritime Management: Concept and Applications                | 3            | SDG 17 |
| 16    | MTM 529     | Contemporary Issues of Maritime Management                   | 3            | SDG 17 |
| 17    | MTM 530     | Maritime Management in Pakistan: Past, Present and Future    | 3            | SDG 9  |
| 18    | ECO 521     | Marine Technology  | 3            | SDG 10 |
| 19    | ECO 515     | Union and Labor Laws   | 3            | SDG 8  |
| 20    | ECO 502     | Industrial Economics   | 3            | SDG 11 |
| 21    | MTM 532     | Occupational Health and Safety, Risk and Disaster Management | 3            | SDG 8  |
| 22    | MTM 523     | Ship Chartering  | 3            | SDG 14 |
| 23    | HRM 508     | Marine Environments and Administration                       | 3            | SDG 16 |

#### List of Social Sciences Courses

| Course Code | Course Title | Credit Hours |
|-------------|--------------|--------------|
| HSS 109     | Arabic       | 2            |
| HSS 163     | Chinese      | 2            |

|         |         |   |
|---------|---------|---|
| HSS 160 | French  | 2 |
| HSS 164 | German  | 2 |
| HSS 161 | Russian | 2 |
| HSS 162 | Spanish | 2 |
| HSS 214 | Turkish | 2 |

## MS Maritime Ports and Shipping Management

**Program Title:** MS Maritime Ports and Shipping Management

**Duration:** 2 years

**Total Credit Hours:** 16 years of education with Masters/Bachelors or equivalent degree from an HEC recognized university in the relevant discipline/field of study with a minimum CGPA 2./4.0 or 50% marks where CGPA is not given. GAT (Gen)/GRE (General) passed with minimum 50% marks or BU test (50% minimum passing marks). Result are to be submitted at the time of application in case of GAT (General) or GRE (General) or as prescribed by the University.

### Roadmap of MS (MP&SM)

#### Semester 1

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                                       | Credit Hours |
|---------|---------------------------|-------------|--|--------------|
| 1       |                           | MTM 704     | Maritime Economics & Finance                       | 3            |
| 2       |                           | MTM 711     | Logistics at Ports and Supply Chain Management     | 3            |
| 3       |                           | MTM 703     | Maritime Law and International Maritime Convention | 3            |
| 4       |                           | ISL 203     | *Fehm-e-Quran I                                    | 1            |

#### Semester 2

| Sr. No. | Course Code | Course Title                                      | Credit Hours |
|---------|-------------|---|--------------|
| 1       | MTM 705     | Coastal Zone Management & Contemporary Issues     | 3            |
| 2       | MTM 773     | Maritime Technologies and commercial applications | 3            |
| 3       | RMT 705     | Research Methodology & Proposal Development       | 3            |
| 4       | ISL 204     | *Fehm-e-Quran -II                                 | 1            |

**\*For non-Muslim:** Any University approved 02 (or more) credit hours of Interdisciplinary Course

#### Semester 3

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                       | Credit Hours |
|---------|---------------------------|-------------|------------------------------------|--------------|
|         |                           | MTM 774     | Multimodal Transport and Logistics | 3            |

|  |  |  |            |   |
|--|--|--|------------|---|
|  |  |  | Elective I | 3 |
|--|--|--|------------|---|

**Semester 4 (With Thesis or Course Work)**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title | Credit Hours |
|---------|---------------------------|-------------|--------------|--------------|
|         | RMT 705                   | THS799      | Thesis       | 6            |

**Semester 4 (Option II – With Coursework/ in place of a thesis)**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title | Credit Hours |
|---------|---------------------------|-------------|--------------|--------------|
|         |                           |             | Elective     | 3            |
|         |                           |             | Elective     | 3            |

**Deficiency Courses for Inter-disciplinary Qualification Holders**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                              | Credit Hours |
|---------|---------------------------|-------------|---|--------------|
|         |                           | MTM 707     | Maritime Safety and Security              | 3            |
|         |                           | MTM 708     | Ship Brokerage, Chartering and E-Commerce | 3            |

| Course Code | Course Title   | Credit Hours |
|-------------|--|--------------|
| MTM 750     | Maritime Trade and Industrial Economics  | 3            |
| MTM 754     | Intermodal Transportation  | 3            |
| MTM 701     | Maritime Industry: Pakistan and China in Global Perspective                    | 3            |
| MTM 713     | Maritime Logistics and Shipping  | 3            |
| MTM 758     | Ocean Governance Policy and Maritime Law                                       | 3            |
| MTM 733     | Ports and Logistics Management   | 3            |
| MTM 776     | Ship Security: Threats, Financial and Commercial Implications                  | 3            |
| MTM 771     | Globalization and Maritime Trade: Contemporary Issues and Resolving Strategies | 3            |
| MTM 714     | Dynamics of Maritime Domains   | 3            |

