UNIVERSITY OF ENGINEERING & TECHNOLOGY, LAHORE

POSTGRADUATE PROSPECTUS

Spring 2025

VISION

To generate knowledge for global competitive advantage and become
A leading world class research university.

MISSION

To play a leading role as a university of engineering and technology, in teaching, Innovation and commercialization that is internationally relevant and has a direct bearing on national industrial, technological and socio-economic development.

CHANCELLOR'S MESSAGE

The University of Engineering and Technology (UET) Lahore holds a place of eminence among the prestigious engineering universities of the world. Being a pioneering institution of engineering and technology in Pakistan, UET has unlocked all its potential in imparting quality education, enabling the students to display scholarly autonomy in learning and research and contribute to sustainable development. The recent QS ranking of UET Lahore in engineering and technology evidently substantiates the competence, commitment, and efforts of the faculty, administration and students. With the largest number of Outcome Based Education (OBE) accredited programs in Pakistan, UET Lahore is also a flag bearer of quality engineering education. HEC research grants and international funding worth hundreds of million of rupees won by the faculty members of UET collaboration aimed at solving major social, educational and technical problems through research projects. The recent strides and contributions of UET Lahore in digitalizing scientific and technological education in Pakistani universities are highly remarkable. I am confident that UET will keep expanding its horizons through external linkages aimed at improving the quality of research and education at its main campus, sub-campuses and affiliated colleges.

Sardar Salim Haider Khan
Governor Punjab
Chancellor, University of Engineering & Technology, Lahore

VICE CHANCELLOR'S MESSAGE

On behalf of the faculty and staff of the University I welcome you to the University of Engineering and Technology, Lahore.

It is the oldest seat of learning in the country in the discipline of Engineering and Technology.

We feel pride that for the year 2024, UET is ranked at 236th position among all the Engineering and Technology Institutions of the world as per QS World Universities Ranking. Further, the UET is ranked at 163rd position in QS Asian Universities Ranking among all the universities in Asia

UET has the best faculty and state-of-the-art laboratories. UET enjoys a strong linkage with its alumni and industry. Here you will enjoy real university culture of discussion, debate, and discourse.

28 students societies are active and engaging students in different activities from sports to debates for personality development of our students. UET has large infrastructure and excellent students' services. I assure you that UET is the best place for your professional and personality progression. At the same time, it is very competitive to secure admission in UET, that is a gateway to academic and research excellence.

Best of luck.

Prof. Dr. Shahid Munir (TI)
Vice Chancellor
University of Engineering and Technology, Lahore

UNIVERSITY OF ENGINEERING AND TECHNOLOGY LAHORE

Chancellor
SARDAR SALIM HAIDER KHAN
Governor of Punjab

Pro Chancellor
RANA SIKANDAR HAYAT
Minister for Education (Higher Education)

Vice Chancellor
PROF. DR. SHAHID MUNIR (TI)

Pro Vice Chancellor
PROF. DR. NASIR HAYAT
Minister for Education (Higher Education)

Registrar
MUHAMMAD ASIF

Controller of Examinations
MUHAMMAD ZARGHAM NUSRAT

Treasurer
IMRAN BABAR

DEANS OF FACULTIES

Faculty of Electrical Engineering
PROF. DR. MUHAMMAD SHOAIB

Faculty of Mechanical Engineering
PROF. DR. TAUSEEF AIZED

Faculty of Civil Engineering
PROF. DR. KHALID FAROOQ

Faculty of Chemical, Metallurgical & Polymer Engineering
PROF. DR-ING. NAVEED RAMZAN

Faculty of Earth Sciences & Engineering
PROF. DR. TAUSEEF AIZED

Faculty of Architecture & Planning
PROF. DR. RIZWAN HAMEED

Faculty of Natural Sciences, Humanities & Islamic Studies
PROF. DR. MUHAMMAD SHAHID RAFIQUE

CHAIRPERSONS/ DIRECTORS OF TEACHING DEPARTMENTS/ INSTITUTES

MAIN CAMPUS

Electrical Engineering
PROF. DR. MUHAMMAD ASGHAR SAQIB

Computer Science
PROF. DR. MUHAMMAD USMAN GHANI KHAN

Computer Engineering
PROF. DR. ALI HAMMAD AKBAR

Mechanical Engineering
PROF. DR. ASAD NAEEM SHAH

Industrial & Manufacturing Engineering
PROF. DR. QAISER SALEEM

Mechatronics & Control Engineering
DR. ALI RAZA

Civil Engineering
PROF. DR. NOOR MUHAMMAD KHAN

Institute of Environmental Engineering & Research
PROF. DR. AMIR IKHLAQ

Architectural Engineering & Design
PROF. DR. SABAHAT ALAMGIR

Transportation Engineering & Management
PROF. DR. AMMAD HASSAN KHAN

Chemical Engineering
PROF. DR. HAFIZ MUHAMMAD ZAHEER ASLAM

Polymer & Process Engineering
PROF. DR. ASIF ALI QAISER

Department of Mining Engineering
DR. SHAHAB SAQIB

Automotive Engineering
DR. ALI HUSSAIN KAZIM

Geological Engineering
PROF. DR. MUHAMMAD FAROOQ AHMED

Petroleum and Gas Engineering
PROF. DR. MUHAMMAD KHURRAM ZAHOOR

Metallurgical & Materials Engineering
PROF. DR. ASIF RAFIQUE

School of Architecture & Design
PROF. DR. RIZWAN HAMEED

Architecture
DR. MUNAZZA AKHTAR

Product & Industrial Design
DR. ATIF BILAL ASLAM

City & Regional Planning
PROF. DR. SHAKER MAHMOOD MAYO

Physics
PROF. DR. ANWAR LATIF

Chemistry
PROF. DR. FARHAT YASMEEN

Mathematics
PROF. DR. MUHAMMAD MUSHTAQ

Humanities & Social Sciences
Ms. ALIA SALEEM NAUSHAHI

Islamic Studies
PROF. DR. HAFIZ MUHAMMAD SHAHBAZ

Institute of Business and Management
PROF. DR. NASIR MALIK

Department of Textile Engineering
PROF. DR. MUHAMMAD MOHSIN

NEW CAMPUS (KSK)

Chemical, Polymer & Process Engineering
PROF. DR. MOHSIN KAZMI

Mechanical, Mechatronics and Manufacturing Engineering
PROF. DR. FAHAD NOOR

Basic Sciences & Humanities
PROF. DR. KASHIF REHAN

Computer Sciences
PROF. DR. HAFIZ M. SHAHZAD ASIF

Bio-Medical Engineering
DR. HIFSA SHAHID

Electrical, Electronics and Telecommunication Engineering
DR. MUHAMMAD ALI

Energy Engineering Department
DR. HASAN ERTEZA GELANI

FAISALABAD CAMPUS

Chemical, Polymer & Process Engineering
PROF. DR. SYED WAQAS AHMAD

Textile Engineering
PROF. DR. MUHAMMAD MOHSIN

Mechatronics & Control Engineering.
PROF. DR. HASSAN IJAZ

Electrical, Electronics and Telecommunication Engineering
PROF. DR. MUHAMMAD AKRAM

Basic Sciences & Humanities
PROF.DR. SAJJAD AHMAD

RCET, GUJRANWALA

Electrical Engineering
DR. HAROON FAROOQ

Mechanical Engineering
DR. MUHAMMAD SALMAN ABBASI

Basic Sciences and Humanities
DR. ADNAN ASLAM

Computer Sciences
DR. ABDUL JALEEL

NAROWAL CAMPUS

Electrical Engineering
DR. WAQAS TARIQ TOOR

NAROWAL CAMPUS

Electrical Engineering
DR. WAQAS TARIQ TOOR

Mechanical Engineering (HOD)
DR. SAQLAIN ABASS

Civil Engineering
PROF. DR. ADEEL TARIQ

Bio Medical Engineering (HOD)
DR. MUHAMMAD REHAN CH.

Computer Science
DR. Muhammad Idrees

Basic Sciences & Humanities
Dr. HABIB HUSSAIN

HEADS OF NON-TEACHING DEPARTMENTS

Director Research, Innovation and Commercialization

PROF. DR. MUHAMMAD ASIF RAFIQ

Director Studies

PROF. DR. AMJAD HUSSAIN

Senior Warden

PROF. DR. MUHAMMAD IJAZ AHMAD

Convener Admission Committee / In-charge Students Section

PROF. DR. MUHAMMAD AWAIS HASSAN

Focal Person Higher Education Commission

PROF. DR. MUHAMMAD ASIF RAFIQ

Chairperson Health Committee

PROF. Dr. KASHIF JAVED

Chairperson Transport Committee

DR. MUHAMMAD ASIM

Chairperson Library Committee

PROF. DR. ASADULLAH QAZI

Chairperson Proctorial Board

PROF. DR. MUHAMMAD SHOAIB

Chairperson Sports Committee

PROF. DR. ZULFIQAR ALI

Director Repair and Maintenance Center

PROF. DR. WAQAR MAHMOOD

Director Students Affairs

PROF. DR. ZULFIQAR ALI

Director International Students Office

DR. AMNA NIAZI

Director Students Financial Aid & Career Services

PROF. DR. FARHAN SAEED

Director, Al-Khwarizmi Institute of Computer Sciences

PROF. DR. WAQAR MAHMOOD

Director Planning and Development

DR. QASIM MANZOOR

Project Director Lahore Campus

ENGR. ASAD MASOOD

Project Director University City Campus

ENGR. AWAIS MALIK

Project Director Faisalabad Campus

ENGR. AWAIS MALIK

Resident Officer

MUHAMMAD ASIF

Resident Auditor

MUHAMMAD SHAHZAD

Director Quality Enhancement Cell

PROF. DR. MUHAMMAD ASIM

ACADEMIC CALENDAR (2025-2026)

Spring Semester (for UG students admitted in Spring 2025)	
Semester Starts	Monday, February 17, 2025
Semester Ends (after 16 weeks)	Friday, June 06, 2025
Examination period	Monday, June 09, 2025, to Friday, June 20, 2025
Deadline for Submission of Results	Friday, June 27, 2025

Spring Semester **For UG Sessions 2021 to 2024 & PG 2023, 2024 and 2025 (Spring)**	
Semester Starts	Monday, January 13, 2025
Semester Ends (after 16 weeks)	Friday, May 02, 2025
Examination period	Monday, May 05, 2025, to Friday, May 16, 2025
Deadline for Submission of Results	Friday, May 23, 2025

Summer Semester (Optional) (For UG Sessions 2021 to 2024 & 2025 (Spring) & PG 2023, 2024 and 2025 (Spring)	
Semester Starts	Monday, June 23, 2025
Semester Ends (after 8 weeks of study)	Friday, August 15, 2025
Examination Period	Monday, August 18, 2025, to Friday, August 22, 2025
Deadline for Submission of Results	Friday, August 29, 2025

POSTGRADUATE ADMISSIONS SCHEDULE-2025 (Spring)

Event	Date	Day	Remarks
Availability of online Postgraduate Prospectus	24-11-2024	Available under "Downloads" at: https://admission.uet.edu.pk	
Advertisement of Postgraduate Spring 2025 Programs	24-11-2024	Sunday	
On-line Filling and Submission of Admission Forms Starts	25-11-2024	Monday	
Last date of Submission of Admission Forms	09-12-2024	Monday	
Test(s) Location: Concerned department	11-12-2024 to 14-12-2024	Wednesday to Saturday	
Interviews: • M.Sc./ M.Phil./ MS applicants earning 50% or more in the test will be eligible to appear in the interview.	17-12-2024 to 19-12-2024	Tuesday to Thursday	
Departments convene PGRC meeting for finalizing Admissions	20-12-2024	Friday	
Departments submit provisional admission lists to Admission Office	23-12-2024	Monday	
Announcement of 1st Merit List	27-12-2024	Friday	By noon
Last Date of Depositing Dues and Documents for 1st Merit List	3-01-2025	Friday	
Subsequent Merit Lists depending upon seats availability	8-01-2025	Wednesday	By noon
Regular Classes Commence	**13-01-2025**	Monday	

CONTENTS

THE UNIVERSITY

Though this institution received its charter as a University in the year 1961, it has a much longer history as a distinguished seat of learning in engineering sciences. The institute started its operation in 1921 as the Mughalpura Technical College, deriving its name from the famous suburb of the old city of Lahore, richly dotted with architectural heritage of the great Mughals including the magnificent Shalimar Gardens. Its more familiar name of the pre-University era, the Maclagan Engineering College, was given to it in 1923 when Sir Edwards Maclagan, the then Governor of the Punjab, laid the foundation stone of the building, now called the Main Block, which still retains its majesty in spite of the wear and tear of almost a century. At that time, the institution offered courses of study in two disciplines, namely Electrical and Mechanical Engineering. The year 1932 is a major milestone in the evolution of this institution when it was affiliated with the University of the Punjab for award of a Bachelor's degree in Engineering. At the time of Independence, i.e., in 1947, it had well-established B.Sc. degree courses in civil, electrical and mechanical engineering, and the quality of its scholastic standards won it a place of prestige throughout the British India.