#### **List of Social Sciences Courses**

| Course Code | Course Title | Credit Hours |
|-------------|--------------|--------------|
| HSS 109     | Arabic       | 2            |
| HSS 163     | Chinese      | 2            |
| HSS 160     | French       | 2            |
| HSS 164     | German       | 2            |
| HSS 161     | Russian      | 2            |
| HSS 162     | Spanish      | 2            |
| HSS 214     | Turkish      | 2            |

## MS Maritime Trade and Logistics

**Program Title:** MS Maritime Trade and Logistics

**Duration:** 2 years

**Eligibility Criteria:** 16 years of education with Masters/Bachelors or equivalent degree from an HEC recognized university in the relevant discipline/field of study with a minimum CGPA 2./4.0 or 50% marks where CGPA is not given. GAT (Gen)/GRE (General) passed with minimum 50% marks or BU test (50% minimum passing marks). Result are to be submitted at the time of application in case of GAT (General) or GRE (General) or as prescribed by the University.

### Semester-wise Road map

#### **Semester 1**

| Sr. No. | Pre-requisite Course Code | Course Code | Course Title                                       | Credit Hours |
|---------|---------------------------|-------------|--|--------------|
| 1       |                           | MTM 704     | Maritime Economics & Finance                       | 3            |
| 2       |                           | MTM 711     | Logistics at Ports and Supply Chain Management     | 3            |
| 3       |                           | MTM 703     | Maritime Law and International Maritime Convention | 3            |
| 4       |                           | ISL 203     | Fehm-e-Quran - I                                   | 1            |

#### **Semester 2**

| S.# | Course Code | Course Title                                      | Credit Hours |
|-----|-------------|---|--------------|
|     | MTM 705     | Coastal Zone Management & Contemporary Issues     | 3            |
|     | MTM 77      | Maritime Technologies and commercial applications | 3            |
|     | RMT 705     | Research Methodology & Proposal Development       | 3            |
|     | ISL 204     | *Fehm-e-Quran – II                                | 1            |

**\*For non-Muslim:** Any University approved 02 (or more) credit hours of Interdisciplinary Course

#### **Semester 3**

| S.# | Pre-requisite Course Code | Course Code | Course Title                       | Credit Hours |
|-----|---------------------------|-------------|------------------------------------|--------------|
|     |                           | MTM 774     | Multimodal Transport and Logistics | 3            |
|     |                           |             | Elective I                         | 3            |

#### **Semester 4 (With Thesis)**

| S.# | Pre-requisite Course Code | Course Code | Course Title | Credit Hours |
|-----|---------------------------|-------------|--------------|--------------|
|     | RMT 705                   | THS 799     | Thesis       | 6            |

**Semester 4 (Option II – With Coursework/ in place of a thesis)**

| S.# | Pre-requisite Course Code | Course Code | Course Title | Credit Hours |
|-----|---------------------------|-------------|--------------|--------------|
|     |                           |             | Elective     | 3            |
|     |                           |             | Elective     | 3            |

**Deficiency Courses for Inter-disciplinary Qualification Holders**

| S.# | Pre-requisite Course Code | Course Code | Course Title                              | Credit Hours |
|-----|---------------------------|-------------|---|--------------|
|     |                           | MTM 707     | Maritime Safety and Security              | 3            |
|     |                           | MTM 708     | Ship Brokerage, Chartering and E-Commerce | 3            |

**List of Elective Courses**

| Course Code | Course Title   | Credit Hours |
|-------------|--|--------------|
| MTM 778     | Custom clearing and Freight Forwarding                         | 3            |
| MTM 750     | Maritime Trade and Industrial Economics                        | 3            |
| MTM 702     | Ports and Shipping Management in Contemporary Environments     | 3            |
| MTM 719     | Maritime Trade & Logistics: Emerging Global Realities & issues | 3            |
| MTM 714     | Dynamics of Maritime Domain                                    | 3            |
| MTM 701     | Maritime Industry: Pakistan and China in Global Perspective    | 3            |

**List of Social Sciences Courses**

| Course Code | Course Title | Credit Hours |
|-------------|--------------|--------------|
| HSS 109     | Arabic       | 2            |
| HSS 163     | Chinese      | 2            |
| HSS 160     | French       | 2            |
| HSS 164     | German       | 2            |
| HSS 161     | Russian      | 2            |
| HSS 162     | Spanish      | 2            |
| HSS 214     | Turkish      | 2            |

## MS-Medical Lab Sciences

**Program Title:** MS-Medical Lab Sciences

**Duration:** 2 Years

**Eligibility Criteria:** Minimum 16 years of education with BS in Medical Lab Technology/ Clinical Lab Science/ Biochemistry/ Microbiology/ or MSc or equivalent degree from an HEC recognized university in the relevant discipline/ field of study with a minimum CGPA 2.5/ 4.0 or 50 % marks where CGPA is not given.