In 1954, it started a Bachelor's degree course in Mining Engineering, the first-ever of its kind in the country. But its massive expansion and development commenced in 1961 on its transformation into a University. It set for itself a variety of goals, but the first priority was to start teaching of those disciplines, which were crucial for national development but were not catered for by any institution in the country. Accordingly, in the sixties, Bachelor's degree courses were started in Chemical Engineering, Petroleum & Gas Engineering, Metallurgical Engineering, Architecture, and City & Regional Planning.

Later, the University concentrated its energies and resources on developing its postgraduate programs. By 1970's it had established over a score of Master's degree courses in diverse specializations of engineering, architecture, planning and allied disciplines. Ph.D. degree program was also instituted in a number of disciplines. The process of consolidating and strengthening continued to be a major concern of the University, with phenomenal increase in student's enrollment in seventies. Consequently, the University College of Engineering was established in 1975 at Sahiwal. For three years it functioned at Sahiwal and was shifted to its present campus at Taxila in 1978. Subsequently, this college was upgraded to a university and it is currently functioning as University of Engineering and Technology, Taxila.

Establishing traditions of research in the engineering and allied disciplines has been a major goal of the University. With this end in view, the University established a Directorate of Research, Extension and Advisory Services, now called Office of Research, Innovation and Commercialization (ORIC), which strives for the promotion and organization of research activities.

In the recent past, there has been a substantial rise in students' enrollment and the figure has now gone up to over 13,163. Currently, 2,527 students are pursuing postgraduate studies. The number of female students enrolling for different disciplines is ever on the increase and is 3,462 at present. The number of foreign students coming from countries, like Iran, Jordan, Kuwait, Kenya, Nepal, Saudi Arabia, Iraq, Bangladesh, Yemen, Somalia, Nigeria, Ethopia and Sri Lanka is over 479 which gives the University Campus a cosmopolitan character.

The university has 766 teachers of which 382 have a Ph.D. degree, whereas 101 are pursuing Ph.D. abroad.

The teaching departments of the University are grouped into the following seven faculties:

- Faculty of Electrical Engineering
- Faculty of Mechanical Engineering
- Faculty of Civil Engineering
- Faculty of Architecture & Planning
- Faculty of Chemical, Metallurgical and Polymer Engineering
- Faculty of Natural Sciences, Humanities and Islamic Studies
- Faculty of Earth Sciences and Engineering

The university set up a campus at Faisalabad in 2006 and also established a campus at Kala Shah Kaku in 2007, which is known as University's City Campus. Rachna College of Engineering & Technology, Gujranwala is a constituent college and follows the same academic curriculum and policies as the ones followed at the main campus in Lahore. In 2012, the university established a new campus in Narowal with an aim to produce quality technical manpower for the District of Narowal and its surroundings. In addition to managing its own campus, the University controls the academic programs and examinations of numerous institutions, which are affiliated with it for award of degrees.

POSTGRADUATE PROGRAMS

a. In the department of Electrical Engineering (Lahore Campus):
   - Ph.D. Electrical Engineering
   - M.Sc. Electrical Engineering
   - M.Sc. Artificial Intelligence

b. In the department of Electrical Engineering (RCET Campus):
   - M.Sc. Electrical Engineering

c. In the department of Electrical Engineering (FSD Campus):
   - Ph.D. Electrical Engineering
   - M.Sc. Electrical Engineering

d. In the department of Electrical Engineering (New Campus):
   - M.Sc. Electrical Engineering

e. In the department of Biomedical Engineering (New Campus):
   - Ph.D. Biomedical Engineering
   - M.Sc. Biomedical Engineering

f. In the department of Biomedical Engineering (Narowal Campus):
   - M.Sc. Biomedical Engineering

g. In the department of Computer Engineering:
   - Ph.D. Computer Engineering
   - M.Sc. Computer Engineering

h. In the department of Computer Science (Lahore Campus):
   - Ph.D. Computer Science
   - M.Sc. Computer Science
   - M.Sc. Software Engineering

i. In the department of Computer Science (New Campus):
   - Ph.D. Computer Science
   - M.Sc. Computer Science

j. In the department of Computer Science (Narowal Campus):
   - M.Sc. Computer Science

k. In the Institute of Data Science (Lahore Campus):
   - M.Sc. Data Science

l. In the Automotive Engineering Center (Lahore Campus):
   - Ph.D. Automotive Engineering
   - M.Sc. Automotive Engineering

m. In the department of Mechanical Engineering (Lahore Campus):
   - Ph.D. Mechanical Engineering
   - M.Sc. Mechanical Design Engineering
   - M.Sc. Thermal Power Engineering
   - M.Sc. Renewable Energy Systems Engineering

n. In the department of Mechanical Engineering (New Campus):
   - Ph.D. Mechanical Engineering
   - M.Sc. Mechanical fluid Engineering

o. In the department of Mechanical Engineering (Narowal Campus):
   - Ph.D. Mechanical Engineering
   - M.Sc. Mechanical Engineering

p. In the department of Mechanical Engineering (RCET Campus):
   - M.Sc. Mechanical Engineering

q. In the department of Industrial and Manufacturing Engineering (Lahore Campus):
   - Ph.D. Engineering Management
   - Ph.D. Manufacturing Engineering
   - M.Sc. Manufacturing Engineering
   - M.Sc. Engineering Management

r. In the department of Mechatronics and Control Engineering (Lahore Campus):
   - Ph.D. Mechatronics Engineering
   - M.Sc. Mechatronics Engineering

s. In the department of Mechanical, Mechatronics and Control Engineering (Faisalabad Campus):
   - Ph.D. Mechatronics Engineering
   - M.Sc. Mechatronics Engineering

t. In the department of Textile Engineering (Faisalabad Campus):
   - Ph.D. Textile Engineering
   - M.Sc. Textile and Materials Engineering

u. In the Center for Energy Research and Development (New Campus):
   - M.Sc. Energy Engineering

v. In the Civil Engineering Department:
   - Ph.D. Civil Engineering
   - M.Sc. Structural Engineering
   - M.Sc. Geotechnical Engineering
   - M.Sc. Hydraulics & Irrigation Engineering

w. In the Civil Engineering Department (Narowal Campus):
   - M.Sc. Structural Engineering

x. In the department of Architectural Engineering and Design
   - Ph.D. Architectural Engineering
   - M.Sc. Integrated Building Design
   - M.Sc. Construction Management
   - M.Sc. Building Engineering

y. In the department of Transportation Engineering:
   - Ph.D. Transportation Engineering
   - M.Sc. Transportation Engineering
   - M.Sc. Transportation Informatics

z. In the Institute of Environmental Engineering and Research:
   - Ph.D. Environmental Engineering
   - M.Sc. Environmental Engineering
   - M.Phil. Environmental Sciences

aa. In the department of Chemical Engineering (Lahore Campus):
   - Ph.D. Chemical Engineering
   - M.Sc. Chemical Engineering

bb. In the department of Chemical Engineering (New Campus):
   - M.Sc. Safety Health and Environment

cc. In the department of Chemical Engineering (Faisalabad Campus):
   - Ph.D. Chemical Engineering
   - M.Sc. Chemical Engineering

dd. In the department of Polymer and Process Engineering:
   - Ph.D. Polymer Science and Engineering
   - M.Sc. Polymer & Process Engineering
   - M.Phil. Polymer Science and Technology

ee. In the department of Metallurgical & Materials Engineering:
   - Ph.D. Metallurgical and Materials Engineering
   - M.Sc. Metallurgical & Materials Engineering
   - M.Sc. Surface Science & Engineering

ff. In the department of Mining engineering:
- Ph.D. Mining Engineering
- M.Sc. Mining Engineering
- M.Sc. Tunneling & Underground Excavation Engineering

gg. In the department of Geological Engineering:
- Ph.D. Geological Engineering
- M.Sc. Geological Engineering
- M.Sc. Geological Sciences

hh. In the department of Petroleum and Gas Engineering:
- Ph.D. Petroleum and Gas Engineering
- M.Sc. Petroleum & Gas Engineering

ii. In the department of City & Regional Planning:
- Ph.D. City and Regional Planning
- M.Sc. City & Regional Planning
- M.Sc. Community Development and Environmental Management
- M.Sc. Disaster Management
- Master in Real Estate Planning and Management

jj. In the department of Architecture:
- Ph.D. in Architecture
- Master in Architecture

kk. In the department of Product and Industrial Design:
- Master in Product and Industrial Design

ll. In the department of Chemistry (Lahore Campus):
- Ph.D. Chemistry
- M.Phil. Applied Chemistry
- M.Phil. Food Science and Technology

mm. In the department of Chemistry (New Campus):
- Ph.D. Chemistry
- M.Phil. Applied Chemistry

nn. In the department of Chemistry (Faisalabad Campus):
- M.Phil. Applied Chemistry

oo. In the department of Physics:
- Ph.D. Physics
- M.Phil. Applied Physics
- M.Phil. Nano Science and Technology

pp. In the department of Physics (New Campus):
- Ph.D. Physics

qq. In the department of Mathematics:
- Ph.D. Mathematics
- M.Phil. Applied Mathematics

rr. In the department of Mathematics (New Campus):
- Ph.D. Mathematics

ss. In the department of Islamic Studies:
a. Ph.D. Islamic Studies
b. M.Phil. Islamic Studies

tt. In the Center of Excellence in Water Resource Engineering:
- Ph.D. Engineering Hydrology
- Ph.D. Water Resources Engineering
- Ph.D. Water Resources Management
- M.Sc. Water Resources Engineering
- M.Sc. Water Resources Management
- M.Sc. Engineering Hydrology
- M.Sc. Hydro Power Engineering

uu. In the Institute of Business and Management:
- Ph.D. Business Administration and Management
- MBA (30CH)
- MBA (60 CH)
- Executive MBA
- MS Management
- MS Marketing

M.SC. / M. PHIL. / MASTERS / MS
ADMISSIONS SPRING 2025

1. **ELIGIBILITY FOR ADMISSION INTO M.Sc., MASTERS and M.S. PROGRAMS**

1.1 Only those applicants will be eligible for admission who have passed their 16 years undergraduate degree, in the relevant discipline / subject from and HEC recognized institute / university, with a CGPA of 2.00 out of a maximum of 4.00 under semester system an have scored at least 50% in the test conducted by the University. The conversion formula given in the HEC policy Guideline for implementation of uniform Semester System in HEIs of Pakistan to determine CGPA equivalent to marks percentage obtained in 16 years undergraduate degree in annual system.

1.2 An applicant for admission to a postgraduate class, (other than those mentioned in the table below) must possess at least a 16 years equivalent undergraduate degree in the relevant discipline/subject from a HEC recognized institute/University unless higher qualification is laid down for a particular discipline.

Degree Title	Required Qualification from a HEC Recognized Institute/ University
Executive MBA	Sixteen years bachelor's degree or equivalent in any discipline with minimum 2.5 CGPA out of 4.0 or 50% marks in terminal degree, in case CGPA is not available, from an HEC recognized university/institute with 03 years of professional post-qualification work experience
Master in Real Estate Planning and Management	Sixteen years bachelor's degree in City and Regional Planning or Product and Industrial Design or Architecture or Engineering Sciences or Business Management or Social Sciences or Geographic Information System or any other relevant discipline to be determined by departmental PGRC
Master in Product and Industrial Design (M.PID)	B.Sc. in Product and Industrial Design or Product Design or Industrial Design or Interior Design or Multimedia Design or Communication Design or Textile Design or Graphic Design or Architecture or City and Regional Planning or relevant disciplines
Master of Architecture (M.Arch.)	Bachelor of Architecture or B.Sc. Architectural Engineering & Design or City & Regional Planning or Civil Engineering
MBA (30 Credit Hours)	Sixteen years bachelor's degree or equivalent in relevant discipline with minimum 2.5 CGPA out of 4.0 or 50% marks in terminal degree, in case CGPA is not available, from an HEC recognized university/institute
MBA (60 Credit Hours)	Sixteen years bachelor's degree or equivalent in any discipline with minimum 2.5 CGPA out of 4.0 or 50% marks in terminal degree, in case CGPA is not available, from an HEC recognized university/institute
M.Phil. Environmental Sciences	B.Sc. in Environmental Engineering or Environmental Sciences
M.Phil. Food Science and Technology	Sixteen years degree in Food Science and Technology or Chemistry or Biochemistry or Agricultural Chemistry or Biotechnology
M.Phil. Islamic Studies	Sixteen years bachelor's degree in Islamic Studies or M.A. in Islamic Studies or any relevant degree recognized by HEC as equivalent to sixteen years education in Islamic Studies
M.Phil. Nano Science and Technology	Sixteen years degree in Physics or Chemistry or B.Sc. Engineering degree in Electrical or Chemical or Metallurgical or Polymer. B.Sc. (Engineering) Technology degree in Electrical or Chemical or Metallurgical
M.Phil. Polymer Science & Technology	Sixteen years degree in Chemistry or Applied Chemistry or Physics or Applied Physics or Chemical Engineering or Chemical Engineering Technology or Polymer Engineering or Mechanical Engineering or Materials Science and Engineering
M.S. Management	Sixteen years bachelor's degree or equivalent in relevant discipline with minimum 2.5 CGPA out of 4.0 or 50% marks in terminal degree, in case CGPA is not available, from an HEC recognized university/institute

M.S. Safety, Health and Environment	B.Sc. Engineering, B.Sc. Engineering Technology, M.Sc. /B.Sc. (Hon.) 16-years education in Biological / Earth / Environmental / Life / Natural / Physical Sciences, MBBS
M.Sc. Artificial Intelligence	Bachelor's degree in Artificial Intelligence or equivalent or Computer Science or equivalent or Information Technology or Electrical Engineering or Computer Engineering or Mechatronics Engineering or Computer Systems Engineering or B.S./B.Sc. degree in relevant discipline as determined by PGRC or M.Sc. (16 years) in Computer Science or Information Technology
M.Sc. Automotive Engineering	B. Sc. Mechanical Engineering or B. Sc. Automotive Engineering or B. Sc. Mechatronics and Control Engineering or B. Sc. Industrial and Manufacturing Engineering or B. Sc. Aerospace Engineering or B. Sc. Energy Engineering
M.Sc. City & Regional Planning	B.Sc. City & Regional Planning or Civil Engineering or Bachelor of Architecture
M.Sc. Community Development and Environmental Management	B.Sc. in City and Regional Planning or Civil Engineering or Transportation Engineering and Management or Environmental Engineering or Product and Industrial Design or Architecture Engineering and Design or Bachelors in Architecture or BS four years/M.Sc. in Environmental Sciences or Sociology/Social Work or Geography or Economics or Geographical Information Systems or Gender/Development Studies or Public Policy/Administration or Management Sciences or Mass Communication or equivalent degree from HEC recognized University/Institute
M.Sc. Computer Engineering	Four years B.S./B.Sc. degree in Computer (Systems) Engineering or Software Engineering or Computer Science or Electronic Engineering or Electrical Engineering or Telecommunication Engineering or Artificial Intelligence or Information Technology or a four-year degree in any other related discipline
M.Sc. Computer Science	Sixteen-year education with terminal degree in Computing (any related domains) or terminal degree suitable for Computer Science. Suitability shall be determined by the PGRC.
M.Sc. Construction Management	B.Sc. Architectural Engineering or Civil Engineering or Transportation Engineering or Construction Management or City and Regional Planning or Bachelor of Architecture
M.Sc. Data Science	Sixteen-year education with terminal degree in Computing (any related domains) or terminal degree suitable for Data Science. Suitability shall be determined by the PGRC.
M.Sc. Disaster Management	M.Sc. or B.Sc. Honors in Disaster Management or Earth Sciences or Environmental Sciences or Space Sciences or Biological Sciences or Management Sciences or Agriculture Sciences or Agricultural Engineering or Medical Sciences or Economics or Sociology or Social Work or Psychology or Anthropology or Forestry or Gender Studies or Mass Communication or Public Policy or Civil/Electrical/Mechanical/Chemical/ Mining/Geological Engineering or City/Urban & Regional Planning or Product and Industrial Design or Bachelors in Architecture or equivalent degree from HEC recognized University/Institute
M.Sc. Disaster Mitigation Engineering	Sixteen years of education in Civil Engineering or Architectural Engineering or Transportation Engineering or Environmental Engineering or Geological Engineering or Petroleum Engineering or Mining Engineering or any other relevant and equivalent degree as approved by PGRC
M.Sc. Electrical Engineering	Bachelor's degree in Electrical Engineering or Telecommunication Engineering or Electronics Engineering or Computer Engineering or Computer (System) Engineering or Mechatronics Engineering or Biomedical Engineering or Telecommunication System Engineering form a PEC accredited program
M.Sc. Engineering Hydrology	B.Sc. or equivalent degree recognized by HEC having sixteen years of education in: Civil Engineering or Agricultural Engineering or Geological Engineering or Civil Technology or Agricultural Technology or Hydrology and Water Resources Management or Applied Geology or Geographic Information System or Forestry and Range Management or Soil and Environmental Sciences or Environmental Engineering and Sciences or Water Resources Management or Hydrology or any other equivalent degree approved by the Center's Academic Committee/Central Board of Studies
M.Sc. Engineering Management	Any B.Sc. Engineering Degree
M.Sc. Environmental Engineering	B.Sc. in Civil Engineering or Chemical Engineering or Environmental Engineering or Transportation Engineering or Architectural Engineering & Design or Mechanical Engineering
M.Sc. Geological Engineering	B.Sc. Geological Engineering or Mining Engineering or Petroleum & Gas Engineering or Civil Engineering

M.Sc. Geological Sciences	B.S. Geology or M.Sc. Geology (16 years) or B.Sc. Geological Engineering or Mining Engineering or Petroleum & Gas Engineering or Civil Engineering. However, pre-requisite subjects if required, will be decided at the time of admission considering the subjects opted by the students
M.Sc. Integrated Building Design	B.Sc. Architectural Engineering & Design or Civil Engineering or Bachelor of Architecture
M.Sc. Mechanical Design Engineering	B. Sc. Mechanical Engineering or B. Sc. Industrial and Manufacturing Engineering or B. Sc. Automotive Engineering or B. S. Aerospace Engineering or B. Sc. Mechatronics and Control Engineering
M.Sc. Mechatronics Engineering	B.Sc. Mechatronics Engineering or Mechanical Engineering or Industrial & Manufacturing Engineering or Electrical/Electronic Engineering or Computer Engineering or Aeronautical Engineering or Automotive Engineering or Biomedical Engineering or Aerospace/Avionics Engineering from HEC/PEC recognized institute or university
M.Sc. Metallurgical and Materials Engineering	B.Sc. in Metallurgical and Materials Engineering or Chemical Engineering or Polymer Engineering or Mechanical Engineering or Industrial and Manufacturing Engineering
M.Sc. Mining Engineering	B.Sc. in Mining Engineering or in Geological Engineering or in Civil Engineering or in Petroleum and Gas Engineering or any other relevant Engineering fields as decided by Department's PGRC
M.Sc. Petroleum and Gas Engineering	B.Sc. Petroleum and Gas Engineering or Geological Engineering or Mining Engineering or Chemical Engineering or Civil Engineering or Mechanical Engineering or any other relevant engineering discipline to be determined by PGRC
M.Sc. Railway Engineering	B.Sc. Mechanical Engineering or Electrical Engineering or Civil Engineering or Mechatronics Engineering or Industrial and Manufacturing Engineering
M.Sc. Renewable Energy Systems Engineering	B.Sc. Mechanical Engineering or B.Sc./BE Renewable Energy or Energy Systems Engineering or B.Sc. Electrical Engineering or B.Sc. Chemical Engineering
M.Sc. Software Engineering	Sixteen-year education with terminal degree in Computing (any related domains) or terminal degree suitable for Software Engineering. Suitability shall be determined by the PGRC.
M.Sc. Surface Science & Engineering	B.Sc. in Metallurgical and Materials Engineering or Chemical Engineering or Polymer Engineering or Mechanical Engineering or Industrial and Manufacturing Engineering
M.Sc. Telecommunication Networks	Bachelor's degree in Electrical Engineering or Telecommunication Engineering or Electronics Engineering
M.Sc. Thermal Power Engineering	B. Sc. Mechanical Engineering or B. Sc. Mechatronics and Control Engineering or B. Sc. Automotive Engineering
M.Sc. Thermo-fluid Engineering	B. Sc. Mechanical Engineering or Industrial and Manufacturing Engineering or Mechatronics and Control Engineering or Chemical Engineering
M.Sc. Transportation Engineering	B.Sc. in Transportation Engineering or Civil Engineering or Urban Engineering
M.Sc. Transportation Informatics	Sixteen years of education (B.Sc. or M.Sc.) in Computer Science or B.Sc. in Computer Engineering or Transportation Engineering
M.Sc. Tunneling & Underground Excavation Engineering	B.Sc. in Mining Engineering or in Geological Engineering or in Civil Engineering
M.Sc. Water Resources Management	B.Sc. or equivalent degree recognized by HEC having sixteen years of education in: Agricultural Engineering or Civil Engineering or Geological Engineering or Applied Geology or Computer Science or Agricultural Technology or Civil Technology or Forestry and Range Management or Agricultural (with major in Water Resources Management, Soil Science, Economics, Forestry) or Marketing and Agribusiness or Soil and Environmental Sciences or Water Resources Management or Water Resources Management and Planning or Environmental Engineering and Sciences or Agricultural and Applied Economics or Hydrology and Water Resources Management or any other equivalent degree approved by the Center's Academic Committee/Central Board of Studies

2. APPLICATION FEE

a) The admission application fee is Rs. 2,200/-.
b) The fee once remitted shall not be refunded.
c) Applicants wishing to apply for admission into more than one program will be required to pay Rs 2,200/- as processing fee for each. Thus, applicants applying to two programs will fill two applications forms and pay Rs. 4,400/- (Rs. 2,200/- with each application).

3. ADMISSION CODE

You will require an Admission Code to login to the option of "**Fill Postgraduate Admission Application**" on the admission portal, **https://admission.uet.edu.pk**.

3.1 Getting the Admission Code Online

This code is valid for only one online admission application submission. In case an applicant wishes to apply in more than one postgraduate program, he will have to buy as many codes. You may get the Admission Code online:

a) Login to the admission portal
b) Select "**Generate PG Admission Challan**" button on the admission portal.
c) You will be asked to enter your name, father's name and CNIC number.
d) A challan number will be generated. You may pay the application fee using this number online using one of the following options:

- **Payment through HBL/ Konnect APP**
  i. Login to the Konnect mobile application and tap the" **LIFESTYLE"** button.
  ii. Select **"EDUCATION**" option.
  iii. Tap on "**SCHOOL FEE".**
  iv. A list of institutions will appear. Select **UET Lahore** and enter Challan Number.
  v. After verifying your name, make the payment.
  vi. Now you may use this paid Challan Number as your Admission Code.
- **Payment through HBL On-line Banking (For HBL Account Holders only)**
  i. Login to the HBL online banking application on your computer or mobile if you have access to a HBL account.
  ii. Select **"MORE"** option.
  iii. Select "**EDUCATION**" under Bill Payment category.
  iv. A list of institutions will appear. Select **UET Lahore** and enter Challan Number.
  v. After verifying your name, make the payment.
  vi. Now you may use this paid Challan Number as your Admission Code.

3.2 Payment through UBL OMNI DUKAN / AGENT

a) A list of institutions will appear. Select **UET Lahore** and enter Challan Number.
b) After verifying your name, make the payment.
c) Now you may use this paid Challan Number as your Admission Code.

3.3 Payment through UBL Online Banking (For UBL Account Holders only)

a) Login to the UBL mobile application if you have a UBL account.
b) Select **"PAYMENTS"** option.
c) Select "**GOVERNMENT & ONLINE PAYMENTS**"
d) Select "**ONLINE PAYMENTS**" under Government and Online Payments category.
e) A list of institutions will appear. Select **UET Lahore** and enter Challan Number.
f) After verifying your name, make the payment.
g) Now you may use this paid Challan Number as your Admission Code.

3.4 Payment by Walking into any UBL branch

a) Walk in to any UBL branch with your Challan.
b) Teller will process the payment and share the computerized deposit slip with you.
c) Now you may use this paid Challan Number as your Admission Code.