### Roadmap of MS-Medical Lab Sciences

#### Semester 1

| Sr No. | Course Codes | Course Title              | Credit Hours   |
|--------|--------------|---------------------------|----------------|
| 1      | MED 701      | Research Methodology      | 3 (3+0)        |
| 2      | MLS 702      | Clinical Biochemistry     | 3(2+1)         |
| 3      | MLS 703      | Clinical Hematology       | 3 (2+1)        |
| 4      | MED 715      | Journal Club -I           | No credit hour |
| 5      | MLS 704      | Teaching/Lab Internship-I | No credit hour |

#### Semester 2

| Sr No. | Course Code | Course Title                | Credit Hours   |
|--------|-------------|-----------------------------|----------------|
| 1      | MLS 705     | Clinical Immunology         | 3 (2+1)        |
| 2      | MLS 706     | Clinical Microbiology       | 3 (2+1)        |
| 3.     | XXXXXX      | Elective- I                 | 3 (2+1)        |
| 4      | MED 716     | Journal Club-II             | No credit hour |
| 5      | MLS 707     | Teaching/Lab Internship -II | No credit hour |

\*\*Semester-I & Semester-II are pre-requisite to proceed to

#### Semester 3

| Sr No. | Course Code | Course Title | Credit Hours |
|--------|-------------|--------------|--------------|
| 1      | XXXXXX      | Elective-II  | 3 (2+1)      |

|   |         |                               |                |
|---|---------|-------------------------------|----------------|
| 2 | XXXXXX  | Elective-III                  | 3 (2+1)        |
| 3 | THS 700 | Thesis-I MS                   | 3+0            |
|   |         | OR                            |                |
|   | MLS 708 | Current trends and issues in  |                |
|   |         | medical laboratory sciences   |                |
| 4 | MED 717 | Journal Club (Essential)-III  | No credit hour |
| 5 | MLS 709 | Teaching/ Lab Internship -III | No credit hour |

#### Semester 4

| Sr No. | Course Code        | Course Title  | Credit Hours |
|--------|--------------------|---|--------------|
| 1      | THS 701<br>MLS 710 | Thesis-II (MS with thesis)OR Professional communication & manuscript writing in the Medical laboratory sciences | 3+0          |

#### LIST OF ELECTIVES

| S No | Course Code | Elective 3 (2 +1)                               | Credit hrs |
|------|-------------|---|------------|
| 1.   | MLS 711     | Virology and Current trends in Viral infections | 3 (2+1)    |
| 2.   | MLS 712     | Laboratory Genomics                             | 3 (2+1)    |
| 3.   | MLS 713     | Blood bank technology                           | 3 (2+1)    |
| 4.   | MLS 714     | Pharmacology & Therapeutics                     | 3 (2+1)    |
| 5.   | MLS 715     | Antimicrobial Agents and Drug Resistance        | 3 (2+1)    |
| 6.   | MLS 716     | Laboratory Biosafety and Biosecurity            | 3 (2+1)    |
| 7.   | MLS 717     | Blood Transfusion Medicine                      | 3 (2+1)    |
| 8.   | MLS 718     | Neurobiology                                    | 3 (3+0)    |

|     |         |  |         |
|-----|---------|--|---------|
| 9.  | MLS 719 | Clinical Lab administration and management | 3 (2+1) |
| 10. | MLS 720 | Biomedical technology                      | 3 (2+1) |
| 11. | MLS 721 | Histological techniques                    | 3 (2+1) |

## MPhil BIOCHEMISTRY

**Program Title:** MPhil Biochemistry

**Duration:** 2 Years

**Eligibility Criteria:**

16 years of education with MBBS/BDS/MSc Biochemistry/BS Biochemistry from PMC/HEC recognized university institute with minimum CGPA 2.00/4.0 OR 50% marks where CGPA is not given or having MSc. Physiology.

Completion of one-year house job at PMC-recognized institution.

Valid PMDC/PMC registration certificate.

HEC attestation on the candidate's local degree and cumulative transcript (at the back of the original degree & transcript)

Two years of teaching experience in the relevant subject will be given preference.

**NB:** All mentioned certificates duly attested by HEC to be produced at the time of the interview otherwise candidate will become ineligible for the selection process.