4. FILLING AND SUBMISSION OF APPLICATION FORM

a) You will fill the admission application form by logging into the admission portal
b) You will be asked to enter the following information:
   - CNIC Number
   - Admission Code
c) You will fill the requisite information. It is emphasized that if you have obtained 16 years degree under annual system of examination, you are required to add all marks obtained, i.e., from first year to final year, without any weightage, while entering data in your application.
d) The applicant will scan and upload the following documents:
   i. Matriculation or equivalent certificate
   ii. Intermediate or equivalent certificate
   iii. 16 years education degree and transcript/Detailed Marks Sheet
   iv. Copy of Pakistan Engineering Council (PEC)/PCATP registration card, if required.
   v. CNIC
   vi. Domicile
   vii. No Objection Certificate from employer, if employed
   viii. No Objection Certificate from Registrar, if employed by UET Lahore
e) On successful submission, an "Admit Card" will be generated, which is mandatory for appearing in the Subject Test.

5. ADMISSION TEST

Tests will be conducted by the respective departments on dates specified by the Admission Office. Qualifying score for M.Sc./ M.Phil./ Masters/ MS is 50% in the test. In the test. 80% of the test will be related to the relevant program whereas 20% would be general – most likely based on analytical reasoning.

6. INTERVIEW FOR ADMISSION

Only qualifying applicants will appear in the interviews according to schedule published by the respective department.

7. ADMISSION OF FOREIGN CANDIDATES

Admission of foreign applicants will be made on the basis of their academic record submitted to the Postgraduate Research Committee of the Department concerned. The Postgraduate Research Committee may ask the applicant to appear for interview, if feasible.

8. DETERMINATION OF MERIT

i. Merit of applicants from within Pakistan will be computed as under:
   Merit Aggregate Formula for M.Sc./M.Phil/Master/MS admissions is: (1) 16 years weight: 40%; (2) Test weight: 40%; (3) Interview weight: 20%.
ii. Merit of international applicants will be determined as under:
   - 16 years UG score: 100%

9. ADMISSION ON MERIT

Admission will be granted on merit.

10. AGE LIMIT

There is no age restriction for admission to postgraduate degree programs.

11. PRE-REQUISITE COURSES

Depending upon the number and nature of courses studied by an applicant at the undergraduate level, the candidate may be directed by the Chairperson concerned to study and pass a certain number of pre-requisite courses at the undergraduate level before permission to attend the postgraduate classes.

12. PROCEDURE FOR SELECTED APPLICANTS

13.1 Notification of Selection

- A list of selected applicants will be put up on the University notice boards and on the UET admission portal **https://admission.uet.edu.pk**. Kindly note that no written offer letter would be dispatched to selected applicants. It is responsibility of the applicant to remain abreast with the status of admissions as available on the website and on the notice boards.
- Fee Challan for first semester and admission dues will be visible in the applicant's login on the admission portal.

13.2 Depositing of Dues and Documents

Within the prescribed time, a selected applicant is required to pay the University dues and submit the following documents in all manners prescribed on the website in the office of the Deputy Registrar Students Section.

i. Paid Original Bank Challan as proof of payment of dues. Candidate must keep photocopies of this challan/documents for his/her own record and for submission to the department.
ii. Six sets of photocopies of Domicile Certificate.
iii. Original B.Sc. Degree/Provisional Certificate and Detail Marks Certificate/ Transcript along with six sets of photocopies of the same.
iv. Original M.Phil./Equivalent Degree/Provisional Certificate and Detail Marks Certificate/ Transcript along with six sets of photocopies of the same.
v. NOC from employer (if employed).
vi. Six copies of the most recent passport size photograph
vii. Two copies of CNIC.
viii. Muslim applicants will submit a Finality of Prophethood Declaration Form.
ix. Bio-data card Form-I duly completed in all respects.
x. Medical Certificate Form-II duly signed and stamped by Medical Practitioner registered with PMDC.
xi. Undertaking (Sample Form –III) on a Rs. 100/- judicial paper duly completed.

13.3 RELAXATION IN TIME LIMIT

If a selected applicant is prevented by unavoidable circumstances from timely fulfillment of the requirements laid down in the above clause, then he should intimate the Convener Admission Committee about it within the prescribed time limit along with relevant documentary proof. The Convener Admission Committee may, at his discretion, grant relaxation in the time limit.

13.4 FORFEITURE OF RIGHT OF ADMISSION

a. A selected applicant who fails to fulfill the requirements laid down in the above clause within the prescribed time-limit shall forfeit his right of admission.
b. No applicant shall normally be admitted after 15 days from the beginning of the classes.

13.5 REGISTRATION IN THE DEPARTMENT

On fulfillments of the requirements mentioned above, the applicants admitted to applicable Ph.D., M.Sc., Masters, MS or M.Phil. program shall report to the respective department according to the published schedule. They will receive registration numbers from their department through University Learning Management System.

Departments

DEPARTMENT OF ELECTRICAL ENGINEERING

The Department of Electrical Engineering was established in 1923 as a part of the Maclagan Engineering College. The Department started a postgraduate program in 1966 and currently offering three degrees:

1. Ph.D. Electrical Engineering
2. M.Sc. Electrical Engineering
3. M.Sc. Artificial Intelligence

The first Master's degree was awarded in 1969 and the first Doctoral degree was awarded in 1979. The student can choose amongst one of the following specializations while pursuing his master's degree in electrical engineering:

1. Computer
2. Electronics and Communications
3. Power Systems

M.Sc./ Ph.D. Electrical Engineering

The master's degree courses are aimed at bringing the students abreast with the most recent developments in their fields of specialization. For graduation, there are two options for the students – either he needs to do a thesis in his area of specialization (one of the above three) along with at least six courses from his major specialization area and a maximum of two courses from any of other two specialization areas or at least eight courses from his major specialization area and a maximum of two courses from any of other two specialization areas. Faculty advisement is mandatory for all enrolled students. Please note that the specialization opted at the time of admission is final.

It is mandatory for all Ph.D. students to pass the GRE Subject type PhD admission test administered by the Department, sixteen graduate courses, a comprehensive exam based on these courses and publish at least one article, based on his original research, in an impact factor journal before the award of that degree.

M.Sc. Artificial Intelligence

In today's world and in the foreseeable future, artificial intelligence (AI) is and will remain an essential component of all engineering applications. Its vast areas of application include diverse fields such as industrial robotics, e-commerce, and the defence industry. The Master of Science in AI is designed to provide a rigorous and intensive training to students in the areas of machine learning, artificial intelligence, and robotics. The curriculum is rigorous enough that it adequately prepares the student to excel in academia and higher education yet is practical enough that it easily qualifies the student to work in the ever-growing AI industry. The faculty of the Electrical Engineering Department, Computer Science Department, Computer Engineering Department, and Mechatronics Engineering Department are involved in running the program.

Facilities

The Department has highly qualified and experienced faculty with most of the PhD faculty members graduates of reputed national and international universities. Faculty members with higher qualifications are engaged in M.Sc./Ph.D. teaching and research supervision.

Research work being carried out at the Department has direct bearing on the needs of national industry. The Office of Research, Innovation and Commercialization of the University, in particular, funds this research. A number of research papers are produced every year by faculty members and graduate students, which are normally published (presented) in major national and international journals (conferences).

The Department has a well-stocked and up-to-date library for the use of faculty and students. This also houses a large number of numerous books donated by late Dr Masood Ahmad. Department also offers consultancy services and testing facilities to local manufacturers of electrical and electronics equipment. It also arranges frequent seminars and workshops in various areas of electrical power, electronics, communications, computer and control systems engineering. Faculty members and prominent researchers from home and abroad deliver these seminars.

Scholarships

Quaid e Azam Thermal Power (Private) Limited, a 1180 MW public sector Combined Cycle Power Plant in Bhikki Sheikhupura is offering fully funded scholarships up to 10 MS students along with fiscal incentives subject to fulfilment of certain terms and conditions. It provides unique learning opportunities with hands on experience at power plant, training on simulators and interactions with internationally reputed O&M contractor and Gas Turbine Manufacture & supplier.

The SIF program is created by UET Lahore's EE Department in partnership with 10xEngineers to provide financial support and mentorship to highly motivated and capable students who wish to pursue their career in the chip design industry in Pakistan. 10xEngineers will support up to two 2 MS Students specializing in Computer or Electronics and Communication as Semiconductor Industry fellow.

No Tuition fee will be charged from the full time PhD students who may be offered a stipend after approval of their research topic if their CGPA in graduate course work is at least 3.5 out 4.0.

Postgraduate Faculty & Their Research Interests

Teacher Name	Research Interest
Dr Muhammad Shoaib Professor and Dean	Web Engineering, Information Retrieval, Software Engineering, Software Metrics, Management Information Systems
Dr Muhammad Tahir Professor and Chairman	Network resource optimization, Distributed control of dynamical systems and Networked control systems, Computer architecture
Dr Haroon Attique Babri Professor Emeritus	Machine Learning
Dr Karam Elahi Durrani Professor Emeritus	Power Systems
Dr Shahid Hussain Bokhari Professor Emeritus	Parallel Processing

Dr Muhammad Asghar Saqib Professor	Arcing in high voltage, Fuses and circuit breakers, Renewable energy, and power electronics
Dr Kashif Javed Professor	Machine learning, Deep learning, Natural language processing
Dr Muhammad Aamer Iqbal Bhatti Professor	Nonlinear control systems, Radar signal processing, Learning for control systems biology, Automotive control
Dr Syed Abdul Rahman Kashif Professor	Power electronics
Dr Farhan Mahmood Professor	Power Systems and High voltage engineering
Dr Asim Loan Associate Professor	Digital communications and Software defined radios
Dr Irfan Ullah Chaudhary Associate Professor	Machine Learning, Artificial Intelligence, Theoretical Computer Science
Dr Umar T Shami Associate Professor	Power electronics
Dr Rabia Nazir Associate Professor	Digital control of power converters, Interconnection of solar generators with the grid
Dr Ahsen Tahir Associate Professor	Machine and deep learning, hardware accelerator, reconfigurable computing, health sensing and informatics, natural language processing.
Dr Ubaid Ullah Fayyaz Associate Professor	Coding, Synchronization and Software defined radios
Dr. Nauman Ahmed Assistant Professor	High performance computing
Dr Syed Shah Irfan Hussain Assistant Professor	Array signal processing, Adaptive signal processing, Antennas and Microwave systems
Dr Naveed Nawaz Assistant Professor	IoT, fog/ cloud computing
Dr Adeem Aslam Assistant Professor	Localized signal/spectral analysis on the sphere, Multiscale analysis on the sphere, Applications of signal processing in cosmology, geodesy, and medical imaging
Dr Omer Lateef Assistant Professor	Power Systems
Dr Farooq Ahmad Assistant Professor	Micro Electromechanical Systems (MEMS)
Dr Salman Fakhar Assistant Professor	Power Systems
Dr Suleman Sami Qazi Assistant Professor	Signal Processing and Computer Systems
Dr Muhammad Imran Javed Assistant Professor	Communications
Dr Haroon Farooq * Associate Professor RCET Gujranwala Campus	Power quality, Power distribution system modeling, Impacts of DG, V2G and EV's on power systems

Dr Naveed Akhtar * Assistant Professor RCET Gujranwala Campus	Forecasting of solar energy, Solar thermal, Deep learning, Machine Learning Performance analysis of different PV systems, Optimization Techniques
Dr Waqas Tariq Toor * Associate Professor NWL Campus	Medium-access control for random access networks, Scheduling systems, Machine type communications (MTC), Internet of things (IoT), and non-orthogonal multiple access (NOMA)
Dr Rana Tariq Mehmood Ahmad * Assistant Professor NWL Campus	Semi-conductor materials and electronics

* Faculty at satellite campuses is also involved in teaching graduate courses.

Curriculum for M.Sc./Ph.D. in Electrical Engineering

Two options for M.Sc. in Electrical Engineering, each with total credit hours of 30, are being offered:

(a) Thesis Option: 8 Subjects (24 credit hours) + Research Thesis (6 credit hours)

(b) Non-Thesis Option: 10 Subjects (30 credit hours) (Only if program offered on weekend)

Note: All courses are 3 (3+0) credit hours each unless otherwise specified.