### MPHIL BIOCHEMISTRY – ROADMAP

#### Semester-I

| Sr No | Course Code | Course Title                           | Credit Hours   |
|-------|-------------|--|----------------|
| 1     | MED 701     | Research Methodology                   | 3+0            |
| 2     | MED 712     | Medical Biology & Genetics             | 2+0            |
| 3     | MED 713     | Medical Education, Ethics & Writing    | 2+0            |
| 4     | MED 714     | Instruments and Animal use in research | 2(1+1)         |
| 5     | MED 715     | Journal Club -I                        | No credit Hour |
| 6     | MED 718     | Teaching Internship-I                  | No credit Hour |

#### Semester-II

| Sr No | Course Code | Course Title                               | Credit Hours   |
|-------|-------------|--|----------------|
| 1     | BIO 750     | Advances in Biochemistry and neurosciences | 3+0            |
| 2     | BIO 751     | Advances in Clinical biochemistry          | 3(2+1)         |
| 3     | XXXXXXX     | Elective –I                                | 3+0            |
| 4     | MED 716     | Journal Club-II                            | No credit hour |
| 5     | MED 719     | Teaching Internship-II                     | No credit hour |

#### Semester-III

Semester-I & Semester-II are Pre-requisite to proceed to Semester -III

| Sr No | Course Code | Course Title              | Credit Hours   |
|-------|-------------|---------------------------|----------------|
| 1     | XXXXXXX     | Elective-II               | 3+0            |
| 2     | XXXXXXX     | Elective-III              | 3+0            |
| 3     | THS 700     | Thesis-I                  | 3+0            |
| 4     | MED 717     | Journal Club –III         | No credit hour |
| 5     | MED 720     | Teaching Internship – III | No credit hour |

#### Semester- IV

| Sr.No. | Pre-requisite course code | Course Code | Course Title | Credit Hours |
|--------|---------------------------|-------------|--------------|--------------|
| 1      | THS 700                   | THS 701     | Thesis-II    | 3+0          |

#### ELECTIVE LIST

| Sr.No. | Course Code | Course Title   | Credit Hours |
|--------|-------------|--|--------------|
| 1      | BIO 752     | Chemical basis of Diet , Nutrition and recent trends in immunology | 3(2+1)       |
| 2      | BIO 753     | Advances in Endocrinology  | 3+0          |
| 3      | BIO 754     | Fluids and electrolyte disorder                                    | 3+0          |
| 4      | BIO 755     | Enzymology and vitamins  | 3+0          |
| 5      | BIO 756     | Acid base disorders  | 3+0          |
| 6      | BIO 757     | Molecular mechanism of cancer                                      | 3+0          |
| 7      | BIO 758     | Minerals and detoxification  | 3+0          |

## MPhil PHARMACOLOGY

**Program Title:** MPhil Pharmacology

**Duration:** 2 Years

**Eligibility Criteria:** 16 years of education with MBBS/BDS From PMDC/HEC recognized university/institution With Minimum CGPA 2.00/4.0 or 50% marks if CGPA is not given. HEC attestation on the candidate's local degrees (on the back of original degrees), HEC equivalency certificate for the candidate's foreign degrees, GAT General score with minimum 50% cumulative score or BU Test (50% minimum passing marks) Result to be submitted at the time of application in case of GAT (General) or GRE (General).

### MPHIL (PHARMACOLOGY) – ROADMAP

#### SEMESTER-I

| Sr.No. | Course Code | Course Title                         | Credit Hours   |
|--------|-------------|--------------------------------------|----------------|
| 1      | MED 701     | Research Methodology                 | 3+0            |
| 2      | MED 712     | Medical Biology & Genetics           | 2+0            |
| 3      | MED 713     | Medical Education, Ethics & Writing  | 2+0            |
| 4      | MED 714     | Instruments & Animal use in research | 2(1+1)         |
| 5      | MED 715     | Journal Club -I                      | No credit hour |
| 6      | MED 718     | Teaching Internship -I               | No credit hour |

#### SEMESTER-II

| Sr.No. | Course Code | Course Title                                       | Credit Hours   |
|--------|-------------|--|----------------|
| 1      | PHM 721     | Pharmacological concepts & Adrenergic Pharmacology | 3(2+1)         |
| 2      | PHM 722     | Cholinergic & Cardio-Respiratory Pharmacology      | 3+0            |
| 3      | XXX XXX     | Elective –I  | 3+0            |
| 4      | MED 716     | Journal Club -II                                   | No credit hour |
| 5      | MED 719     | Teaching Internship -II                            | No credit hour |

#### SEMESTER-III

Semester-I & Semester-II are Pre-requisite to proceed to Semester -III

| Sr.No. | Course Code | Course Title             | Credit Hours   |
|--------|-------------|--------------------------|----------------|
| 1      | XXX XXX     | Elective-II              | 3+0            |
| 2      | XXX XXX     | Elective-III             | 3+0            |
| 3      | THS 700     | Thesis-I                 | 3+0            |
| 4      | MED 717     | Journal Club -III        | No credit hour |
| 5      | MED 720     | Teaching Internship -III | No credit hour |