M.Sc./ Ph.D. Electrical Engineering

Course Code and Title	
EE-502	Stochastic Processes
EE-503	Linear Systems Theory
EE-506	Engineering Mathematics
EE-510	Advanced Computer Architecture
EE-511	Advanced Computer Networks
EE-512	Machine Learning
EE-516	Image and Video Processing
EE-517	Design and Analysis of Algorithms
EE-519	Cybersecurity
EE-520	Wireless and Mobile Communications
EE-521	Information and Coding Theory
EE-522	Statistical Signal Processing
EE-524	Optical Communications
EE-525	Advanced Electromagnetic Theory
EE-527	Advanced VLSI System Design
EE-528	Antenna Theory and Design
EE-529	Advanced Microwave Circuits
EE-530	Power Electronics Converters
EE-535	Control of Electric Machines Drives
EE-541	Power System Dynamics and Stability

EE-547	Advanced Power Electronics
EE-549	High Voltage DC and Flexible AC Transmission
EE-550	Deep Learning
EE-551	Control of Power Equipment (2+1)
EE-552	Power Plant Dynamics (2+1)
EE-553	Power System Operation and Control (2+1)
EE-554	Advanced Power System Maintenance (2+1)
EE-555	Condition Monitoring of Equipment (2+1)
EE-556	Project Contract Management
EE-557	Environment Health and Safety
EE-558	Digital Control Systems (2+1)
EE-559	Instrumentation and Sensors (2+1)
EE-561	Array Signal Processing
EE-562	Adaptive Array Processing
EE-563	Micro-Electro-Mechanical-Systems (MEMS)
EE-570	Power System Transients and Insulation
EE-571	Power Inverters
EE-572	Smart Grids and Renewable Energy Systems
EE-599	Special Topics in Computer, Electronics &
EE-611	Artificial Intelligence
EE-620	Advanced Wireless and Mobile Communications
EE-641	Advanced Power System Operation and Control
EE-642	Condition Monitoring of High Voltage Equipment
EE-643	Power System Reliability
Thesis	
EE-699	M.Sc. Thesis in Electrical Engineering
EE-799	Ph.D. Thesis in Electrical Engineering

Curriculum for M.Sc. in Artificial Intelligence

The curriculum for the M.Sc. in AI requires two core courses, six electives, and a thesis (or two further electives if program offered on weekend): The elective courses are to be chosen from at least two different specializations. The specializations are:

1. Applications of Artificial Intelligence
2. Theoretical Foundations of Machine Learning
3. Robotics
4. Computational Models of Human Intelligence

Note: All courses are 3 (3+0) credit hours each unless otherwise specified.

Course Code and Title
AI-502: Artificial Intelligence (Core course)
AI-503: Machine Learning (Core course)
Applications of Artificial Intelligence
AI-511: Deep Learning
AI-512: Natural Language Processing
AI-513: Computer Vision
AI-514: Reinforcement Learning
Theoretical Foundations of Machine Learning
AI-521: Statistical Learning Theory
AI-522: Advanced Machine Learning
AI-523: Convex Optimization
AI-524: Probabilistic Graphical Models
AI-525: Special Topics in Machine Learning
AI-526: Mathematical and Computational Foundations for
Robotics
AI-531: Modern Robotics
AI-532: Intelligent Control Systems
AI-533: Artificial Intelligence for Robotics
Computational Models of Human Intelligence
AI-541: Aspects of Computational Intelligence
AI-542: Special Topics in Artificial Intelligence
AI-543: Special Topics in Human Intelligence
Thesis
AI-699: M.Sc. Thesis in Artificial Intelligence

DEPARTMENT OF COMPUTER SCIENCE

Introduction

The Department of Computer Science is one of the prominent and oldest centers of computer education in the country. Its history dates back to 1968 when UET Lahore established a Computer Center under the supervision of Department of Mathematics. The center was equipped with a contemporary IBM-1130 third generation batch processing computing system that was equipped with a disk drive, printer monitor and a printer. The center was responsible for teaching of courses in Computer Science and Numerical Analysis, which formed an integral part of the curricula for all disciplines of B.Sc. Engineering degrees offered by UET. The center also offered short term computer courses for private and public sector organizations. A Bachelor degree program in Computer Science was started in 1976. The course was upgraded to M.Sc. Computer Science in 1978 that was the first graduate program of the country in computer science. The computer center became an independent Department of Computer Science in 1991. A four years degree program, B.Sc. (Hons.) Computer Science was introduced by the Department in 1999. Since September 2003 the department renamed the degree as B.Sc. Computer Science (The details about these programs are available in undergraduate prospectus of UET). The department also offers graduate degree of M.S. Computer Science since 2003, whereas Ph.D. Computer Science program was launched in 2002.

Mission

To impart high quality computing education to the students, in order to develop critical thinking, analytical skills and abilities to solve real-world problems; for the technological and socio-economic development.

Facilities

With expansion in academic programs, there are five computer laboratories in the department. These laboratories are equipped with 160 latest fully networked computers with state-of-the-art servers. In addition, the department has a FYP Lab. Computer to student ratio is 1:1. The department is proud of its no-piracy policy, all the operating systems installed are either licensed or open-source. Four news llabs

Department's computing facilities are linked with UET Research Center, Main Library and other teaching departments through a fiber optic backbone. Multimedia projectors are installed in the class rooms and high-speed internet facility is available in all laboratories. Department's class rooms are located in a purposely-built adjacent building known as New Lecture Theaters.

Graduate Degree Programs

The Department currently offers a Ph.D. Program in Computer Science (CS) and MS programs in CS, Software Engineering (SE) and Data Science (DS) programs in Evening and Weekend Sessions.

Policies

A minimum of 30 credit hours are required for the completion of MS CS program. As such, a student is required to complete 8 courses (3 credit hour each) and MS thesis (6 Credit Hour).

Academic Policies Specific to MS Computer Science Degree are as follows, they are in addition to Semester System regulations of the UET as given in this prospectus:

i. Four core courses (CS-601, CS-602, CS-604, CS-605) are compulsory for each student enrolled in the program. A newly admitted student is advised to register, preferably, in the three core courses during first semester.
ii. The MS CS students are required to study at least two courses in their area of specialization. The remaining two may be selected from any other specializations. The students are advised to complete these specialization courses in two or more semesters.

Admission Criteria:

Sixteen-year education terminal degree in Computing (any related domains) or terminal degree suitable for Computer Science. Sustainability shall be determined by the PGRC.

Postgraduate Faculty and Their Research Interests

Name and Designation	Research Interests
Dr. Muhammad Shoaib Dean and Professor	Web Engineering, Information Retrieval, Software Engineering, Software Metrics, Management Information Systems
Dr. Usman Ghani Khan Chairman and Professor	NLP, Computer Vision, Image Processing, Computer Graphics, Augmented Reality, Audio & Speech Processing, Recognition & Perception, Machine learning for Bioinformatics.
Dr. Shazia Arshad Professor	Information Retrieval System, Software Design Quality Metrics, Computerized Inventory Systems
Dr. Muhammad Aslam Professor	Intelligent Agents, Computer Supported Cooperative Work, e-Learning, e-Health, Natural Language Processing, Speech & Image Processing, Human Computer Interaction
Dr. Muhammad Awais Hassan Professor	Data Science and Artificial Intelligence, Reinforcement Learning, Multi-agent Systems, E-learning, Adaptive Education Systems, Learning Technologies, Quantum Computing.
Dr. Muhammad Junaid Arshad Associate Professor	Wireless & Mobile Communication, Network Simulation Modeling, Computer Architecture
Dr. Tauqir Ahmad Associate Professor	Remote Sensing Algorithms, Geographical Information Systems, Big Data Analytics, Machine Learning
Dr. Amjad Farooq Associate Professor	Software Engineering, Cloud Computing, Machine Learning
Dr. Talha Waheed Assistant Professor	Cognitive Science, Knowledge Modeling, e-Learning, e-Health, Unani Medicines Informatics, Quran Informatics, Social Computing, Activity Theory

Dr. Syed Khaldoon Khurshid Assistant Professor	Information Retrieval Systems, Information Retrieval in Quantum Computing, Natural Language Processing, e-Learning and Smart Education Systems, Healthcare Systems
Dr. Amna Zafar Assistant Professor	Wireless Sensor Networks, Fault tolerance in Wireless Sensor Networks Modeling and Simulation, Machine Learning, Data Science, Mental Health & Social Informatics, IoT
Dr. Faiza Iqbal Assistant Professor	Network Optimization Modeling, High Performance Network Protocol Design, Data Analysis of Wireless Networks and Internet of Things, Optimized Routing Protocols of IoT
Dr. Ayesha Altaf Assistant Professor	Internet of Things and Cyber Physical Security, Trust Management, Network Security, Wireless Networks, Data Privacy, Intrusion Detection System, Malware Analysis
Dr Samyan Qayyum Wahla	Computer Vision, Image Processing, Machine Learning
Dr Maida Shahid	Quatam Computing, Machine Learning
Dr Atif Hussain	Sports Analytics, Data Science

MSCS Core Courses

Course Code	Course Title
CS-601	Advanced Operating Systems (CS Core)
CS-602	Advanced Computer Architecture (CS Core)
CS-604	Theory of Computation (CS Core)
CS-605	Advanced Algorithm Analysis (CS Core)
CS-700	M.S. Thesis (6 Credit Hours)
CS-800	Ph.D. Thesis (42 Credit Hours)

Research Methods

Course Code	Course Title
CS-590	Argument and Reasoning for Research
CS-591	Problem Formulation Techniques
CS-609	Research Methodologies
CS-651	Advanced Research Methodologies

Software Engineering

Course Code	Course Title
CS-606	Advanced Software Architecture (SE Core)
CS-611	Advanced Software Engineering
CS-613	Theory of Measurement in Software Engineering (SE Core)
CS-615	Software Quality Assurance (SE Core)
CS-621	Object Oriented Software Engineering
CS-625	Requirement Engineering (SE Core)
CS-627	Advanced Topic in Software Engineering
CS-690	Software Engineering for AI Applications
CS-691	Component Based Software Engineering
CS-692	Advanced Formal Methods
CS-693	Advanced Human-Computer Interaction
CS-694	Agile Software Development Methods
CS-695	Empirical Software Engineering
CS-696	Advanced Software Project Management

CS-697	Software Risk Management
CS-698	Software Configuration Management
CS-699	Reliability Engineering

Information Systems & DBMS

Course Code	Course Title
CS-619	Web Engineering
CS-623	Advanced Web Semantics
CS-629	Web Retrieval and Information Access
CS-631	Advanced DBMS
CS-633	Advanced Information Retrieval System
CS-635	Object Oriented Databases
CS-636	Cloud Computing
CS-637	Web Based DBMS
CS-639	Advanced Topic in DBMS

AI & Machine Learning

Course Code	Course Title
CS-598	Digital Image Processing
CS-599	Computer Vision
CS-640	Knowledge Discovery in Databases
CS-641	Design of Intelligent System
CS-642	Artificial Neural Network
CS-643	Machine Learning (DS Core)
CS-644	Expert System and Knowledge Management
CS-645	Intelligent Agents
CS-650	Reinforcement Learning
CS-651	Affective Computing
CS-659	Advanced Machine Learning
CS-660	Human Computer Interaction
CS-662	Distributed Artificial Intelligence

System Engineering, Maths & General Computing

Course Code	Course Title
CS-585	Quantum Computing
CS-589	Currrent Research Trends in CS
CS-593	Advanced Applied Mathematics
CS-594	Random Variables and Stochastic Processes
CS-595	Advanced Digital Signal Processing
CS-600	Parallel & Distributed Computing
CS-603	Distributed Systems

Speech and Language Processing

Course Code	Course Title
CS-596	Speech Processing
CS-597	Advance Digital Audio Processing
CS-720	Computational Linguistics
CS-721	Seminar in Statistical Language Processing

CS-722	Seminar in Urdu Computational Grammar

Computer Networks

Course Code	Course Title
CS-633	Telecommunication Networks and Protocols
CS-664	Performance Evaluation of Communication Networks
CS-665	Wireless & Mobile Communication

Bioinformatics

Course Code	Course Title
CS-655	Bioinformatics Concepts
CS-656	Introduction to Brain Informatics
CS-751	Advance Topics in Bioinformatics

Data Science

Course Code	Course Title
CS-607	Statistical and Mathematical Methods for Data Science (DS Core)
CS-608	Advanced Techniques in Data Science (DS Core)
CS-610	Advanced Big Data Analytics (DS Core)
CS-634	Deep Learning
CS-638	Natural Language Processing
CS-646	Distributed Data Processing
CS-647	Internet of Things
CS-648	Social Network Analysis
CS-649	Advanced Computer Vision
CS-652	Probabilistic Graphical Models
CS-653	Time Series Prediction
CS-654	Advanced Data Visualization

Information Security

Course Code	Course Title
CS-670	Information Security Management (IS Core)
CS-671	Digital Forensics and Incident Response (IS Core)
CS-672	Advanced Cryptography (IS Core)
CS-673	Network Security (IS Core)
CS-674	Secure Software Design and Development
CS-675	Cyber Intelligence
CS-676	Information Security Policy Development
CS-677	Intrusion Detection in Physical and Virtual Networks
CS-678	Machine Learning for Cyber Security
CS-679	Vulnerability Exploitation and Defense
CS-680	Reverse Engineering and Malware Analysis

CS-681	Information Security Audit & Assessment
CS-682	Software Security Testing and Code Assessment
CS-683	Securing Applications, Web Services, and Software as a Service
CS-684	Database Security
CS-685	Computer Forensics
CS-686	Applied Cryptography

MS Software Engineering

The MS-SE program has been initialized in Department of Computer Science with vision to equip students with theoretical and applied knowledge of software for the solution of complex problems. It is aimed to prepare the students to learn independently in a constantly changing discipline.

Eligibility Criteria

Sixteen-year education terminal degree in Computing (any related domains) or terminal degree suitable for Software Engineering. Sustainability shall be determined by the PGRC.

Course Offering Plan

Course Type	Credit Hours
Program Core Courses (4)	12
Electives (4)	12
Thesis	6
Total Credit Hours	30

Core Subjects:

Sr. No.	Core Course Codes and Course Titles
1.	CS-621: Requirement Engineering
2.	CS-613: Software Quality Assurance
3.	CS-606: Advanced Software Architecture
4.	CS-627: Theory of Measurement in Software Engineering

Elective Subjects:

(Select any four)

Sr. No.	Course Codes and Course Titles
1.	CS-690: Software Engineering for AI Applications
2.	CS-691: Component Based Software Engineering
3.	CS-692: Advanced Formal Methods
4.	CS-693: Advanced Human-Computer Interaction
5.	CS-694: Agile Software Development Methods
6.	CS-695: Empirical Software Engineering

7.	CS-696: Advanced Software Project Management
8.	CS-697: Software Risk Management
9.	CS-698: Software Configuration Management
10.	CS-699: Reliability Engineering
11.	CS-615: Object Oriented Software Engineering
12.	CS-611: Advanced Software Engineering
13.	CS-625: Advanced Topic in Software Engineering

INSTITUTE OF DATA SCIENCE

Director
Prof. Dr. Shazia Arshad

Assistant Professor
Dr. Faiza Iqbal

Lecture
Dr. Faiza Mehmood

Teaching Assistant
Miss. Fatima Shafiq

Graduate Assistant
Miss Hijab Zehra Zaidi
Miss Amna Adnan

Overview
The MSc-DS program has been initialized in Department of Computer Science with vision to understand and process data/information in modern era. We expect our Graduate level students to acquire knowledge from fundamental concepts to advance level of data science. We need to obtain knowledge where our students can understand collection, pre-processing, supervised or unsupervised processing approach, intelligent reporting of data or information in current information age. We are focused to customize collection of local data where we want to solve our problems with data driven approach.

Eligibility Criteria
Sixteen-year education terminal degree in Computing (any related domains) or terminal degree suitable for Data Science. Sustainability shall be determined by the PGRC.

Course Offering Plan

Course Type	Credit Hours
Program Core Courses (4)	12

Electives (4)	12
Thesis	6
Total Credit Hours	30

Core Subjects

Sr. No.	Course Titles and Codes
1.	CS- 607: Statistical and Mathematical Methods for Data Science
2.	CS- 608: Advanced Techniques in Data Science
3.	CS- 643: Machine Learning
4.	CS- 610: Advanced Big Data Analytics

Elective Courses
(Select any four Courses)

Sr. No.	Course Codes and Titles
1.	CS-609: Research Methodologies
2.	CS-634: Deep Learning
3.	CS-638: Natural Language Processing
4.	CS-646: Distributed Data Processing
5.	CS-633: Advanced Information Retrieval System
6.	CS-640: Knowledge Discovery in Database
7.	CS-647: Internet of Things
8.	CS-650: Reinforcement learning
9.	CS-648: Social Network Analysis
10.	CS-649: Advanced Computer Vision
11.	CS-652: Probabilistic Graphical Models
12.	CS-653: Time Series Prediction
13.	CS-654: Advanced Data Visualization
14.	CS-751: Advanced Topics in Bioinformatics

DEPARTMENT OF COMPUTER ENGINEERING

The Department of Computer Engineering was established as an independent department in 2020. It was originally part of the Department of Computer Science and Engineering. The department offers Ph.D., M.Sc. and B.Sc. degree programs in Computer Engineering. The department is planning to offer M.Sc. Information/Cyber Security in near future as well. The B.Sc. Computer Engineering program is accredited by Pakistan Engineering Council (PEC) under OBE.

Mission

To disseminate computing education to the students of the department emphasizing entrepreneurship and ethical standards while encouraging them to remain abreast with latest developments in computing tools and processes and use their skills to identify and find solution to society's problems; and to use department's resources and computing expertise to help industry, government and community in solving their problems.

Facilities

Department's computing facilities are linked with Research Center, Main Library and other teaching departments through a fiber optic backbone. Multimedia projectors are fitted where required and Internet facility is available in all Laboratories. The department has an Electronics Systems and Digital Logic Design Laboratory, Embedded Systems and Artificial Intelligence Laboratory, Computer Lab, and Industrial Automation Laboratory. In addition, the department has a Project Laboratory and Post-Graduate Research Laboratory.

Research

Current topics of research of CE faculty members include, but are not limited to, the following areas:
Computer Architecture, Embedded Systems, Digital Design, Signal Processing, Image, Speech and Language Processing, Modern Control and related areas, Estimation Theory, Bio-informatics, Data bases, Semantic Web and related areas, Digital Communications, Wireless Telecommunication and related areas, Software Engineering, Modelling and related areas, Data Mining, Data warehousing, Robotics, Artificial Intelligence, Machine learning and related areas, Multi-agents expert systems and related areas, Information Retrieval, Web Engineering, Computer Networks, Operating Systems, Distributed Computing, Block chain, Data Governance, Information Assurance, Biomedical Systems, Cyber Security, Cyber Physical Systems and related areas.

Postgraduate Faculty & Their Research Interests

Teacher Name	Research Interest
Dr. Muhammad Shoaib Professor and Dean	Information Retrieval, Software Metrics, Web Engineering, Management Information Systems.
Dr. Ali Hammad Akbar Professor and Chairman	Computer Networks, Wireless Networks, Internet of Things (IoT), Cyber Security, Biomedical Systems, Data Governance
Dr. Muhammad Ali Maud Professor Emeritus	Electronics and Electric Circuits
Dr. Muhammad Shahbaz Professor	Data Science/ Data Mining, Data warehousing, Artificial Intelligence, Health Informatics and related areas
Dr. Yasir Saleem Associate Professor	Computer Networks, Cyber Security, Embedded Systems, Internet of Things (IoT), Digital Signal Processing, Stochastic Processes, Power Electronics, Biomedical Systems
Dr. Faisal Hayat Associate Professor	Computer Networks, Machine Learning, Image Processing
Dr. Muhammad Asim Rehmat Assistant Professor	Robotics, Embedded Systems, Industrial Automation, Artificial Intelligence, Cyber Physical Systems
Dr. Fareed Ud Din Mehmood Jafari Assistant Professor	Computer Vision, Image Processing, Digital Signal Processing
Dr. Beenish Ayesha Akram Assistant Professor	Computer Architecture, Data Mining, Cloud Computing

M.Sc. Computer Engineering

Course Code	Course Title
	Core courses
CMPE-511	Advanced Algorithms
CMPE-521	Advanced Computer Architecture
CMPE-531	Advanced Computer Networks
CMPE-551	Random Variables and Stochastic Processes
Control Systems and Hardware Design	
Course Code	**Course Title**
CMPE-621	Linear Systems
CMPE-622	Advanced Control Systems
CMPE-623	Advanced Embedded Systems
CMPE-624	Advanced Digital Design
CMPE-631	Advanced Operating Systems
Networks and Communication Systems	
Course Code	**Course Title**
CMPE-632	Wireless and Mobile Communication
CMPE-633	Network Security and Cryptography
CMPE-634	Network Performance and Evaluation
CMPE-635	Telecommunication Networks and Protocols
CMPE-636	Design and Modelling of Wireless Sensor Networks
CMPE-637	Advanced Topics in Wireless Sensor Networks
CMPE-638	Digital Forensics

Artificial Intelligence

Course Code	Course Title
CMPE-541	Advanced Machine Learning

CMPE-641	Artificial Neural Networks
CMPE-642	Deep Learning
CMPE-643	Reinforcement Learning
CMPE-644	Autonomous Robots
CMPE-645	Natural Language Processing
CMPE-646	Special Topics in Artificial Intelligence
CMPE-647	Special Topics in Machine Learning
Big Data and Cloud Computing	
Course Code	**Course Title**
CMPE-661	Knowledge Discovery in Databases
CMPE-662	Advanced DBMS
CMPE-663	Advanced Cloud Computing and Big Data Analytics
CMPE-664	Advanced Data Mining
CMPE-665	Bioinformatics Concepts
CMPE-666	Theory of Computation
Digital Signal Processing	
Course Code	**Course Title**
CMPE-671	Advanced Digital Signal Processing
CMPE-672	Speech Processing
CMPE-673	Computer Vision
CMPE-674	Digital Image Processing

DEPARTMENT OF MECHANICAL ENGINEERING

The Department of Mechanical Engineering has the distinction of being one of the oldest disciplines since 1923, when this institution came into being as "Maclagan Engineering College". In the year 1961, when this institution was upgraded to an independent Engineering University, Master and Doctorate degree programs in Mechanical Engineering were introduced. At present, in addition to its well-established undergraduate program, the Department of Mechanical Engineering is offering the following postgraduate programs:

1. M.Sc. Thermal Power Engineering
2. M.Sc. Mechanical Design Engineering
3. M.Sc. Renewable Energy Systems Engineering
4. Ph.D. Mechanical Engineering

Postgraduate Faculty & Their Research Interests

Teacher Name	Research Interest
Dr. Nasir Hayat Professor and VC	Manufacturing Systems, Engineering Economic Analysis, Operation Research (Scheduling), Application of Artificial Intelligence in Manufacturing.
Dr. Tauseef Aized Khan Professor and Dean	Energy Technology, Management and Policy, Manufacturing Processes and Systems.
Dr. Asad Naeem Shah Professor and Chairman	Combustion in IC Engines, Exhaust Emissions.
Dilshad Hussain Professor Emeritus	Materials
Dr. Muhammad Asif Mahmood Qureshi Professor	Design, Analysis, and Manufacturing of Composite Materials.
Dr Amjad Hussain	Mechanical Engineering

Professor	
Dr. Ghulam Moeen ud Din Professor	Tribology, Thin Films, Nanotechnology, Process Modelling.
Dr. M. Mahmood Aslam Bhutta Professor	Thermal Power Engineering and I.0 Engines, Application of CFD and FEA.
Dr. Muhammad Asim Professor	Renewable Energy Resources, Solar Energy Applications.
Dr. Awais Ahmad Khan Associate Professor	Design and Manufacturing Engineering
Dr. Muhammad Usman Associate Professor	Energy sources, recovery utilization and environmental effects.
Dr. Zia ul Rehman Tahir Associate Professor	Bio mechanics in Sports, Biodynamics Bio-manufacturing, Elastic Stability of Resource Assessment, Solar Radiation Measurement System
Dr. Jamal Umar Associate Professor	Mechanics and Processing of Materials, Deformation Characteristics of Materials, Newtonian Fluid Mechanics, Tribology, Atomic Force Microscopy, Friction, Lubrication, Wear
Dr. Naseer Ahmad Assistant Professor	Instrumentation and Control
Dr. Jafar Hussain Assistant Professor	Automobile Breaking system, I.0 Engines, Applied Thermodynamics.
Dr. Jawad Sarwar Assistant Professor	Biomechanics in Sports, Biodynamics, Biomanufacturing, Elastic Stability of Structures, Vibration Analysis, Finite Element Modelling. Wind and Solar Resource Assessment, Solar Radiation Measurement Systems. Renewable Energy, Thermodynamics, Fluid Mechanics, Applications of Computational Fluid Dynamics, Application of FEA.
Dr. Syed Nadeem Abbas Shah Assistant Professor	Thermal Engineering, Renewable Energy, Nanotechnology, Applied Rheology, Energy Conversion and Storage, Microfluidics, Heat Transfer, Applications of Computational Fluid Dynamics
Dr. Muhammad Zubair Sheikh Assistant Professor	Computational Fluid Dynamics, Multiphase Flows
Dr. Muhammad Waqar Nasir Assistant Professor	Sheet Metal Forming, Material Plasticity, Numerical Methods, Ductile Damage, Necking Criteria, Continuum Mechanics, Modelling of Porous Ductile Material
Dr. Talha Khan Assistant Professor	Interfacial instabilities, Multiphase flows, and Droplet, jet and bubble dynamics.
Dr. Hafiz Zahid Nabi Assistant Professor	Manufacturing Systems, System modeling with Petri nets