#### SEMESTER-IV

| Sr.No. | Pre-requisite course code | Course Code | Course Title | Credit Hours |
|--------|---------------------------|-------------|--------------|--------------|
| 1      | THS 700                   | THS 701     | Thesis-II    | 3+0          |

| <b>ELECTIVE LIST</b> |                    |   |                     |
|----------------------|--------------------|---|---------------------|
| <b>S. No.</b>        | <b>Course Code</b> | <b>Course Title</b>                       | <b>Credit Hours</b> |
| 1                    | MED 706            | Tissue Processing                         | 3(1+2)              |
| 2                    | MED 707            | Drug Bio-screening & Herbal Medications   | 3(2+1)              |
| 3                    | PHM 723            | Neuropharmacology                         | 3+0                 |
| 4                    | PHM 724            | Endocrine & Gastrointestinal Pharmacology | 3+0                 |
| 5                    | PHM 725            | Chemotherapy                              | 3+0                 |
| 6                    | PHM 726            | Toxicology                                | 3+0                 |
| 7                    | PHM 727            | Pharmacogenetics                          | 3+0                 |
| 8                    | PHM 728            | Autacoids & Analgesics                    | 3+0                 |
| 9                    | PHM 729            | Age specific Pharmacology                 | 3+0                 |
| 10                   | PHM 730            | Dental Pharmacology                       | 3+0                 |

| <b>CORE COURSES</b> |                      |   |                     |
|---------------------|----------------------|---|---------------------|
| <b>Sr.No.</b>       | <b>Course Code</b>   | <b>Course Title</b>                                   | <b>Credit Hours</b> |
| 1                   | MED 712              | Medical Biology & Genetics                            | 2+0                 |
| 2                   | MED 713              | Medical Education, Ethics & Writing                   | 2+0                 |
| 3                   | MED 714              | Instruments & Animal use in research                  | 2(1+1)              |
| 4                   | PHM 721              | Pharmacological concepts<br>& Adrenergic Pharmacology | 3(2+1)              |
| 5                   | PHM 722              | Cholinergic & Cardio-Respiratory Pharmacology         | 3+0                 |
| 6                   | THS 700              | Thesis-I  | 3+0                 |
| 7                   | THS 701              | Thesis-II   | 3+0                 |
| 8                   | MED 715, 716,<br>717 | Journal Club-I, II, III                               | No credit hour      |
| 9                   | MED 718, 719,<br>720 | Teaching Internship-I, II, III                        | No credit hour      |

| <b>UNIVERSITY REQUIREMENT</b> |                    |                      |                     |
|-------------------------------|--------------------|----------------------|---------------------|
| <b>Sr.No.</b>                 | <b>Course Code</b> | <b>Course Title</b>  | <b>Credit Hours</b> |
| 1                             | MED 701            | Research methodology | 3+0                 |

## MPhil PHYSIOLOGY

**Program Title:** MPhil Physiology

**Duration:** 2 Years

**Eligibility Criteria:** 16 years of education with MBBS/BDS/MSc Biochemistry/BS Biochemistry from PMC/HEC recognized university institute with minimum CGPA 2.00/4.0 OR 50% marks where CGPA is not given or having MSc. Physiology.

1. Completion of one-year house job at PMC-recognized institution.  
Valid PMDC/PMC registration certificate.
2. HEC attestation on the candidate's local degree and cumulative transcript (at the back of the original degree & transcript)
3. Two years of teaching experience in the relevant subject will be given preference.

**NB:** All mentioned certificates duly attested by HEC to be produced at the time of the interview otherwise candidate will become ineligible for the selection process.

### MPHIL PHYSIOLOGY – ROADMAP

#### SEMESTER- I

| Sr. No. | Course Code | Course Title                         | Credit Hours   |
|---------|-------------|--------------------------------------|----------------|
| 1       | MED 701     | Research Methodology                 | 3+0            |
| 2       | MED 712     | Medical Biology & Genetics           | 2+0            |
| 3       | MED 713     | Medical Education, Ethics & Writing  | 2+0            |
| 4       | MED 714     | Instruments & Animal use in research | 2(1+1)         |
| 5       | MED 715     | Journal Club -I                      | No credit hour |
| 6       | MED 718     | Teaching Internship – I              | No credit hour |

#### SEMESTER- II

| Sr. No. | Course Code | Course Title                                | Credit Hours   |
|---------|-------------|---|----------------|
| 1       | PHY 760     | General ,Neuromuscular and Blood Physiology | 3+0            |
| 2       | PHY 761     | Cardiorespiratory Physiology                | 3(2+1)         |
| 3       | XXXXX       | Elective –I                                 | 3+0            |
| 4       | MED 716     | Journal Club- II                            | No credit hour |
| 5       | MED 719     | Teaching Internship- II                     | No credit hour |

#### SEMESTER –III

Semester-I & Semester-II are Pre-requisite to proceed to Semester –III

| Sr. No. | Course Code | Course Title             | Credit Hours   |
|---------|-------------|--------------------------|----------------|
| 1       | XXXX        | Elective-II              | 3+0            |
| 2       | XXXXX       | Elective-III             | 3+0            |
| 3       | THS 700     | Thesis-I                 | 3+0            |
| 4       | MED 717     | Journal Club- III        | No credit hour |
| 5       | MED 720     | Teaching Internship- III | No credit hour |

#### SEMESTER- IV

| Sr. No. | Pre-requisite course code | Course Code | Course Title | Credit Hours |
|---------|---------------------------|-------------|--------------|--------------|
|---------|---------------------------|-------------|--------------|--------------|

|   |         |         |           |     |
|---|---------|---------|-----------|-----|
| 1 | THS 700 | THS-701 | Thesis-II | 3+0 |
|---|---------|---------|-----------|-----|

**List of Elective Courses**

| Sr. No. | Course Code | Course Title                             | Credit Hours |
|---------|-------------|--|--------------|
| 1       | PHY 762     | Physiology of Health, Fitness & Exercise | 3+0          |
| 2       | PHY 763     | Haeme & Immune system                    | 3+0          |
| 3       | PHY 764     | Gastrointestinal Physiology              | 3+0          |
| 4       | PHY 765     | Neurophysiology and special senses       | 3+0          |
| 5       | PHY 766     | Renal Physiology                         | 3+0          |
| 6       | PHY 767     | Endocrine and Reproductive Physiology    | 3+0          |
| 7       | PHY 768     | Electrophysiology                        | 3(1+2)       |

**CORE COURSES**

| Sr.No. | Course Code     | Course Title                                | Credit Hours   |
|--------|-----------------|---|----------------|
| 1      | MED 712         | Medical Biology & Genetics                  | 2+0            |
| 2      | MED 713         | Medical Education, Ethics & Writing         | 2+0            |
| 3      | MED 714         | Instruments & Animal use in research        | 2(1+1)         |
| 4      | PHY 760         | General ,Neuromuscular and Blood Physiology | 3+0            |
| 5      | PHY 761         | Cardiorespiratory Physiology                | 3(2+1)         |
| 6      | THS 700         | Thesis-I                                    | 3+0            |
| 7      | THS 701         | Thesis-II                                   | 3+0            |
| 8      | MED 715,716,717 | Journal Club-I, II, III                     | No credit hour |
| 9      | MED 718,719,720 | Teaching Internship-I, II, III              | No credit hour |

**UNIVERSITY REQUIREMENT**

| Sr.No. | Course Code | Course Title         | Credit Hours |
|--------|-------------|----------------------|--------------|
| 1      | MED 701     | Research methodology | 3+0          |

## PhD Health Sciences

**Program Title:** PhD Health Sciences

**Duration:** 3 Years

**Eligibility Criteria:** The only exception to the 17.5/18 years education rule shall be a letter from the HEC authorizing a candidate with less than 17.5/18 years education in unambiguous terms for admission into a PhD program.

### Ph.D. Health Sciences

1. MBBS / BDS having 17.5/18 years of education with MPhil / FCPS/ equivalent degree from PM&DC and HEC-recognized university with a minimum CGPA of 3.00/4.00 (semester system) or 60% marks (only where CGPA is not given/available) in the field of Physiology, Biochemistry, Pathology (Microbiology), Pathology (Histopathology), Pharmacology and Public health (MS / MPhil / MSPH/ MPH, with course work & thesis).
2. Non-medical MPhil candidates are eligible to apply in PhD Health Sciences – Biochemistry, Physiology & Pathology (Microbiology) programs.
3. Non-medical MS/ MPhil/ MSPH/ MPH candidates with course work & thesis in nursing, social sciences, behavioral sciences are eligible to apply in PhD Health Sciences program – Public Health.
4. The only exception to the 17.5/18 years of education rule shall be a letter from the HEC authorizing a candidate with less than 17.5/18 years of education in unambiguous terms for admission into a PhD program.
5. Completion of one year of house job from PM&DC recognized institution / Hospital.
6. Valid PM&DC registration certificate.
7. Two years teaching experience in respective field will be given preference.
8. All mentioned certificates and degrees duly attested by HEC to be produced at the time of interview to avoid ineligibility.
9. Attestation by HEC on the candidate's local degrees and cumulative transcript (on the back of the original degrees and transcript). HEC's equivalency certificate is required for the candidate's foreign degrees.
10. Aptitude Test NTS-GAT (General), or GRE (General), passed with minimum 60% marks, or BU Admission Test (60% passing marks). Result be submitted at the time of application.