M.Sc. Thermal Power Engineering

Course No.	Course Title
Group-A	**Compulsory Subjects**
TPE-501	Thermal Power Systems
TPE-502	Advanced Heat and Mass Transfer
TPE-503	Advanced HVAC Systems
ME-601	Research Methods and Engineering Analysis
Group-B	**Elective subjects**
TPE-504	Advanced Thermodynamics
TPE-505	Gas Turbine Engineering
TPE-506	Advanced Aerodynamics
TPE-507	Air Pollution Engineering
TPE-508	Convection Heat Transfer
TPE-509	Advanced IC Engines
TPE-510	Thermal Energy Storage Systems
TPE-511	Carbon Capture, Storage and Utilization
TPE-512	Advanced Fluid Dynamics
TPE-513	Clean Coal Technologies
TPE-514	Sustainable Energy Systems
TPE-515	Energy Efficiency and Conservation
TPE-516	Fuel and Combustion
TPE-517	Energy Management
TPE-518	Turbo Machinery
TPE-519	High Pressure Boilers
*TPE-520 & 520L	Gas Turbine Operation and Maintenance
*TPE-521 & 521L	Power Plant Engineering
TPE-522 & 522L	Advanced Condition Monitoring Techniques
TPE-601	Radiation Heat Transfer
TPE-602	Advanced Experimental Methods in Thermal and Fluid Engineering
TPE-603	Computational Fluid Dynamics
TPE-604	Compressible Fluid Flow
TPE-605	Energy System Modelling
TPE-606	Micro and Nano Fluids
ME-501	Mathematical Methods
ME-502	Environmental Management and Safety
ME-503	Advanced Mechanical Vibration
ME-504	Condition Monitoring
ME-505	Experimental Methods
ME-511	Project Contract Management
ME-602	Modeling and Simulation
ME-603	Advanced Finite Element Methods
ME-604	Machine Noise and Vibration Analysis
ME-605	Failure Analysis of Engineering Materials
ME-606	Computer Aided Die and Fixture Design
ME-607	Welding and NDT
ME-608	Reliability and Quality Engineering
Group-C	**Research Thesis**
ME-699	Research Thesis in the relevant area and Oral Exam (Compulsory for option (A))

M.Sc. Mechanical Design Engineering

Course Code	Course Title
Group-A	**Compulsory Subjects**
MDE-501	Advanced Stress Analysis
MDE-502	Theory of Plasticity
MDE-503	Theory of Elasticity
ME-601	Research Methods and Engineering Analysis
Group-B	**Elective subjects**
MDE-504	Finite Element Analysis
MDE-505	Biomechanics
MDE-506	Nano-Mechanics
MDE-507	Reliability Engineering
MDE-508	Advanced Engineering Dynamics
MDE-509	Pressure Vessel Design
MDE-510	Theory of Plates and Shells
MDE-511	Advanced Control Engineering
MDE-512	Advanced Computer Aided Design
MDE-513	Mechanics of Composite Materials
MDE-601	Non-linear Analysis of Structures
MDE-602	Advanced Shell Structures
MDE-603	Advanced Fatigue and Fracture Mechanics
MDE-604	Analytical Methods in Vibrations
MDE-605	Structural Health Monitoring
MDE-606	Design Optimization and Analysis Techniques
MDE-607	Continuum Mechanics
ME-501	Mathematical Methods
ME-502	Environmental Management and Safety
ME-503	Advanced Mechanical Vibration
ME-504	Condition Monitoring
ME-505	Experimental Methods
ME-602	Modeling and Simulation
ME-603	Advanced Finite Element Methods
ME-604	Machine Noise and Vibration Analysis
ME-605	Failure Analysis of Engineering Materials
ME-606	Computer Aided Die and Fixture Design
ME-607	Welding and NDT
ME-608	Reliability and Quality Engineering
Group-C	**Research Thesis**
ME-699	Research Thesis in the relevant area and Oral Exam (Compulsory for option (A))

M.Sc. Renewable Energy Systems Engineering

Course No.	Course Title
Group-A	**Compulsory Subjects**
RES-501	Photovoltaic Systems
RES -502	Solar Thermal Systems
RES -503	Wind Energy Systems
RES -504	Micro & Mini Hydro Energy Systems
Group-B	**Elective subjects**
RES-505	Renewable Energy Resource Assessment
RES-506	Bio Energy Engineering
RES-507	Energy Systems Modelling and Simulation
RES-508	Hybrid Energy Systems
RES-509	Conventional Hydro Power Plants
RES-510	Energy Audit and Management
RES-511	Concentrated Solar Power System
RES-512	Renewable Energy Integration and Applications
RES-513	Energy Transmission and Distribution
RES-514	Energy and Environment
RES-515	Sustainable Energy systems
RES-516	Smart Grids Systems
RES-517	Manufacturing and Materials for Renewable Energy Application
RES-518	Energy Efficient Buildings
RES-519	Renewable Energy Policy, Regulations and Standards
RES-520	Waste to Energy Systems & Management
RES-521	Energy Analytics, Economics and Planning
RES-522	Energy Storage Technologies
RES-523	Renewable Energy Projects Management
RES-524	Computational Fluid Dynamics
RES-525	Wave and Tidal Energy Systems
RES-526	OTEC and Geothermal Energy Systems
RES-527	Special/Advanced Topics in Renewable Energy
Group-C	**Research Thesis**
ME-699	Research Thesis in the relevant area and Oral Exam (Compulsory for option (A))

PhD Mechanical Engineering

Course No.	Course Title
Group-A	**Subjects**
ME-701	Non-linear Heat Transfer
ME-702	Heat Conduction
ME-703	Multiphase Flow
ME-704	Design of Experiment in Mechanical Engineering
ME-705	Time series Modelling, Analysis and Forecasting
ME-706	Turbulent Flow
ME-707	Non-Linear Vibrations
ME-708	Vibration of Complex Mechanical Systems
ME-709	Fatigue Analysis and Design
ME-710	Engineering Optimization
ME-711	Numerical Solutions of Partial Differential Equations
ME-712	Advanced Robotics and Automation
ME-713	Additive Manufacturing Engineering
ME-714	Advanced Stochastic Modelling and Simulation
ME-715	Tribology and Wear Engineering
ME-716	Toyota Production System
ME-717	Digital Manufacturing Simulation
ME-718	Vehicle Stability and Dynamics
ME-719	Advanced Cooling and Heating Technologies
ME-720	Special Topics in Mechanical Engineering
ME-721	Special Topics in Artificial Intelligence
Group-B	**Research Thesis**
ME-800	Research Thesis in the relevant area and Oral Exam (Compulsory for option (D))

(A) Thesis Option: 8 Subjects (24 credit hours) + Research Thesis (6 credit hours)
(D) PhD with Thesis: 6 Subjects (18 credit hours) + Research Thesis (42 credit hours)
*** The University of Engineering and Technology (UET) has signed Memorandum of Understanding (MoU) with Quid-e-Azam Thermal Power (Private) Limited (QATPL). Under this MoU agreement, QATPL sponsored ten (10) students in M.Sc. Thermal Power Engineering.**

AUTOMOTIVE ENGINEERING CENTRE

The Automotive Engineering Centre was initiated in 2005 to contribute to the automotive engineering field through research and innovation. A wide variety of Research, Development & Consultancy facilities such as engine performance testing, emission testing, automotive noise level measurement etc., are available at the Centre to support educational and industrial requirements. In addition to its Pakistan Engineering Council (PEC) accredited undergraduate program, the Automotive Engineering Centre is offering M.Sc. in Automotive Engineering and Ph.D. in Automotive Engineering.

Research Activities

The Automotive Engineering Centre is involved in research of alternative fuels for automobiles, exhaust emissions & pollution control, energy conservation systems, renewable energy resources for vehicles, modeling of engine flows, fuel sprays formation, wall interaction and flows across aerodynamic configurations, optical diagnostics, vehicle safety, crash testing, material optimization for vehicles, propulsion systems, electric vehicles policy, etc.

Postgraduate Faculty & Their Research Interests

Teacher Name	Research Interest
Prof. Dr. Tauseef Aized Khan Professor and Dean	Energy Technology, Management and Policy, Manufacturing Processes and Systems
Dr. Ali Hussain Kazim Associate Professor and Director	Heat Transfer, Electric Vehicles, Alternative Fuels, Energy Conservation, Nanoengineering
Dr. Hasan Izhar Khan Assistant Professor	High Temperature Materials, Stress Corrosion Cracking in High Temperature Environment, Corrosion Fatigue in High Temperature Environment
Dr. Saad Jahangir Assistant Professor	Experimental Fluid Mechanics, Multiphase Flows, X-Ray Imaging, Particle Image Velocimetry
Dr. Muhammad Ali Shahbaz Assistant Professor	Alternative Fuels, Internal Combustion Engines, Optical Diagnostics, Waste-to-Energy Technologies

M.Sc. Automotive Engineering

Course Code	Course Title
Group-A	**Compulsory Subjects**
AME-501	Automotive IC Engines
AME-502	Automotive Control Systems
AME-503	Vehicle Dynamics
ME-601	Research Methods and Engineering Analysis
Group-B	**Elective Subjects**
AME-504	Exhaust Emissions and Control
AME-505	Automotive Vibration, Noise and Harshness
AME-506	Automotive Manufacturing Processes
AME-507	Tribology in Automotive Engineering
AME-508	TQM in Automotive Engineering
AME-509	Operation Management in Automotive Manufacturing
AME-510	Thermal Management in Automotive Applications
AME-511	Automotive Sensor Systems
AME-512	Advanced CAD & CAM
AME-513	Automotive Air-conditioning Systems
AME-514	Computer Integrated Manufacturing (CIM)
AME-515	Advanced Thermodynamics
AME-516	Computational Fluid Dynamics
AME-517	Electric Vehicles
AME-518	Materials for Automotive Applications
AME-601	Fracture Mechanics
AME-602	Micro and Nano Manufacturing
AME-603	Advanced Aerodynamics
AME-604	Vehicle Propulsion Systems
ME-501	Mathematical Methods
ME-502	Environmental Management and Safety
ME-503	Advanced Mechanical Vibration
ME-504	Condition Monitoring
ME-505	Experimental Methods
ME-602	Modeling and Simulation
ME-603	Advanced Finite Element Methods
ME-604	Machine Noise and Vibration Analysis
ME-605	Failure Analysis of Engineering Materials
ME-606	Computer Aided Die and Fixture Design
ME-607	Welding and NDT
ME-608	Reliability and Quality Engineering
Group-C	**Research Thesis**
ME-699	Research Thesis in the relevant area and Oral Examination

DEPARTMENT OF INDUSTRIAL & MANUFACTURING ENGINEERING

The Postgraduate Program of Department of Industrial & Manufacturing Engineering is well established program which offers M.Sc. and Ph.D. degrees in two specializations i.e., Engineering Management & Manufacturing Engineering. The program has earned its credibility over the years due to its updated curriculum which is designed while taking into consideration the industrial requirements and the technological advancements.
The postgraduate degrees offered by the department include:

1. M.Sc. Manufacturing Engineering
2. M.Sc. Engineering Management
3. Ph.D. Manufacturing Engineering
4. Ph.D. in Engineering Management

Manufacturing Engineering
The M.Sc. Manufacturing Engineering Program of the Department of Industrial & Manufacturing Engineering, UET Lahore aims to produce specialized engineers, equipped with: a solid technical background, comprehension of new process technologies, a firm grasp of business matters, aspects of manufacturing policy, strong understanding of productivity improvement techniques and readiness to lead diverse teams while satisfying customers' expectation for high quality products.

Engineering Management
The aim of M.Sc. Engineering Management Program of the Department of Industrial & Manufacturing Engineering, UET Lahore is aimed to prepare engineering professionals who respond successfully to the ever-changing demands of the global marketplace, integrate analytical skills with Managerial decision making in the concept, design and development of profitable products and efficient processes, while striving to conserve energy and protect the environment.