### Roadmap of PhD Health Sciences

#### Semester -1

| Sr.No. | Course Code | Course Title                       | Credit hours   |
|--------|-------------|------------------------------------|----------------|
| 1      | MED 801     | Laboratory Research Techniques     | 3(2+1)         |
| 2      | MED 802     | Biostatistics and Epidemiology     | 3+0            |
| 3      | MED 803     | Health Policy and Systems Research | 3+0            |
| 4      | XXXXXXX     | Elective-I                         | 3+0            |
| 5      | MED 804     | Journal Club -I                    | No credit hour |
| 6      | MED 806     | Teaching Internship-I              | No credit hour |

\* Student will choose any two out of three MED Courses

**Semester -2**

| Sr.No. | Course Code | Course Title           | Credit hours   |
|--------|-------------|------------------------|----------------|
| 7      | XXXXXXX     | Elective-II            | 3+0            |
| 8      | XXXXXXX     | Elective-III           | 3+0            |
| 9      | XXXXXXX     | Elective-IV            | 3+0            |
| 10     | MED 805     | Journal Club –II       | No credit hour |
| 11     | MED 807     | Teaching Internship-II | No credit hour |

**COMPREHENSIVE EXAM**

**Semester -3**

| Sr.No. | Course Code | Course Title     | Credit hours |
|--------|-------------|------------------|--------------|
| 12     | THS 900     | PhD Dissertation | 9            |

**Semester -4**

| Sr.No. | Course Code | Course Title     | Credit hours |
|--------|-------------|------------------|--------------|
| 13     | THS 900     | PhD Dissertation | 9            |

**Semester -5**

| Sr.No. | Course Code | Course Title     | Credit hours |
|--------|-------------|------------------|--------------|
| 14     | THS 900     | PhD Dissertation | 9            |

**Semester -6**

| Sr.No. | Course Code | Course Title     | Credit hours |
|--------|-------------|------------------|--------------|
| 15     | THS 900     | PhD Dissertation | 9            |

**MED CORE COURSE LIST**

| Sr.No. | Course Code | Course Title                       | Credit hours |
|--------|-------------|------------------------------------|--------------|
| 1      | MED 801     | Laboratory Research Techniques     | 3(2+1)       |
| 2      | MED 802     | Biostatistics and Epidemiology     | 3+0          |
| 3      | MED 803     | Health Policy and Systems Research | 3+0          |

\* Student will choose any two out of three MED Courses

## BS Hospitality & Tourism Management

**Program Title:** BS Hospitality & Tourism Management  
**Duration:** 4 Years (8 Semesters)  
**Eligibility Criteria:** Candidates must have successfully completed Higher Secondary School Certificate (HSSC) or equivalent with a minimum of 45% marks from a recognized board.

### Roadmap of BS Hospitality & Tourism Management

#### Semester 1

| Course Code | Course Title                                   | Category    | Credit Hours |
|-------------|--|-------------|--------------|
| ENG 101     | Functional English                             | GE          | 3            |
| MIS 161     | IT in Business (word, excel)                   | GE          | 3            |
| ENV 120     | Introduction to Environment and Sustainability | GE          | 3            |
| HTM-511     | Room Division Operation                        | Major CTH 4 | 3+1          |
| HTM -512    | Global Tourism & Hospitality                   | Major CTH 4 | 3            |
| HTM -513    | Food & Beverage Operations                     | Major CTH 4 | 3+1          |
| ISL-107     | Tajweed (1 contact hour per week)              | UR          | 0            |

#### Semester 2

| Course Code | Course Title   | Category   | Credit Hours |
|-------------|--|------------|--------------|
| ENG 102     | English Writing Skills                               | GE         | 3            |
| MGT 211     | Self-Management                                      | GE         | 3            |
| ISL-108     | Understanding Quran-I (01 contact hour)              | UR         | 0            |
| HTM -521    | Customer Service Management in Tourism & Hospitality | Major CTH4 | 3            |
| HTM -522    | Food & Beverage Supervision                          | Major CTH4 | 3+1          |
| HTM -523    | Room Division Supervision                            | Major CTH4 | 3+1          |
| HTM -524    | Finance in Tourism & Hospitality                     | Major CTH4 | 3            |

#### Summer-1

| Course Code | Course Title | Category | Credit Hours |
|-------------|--------------|----------|--------------|
| HTM-525     | Internship   | Major    | 3            |

#### Semester 3

| Course Code | Course Title                           | Category | Credit Hours |
|-------------|--|----------|--------------|
| QTM 122     | Business Mathematics & Numeracy Skills | GE       | 3            |
| PAK 101     | Pakistan Studies                       | GE       | 2            |

|          |   |            |     |
|----------|---|------------|-----|
| HTM -531 | Contemporary Issue in the Tourism and Hospitality Industry        | Major CTH5 | 3   |
| HTM -532 | Strategic Marketing in the Tourism & Hospitality Industry         | Major CTH5 | 3   |
| HTM -533 | Human Resource Management in the Tourism and Hospitality Industry | Major CTH5 | 3   |
| HTM -534 | Food & Beverage Management  | Major CTH5 | 3+1 |
| ISL-109  | Understanding Quran-II (01 contact hour)                          | UR         | 0   |

#### Semester 4

| Course Code       | Course Title   | Category   | Credit Hours |
|-------------------|--|------------|--------------|
| MGT 363           | Entrepreneurship   | GE         | 3            |
| ISL 201 / SOC 360 | Islamic Socio-Economic Studies / Ethics                                | GE         | 3            |
| ENG 214           | Business Communication   | GE         | 3            |
| PAK-104           | Ideology and Constitution of Pakistan                                  | GE         | 2            |
| HTM -541          | Customer Relationship Management in the Tourism & Hospitality Industry | Major CTH5 | 3            |
| HTM -542          | Facilities Management in the Tourism & Hospitality Industry            | Major CTH5 | 3            |
| HTM -543          | Understanding Funding & Finance in Tourism & Hospitality               | Major CTH5 | 3            |
| ISL-110           | Understanding Quran-III (01 contact hours)                             | UR         | 0            |

#### Summer-2

| Course Code | Course Title     | Category | Credit Hours |
|-------------|------------------|----------|--------------|
| HTM-544     | Field Experience | Major    | 3            |

#### Semester 5

| Course Code | Course Title                                     | Category   | Credit Hours |
|-------------|--|------------|--------------|
| MGT 643     | Corporate Skills                                 | Major      | 3            |
| HTM-551     | The Strategic Impact of the Business Environment | Major CTH6 | 3            |
| HTM-552     | Business Strategy for Hospitality & Tourism      | Major CTH6 | 3            |
| HTM-553     | Managing Events for Hospitality & Tourism        | Major CTH6 | 3            |
| HSS 301     | Social and Psychological Development             | ID         | 3            |
| ISL 111     | Understanding Quran-iv(01 contact hour)          | UR         | 0            |

#### Semester 6

| Course Code | Course Title                                 | Category   | Credit Hours |
|-------------|--|------------|--------------|
| QTM 110     | Business Statistics                          | Major      | 3            |
| HTM-554     | Quality Management for Hospitality & Tourism | Major CTH6 | 3            |
| HTM-561     | Strategic Management                         | Major CTH7 | 3            |
| HTM-562     | Managerial Finance                           | Major CTH7 | 3            |
| SOC 350     | Business Ethics                              | ID         | 3            |
| ISL 112     | Understanding Quran-v (01 contact hour)      | UR         | 0            |

### Semester 7

| Course Code | Course Title                                  | Category   | Credit Hours |
|-------------|---|------------|--------------|
| HTM-563     | Operation Management in Hospitality & Tourism | Major CTH7 | 3            |
| HTM-564     | Marketing & Customer Experience Management    | Major CTH7 | 3            |
| HTM-565     | Global HRM strategies                         | Major CTH7 | 3            |
| MGT 301     | Business Law                                  | ID         | 3            |
| ISL 113     | Seerah-i (01 contact hour)                    | UR         | 0            |

### Semester 8

| Course Code | Course Title                                    | Category   | Credit Hours |
|-------------|---|------------|--------------|
| HTM-566     | Destination Management                          | Major CTH7 | 3            |
| HTM-567     | Event & Project Management                      | Major CTH7 | 3            |
| HTM-568     | Research Method in Hospitality & Tourism        | Major CTH7 | 3            |
| QTM 205     | Statistical Inference and Quantitative Research | ID         | 3            |
| ISL 114     | Seerah-ii (01 contact hour)                     | UR         | 0            |

### List of Social Sciences Courses

| Course Code | Course Title | Credit Hours |
|-------------|--------------|--------------|
| HSS 109     | Arabic       | 2            |
| HSS 163     | Chinese      | 2            |
| HSS 160     | French       | 2            |
| HSS 164     | German       | 2            |
| HSS 161     | Russian      | 2            |
| HSS 162     | Spanish      | 2            |
| HSS 214     | Turkish      | 2            |



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Discovering Knowledge

A PROJECT OF PAKISTAN NAVY

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