The department takes pride in its research-intensive approach at post graduate level for both programs. Highly qualified faculty members guide the students in their respective research areas, pertaining, to both manufacturing engineering and engineering management. More than 75 impact factor papers were published in years 2022-2024 whereas 107 M.Sc. and 8 PhD produced in the period, speaking of the high quality research work facilitated by the department.

Postgraduate Faculty & Their Research Interests

Teacher Name	Research Interest
Dr. Tauseef Aized Professor/Dean	Industrial Robot modeling and development, Lean Manufacturing Toyota Production System, Production and Operations Management, Energy Policy and Planning at local, national and regional levels, Automotive air-conditioning system, Petri net based modeling of discrete event system (Flexible manufacturing system etc.),Energy management and conservation in building and industrial sectors (ISO 50001 Energy Management System)
Dr. Nadeem Ahmad Mufti Professor Emeritus	Manufacturing Engineering Engineering Management
Dr. Muhammad Qaiser Saleem Professor and Chairman	Manufacturing Engineering Engineering Management
Dr. Kashif Ishfaq Associate Professor	Manufacturing Engineering Engineering Management
Dr. Sarmad Ali Khan Associate Professor	Manufacturing Engineering
Dr. Sadaf Zahoor* Associate Professor	Manufacturing Engineering Engineering Management
Dr. Rakhshanda Naveed Assistant Professor	Manufacturing Engineering
Dr. Syed Farhan Raza Rizvi Assistant Professor	Manufacturing Engineering
Dr. Muhammad Faisal Shahzad Assistant Professor	Manufacturing Engineering Engineering Management
Dr. Muhammad Salman Habib* Assistant Professor	Engineering Management
Dr. Sana Ehsan Assistant Professor	Manufacturing Engineering
Dr. Kiran Mughal Lecturer	Manufacturing Engineering

* on leave

M.Sc. Manufacturing Engineering

Course Code	Course Title
	Core Courses (Compulsory)
MF-501	Concurrent Product and Process Design
MF-502	Production Planning and Control
MF-503	Advanced Topics in Manufacturing
MF-504	Lean Manufacturing
	Elective Courses
MF-505	Manufacturing Strategy
MF-506	CAD/CAM
MF-507	CIM and Industry 4.0
MF-508	Tool Design
MF-509	Manufacturing Systems Analysis
MF-510	Research Methodology in Manufacturing
EM-504	Total Quality Management
EM-506	Economic Decisions in Engineering
EM-507	Environmental Management and Safety
EM-502	Operations Management
EM-515	Sustainability in Operations
MF-601	Trends in Manufacturing Processes
	Thesis
MF-699	Thesis

M.Sc. Engineering Management

Course Code	Course Title
	Core Courses (Compulsory)
EM-501	Human Resource Management
EM-502	Operations Management
EM-503	Project Management
EM-504	Total Quality Management
	Elective Courses
EM-505	Principles of Engineering Management
EM-506	Economic Decisions in Engineering
EM-507	Environmental Management and Safety
EM-508	Management Information Systems
EM-509	Legal and Ethical Aspects in Engineering Management
EM-510	Business Communications
EM-511	Industrial Marketing Management
EM-512	Operations Research
EM-513	Logistics and Supply Chain Management
EM-514	Research Methodology in Engineering Management
EM-515	Sustainability in Operations
MF-552	Production Planning and Control
EM-601	Project Constraint and Risk Management
	Thesis
EM-699	Thesis

DEPARTMENT OF MECHATRONICS & CONTROL ENGINEERING

The fast dynamics of modern technology coupled with changing needs the industry have called for merging of electronics engineering with mechanical engineering into a new discipline called "Mechatronics". Mechatronics is the synergistic combination of precision mechanical engineering, electronics, control engineering and computer science. It deals with the integration of mechanical devices, actuators, sensors, electronics, intelligent controllers and computers. Mechatronics is essential in the design of intelligent products (such as robots); it allows engineers to transform their concepts into reality. During the forthcoming decades, the use of intelligent products with improved flexibility, performance, reliability and maintainability will be crucial for the economic vitality of any country. The curriculum and the courses, generally, aim at hands-on experience in mechatronics engineering, with special emphasis on the engineering design of mechatronic products. Specifically, the graduate program at the department also emphasizes the cutting-edge research in the field.

Postgraduate degrees offered by the department:

1. M.Sc. Mechatronics Engineering
2. Ph.D. Mechatronics Engineering

Course Requirements

To graduate, a student needs to accumulate a total of 30 credit hours and obtain a minimum of 2.5 CGPA taking 24 credit hours of course work including compulsory and elective courses along with 6 credit hours of Research Thesis". The students who opt for research thesis may apply for allocation of thesis topic after successful completion of three courses.

Research

The department's faculty is actively engaged in various funded research projects. Specifically, the following two labs are exploring new R&D directions in mechatronics.

Human-Centered Robotics Lab is part of the newly established National Center of Robotics and Automation (NCRA). The lab has indigenously designed and developed two robotic arms, Dexter-5 and Dexter-6 for typical industrial applications. These prototypes enable seamless interaction with the human co-worker and exhibit basic features of a collaborative robot. The lab is also working on the development of the industrial exo-skeletons, both active and passive, as well as active prostheses for the lower-limb amputees.

IHYA lab is another research lab of our department that deals with bio-mechatronics research, especially in the domain of resuscitation sciences. This research lab has been recently established by the department in collaboration with Hamad Medical Corporation Qatar. The Lab aims to develop smart and marketable mechatronic devices which aid in the resuscitation practices, in and out of hospital settings, thus saving precious lives of the patients. It also aims to become an innovation hub in the domain of resuscitation sciences. Currently, the major focus of the lab is on the development of newer CPR technologies, sports biomechanics and smart biomedical devices.

Postgraduate Faculty & Their Research Interests

Teacher Name	Research Interest
Dr. Tauseef Aized Professor and Dean	Computer aided design; Process modeling; simulation and safety; Process systems engineering.
Dr. Ali Raza Associate Professor and Chairman	Human-Centered Robotics, Robot Heterogeneity, Artificial Immune Systems, Bio-Mechatronics
Dr. Mohsin Rizwan Associate Professor	Optimal Control Systems, Micro Scale Manipulation and Assembly, NonLinear Structural Analysis
Dr. M. Ahsan Associate Professor	Machine Learning, Artificial Intelligence, Quantum Computing, Quantum Control, Computer Architecture
Dr. Syed Abbas Zilqurnain Naqvi Associate Professor	Statistical Machine Learning.
Dr. Maria Akram Assistant Professor	Artificial Immune System, Robotics.
Dr. Ayisha Nayyar Assistant Professor	Structural health monitoring, Condition-based monitoring of rotating machine elements, Vibration analysis of industrial robots.
Dr. Muhammad Ahsan Naeem Assistant Professor	MEMS Modeling, Mixed Reality.
Dr. Maliha Saleem Bakhshi Assistant Professor	Biosensors, Artificial Intelligence, MEMS, Integrated manufacturing

Course Code	Course Title
	Core
MCT-551	Robotics and Automation (Core)
MCT-561	Modeling of Physical Systems (Core)
MCT-562	Mechatronic Systems (Core)
MCT-566	Engineering Analysis (Core)
	Electives
MCT-602	Advanced Numerical Methods
MCT-603	Product Design & Development
MCT-604	Research Methodology
MCT-611	Advanced Dynamics
MCT-612	Precision Machine Design
MCT-613	Condition Monitoring
MCT-614	Structural Health Monitoring
MCT-615	Nonlinear Dynamical Systems
MCT-621	Signal Conditioning and Processing
MCT-631	Modern Control Systems
MCT-633	Digital Control Systems
MCT-634	Adaptive Control Systems
MCT-635	Estimation and Filtering
MCT-636	Nonlinear Control Systems
MCT-637	Dynamics and Control of Automotive Systems
MCT-638	Robust Control Systems
MCT-639	Optimal Control Systems
MCT-641	Machine Intelligence
MCT-643	Digital Image Processing
MCT-652	Mobile Robotics
MCT-653	Artificial Intelligence for Robotics
MCT-654	Intelligent Systems
MCT-656	Principles of Artificial Intelligence
MCT-661	Intelligent Manufacturing Systems
MCT-663	Advanced Embedded Systems
MCT-664	Sensors and Actuators
MCT-665	Biomedical Instrumentation and Systems
MCT-666	Hydraulics and Pneumatics
MCT-667	Micro-Electro-Mechanical Systems
MCT-668	Mechatronics Project Management
MCT-691	Advance Topics in Mechatronics
Research Thesis	
MCT-699	Research Thesis

DEPARTMENT OF CIVIL ENGINEERING

The Department of Civil Engineering is one of the oldest departments in the country imparting civil engineering courses at undergraduate and postgraduate levels. The department was established in 1939 as a part of the Maclagan Engineering College, Lahore. Currently, it has an enrolment of over 1000 students in bachelor, Master and Ph.D. The department has strong alumni backup numbering more than 8000 alumni, leading the national and regional development. The No. of PhD. faculty members serving in the department are maximum comparable to any other Civil Engineering program offered in the country.

The department has the following divisions to conduct its teaching and research programs:

1. Structural Engineering
2. Geotechnical Engineering
3. Hydraulics and Irrigation Engineering

M.Sc. Degree Program Offered
The department offers the following courses of studies at postgraduate level:

1. M.Sc. Structural Engineering
2. M.Sc. Geotechnical Engineering
3. M.Sc. Hydraulics and Irrigation Engineering
4. Ph.D. Civil Engineering

The master's degree courses consist of lectures, design work, laboratory investigations, presentations, seminars and research. The emphasis is on introducing students to modern trends and techniques besides imparting advanced knowledge in their fields of specialization.

Laboratories and Other Facilities

The department has the following well-equipped laboratories with the latest testing machinery, which meet the academic needs of students and teachers as well as the professional needs of the government and private organizations, which includes:

- Advance Material
- Computer
- Concrete
- Earthquake Engineering
- Transportation Engineering
- Hydraulics & Irrigation Engineering
- Geotechnical Engineering
- Strength of Materials
- Engineering Mechanics
- Surveying
- Test Floor

The department has adequate research facilities for the postgraduate students and the faculty. Priority of the department has been towards solution of different problems faced by the public/private sectors in the field of civil engineering.

Postgraduate Faculty & Their Research Interests

The department has adequate research facilities for the postgraduate students and the faculty. Priority of the department has been given towards solution of different problems faced by the public/private sectors in the field of civil engineering in the county. During the recent few years, departmental faculty members have won three international research grants, sixteen national grants, and started national and international research collaborations as well.

The faculty members are engaged in a variety of research programs such as low cost housing, Investigation of Mechanical properties of concrete, Alkali-Silica Reaction, Geopolymer Concrete and brick development, use of indigenous materials, Composite Space Structures, Towers, Stability of slopes, Soil improvement techniques, determination of B.C., pneumatic techniques, seepage, water logging and salinity control, sedimentation in channels and reservoirs, River Flood Hydraulics, Application of Geographical Information Systems (GIS) in various fields of Civil Engineering, Hydrological Modelling, soil erosion and sediment transport modelling, flood modelling for coastal areas due to climate change, offshore hydraulics, bond strength of ultra-high strength concrete, development and use of FRP materials, high performance concrete, earthquake risk assessment & retrofitting techniques, reliability based design and development of computer software for the complex civil engineering problems.

Faculty Member	Research Interest
Prof. Dr. Khalid Farooq Professor and Dean	Geotechnical Characterization, Slope Stability, Problematic Soils and Soil Improvement Techniques
Prof. Dr. Noor Muhammad Khan Professor and Chairman	Simulation and Optimization of Water Resources Projects, Reservoir Sedimentation, River flood modelling, GIS & RS Applications in Civil Engineering
Prof. Dr. Asad Ullah Qazi Professor	Structural Dynamics and Earthquake Engineering. Performance evaluation of infilled masonry walls.
Prof. Dr. Asif Hameed Professor	Innovation and new trends in bridge structures, Active and passive control of structures, Structural dynamics and earthquake response of the structures, Construction management and planning.
Prof. Dr. M. Burhan Sharif Professor	Concrete Materials and development of software Analysis and Design of Structures, Seismic design of structures
Prof. Dr. Rashid Hameed Professor	Structural Properties and Numerical Analysis of Fiber Reinforced Concrete structures
Prof. Dr. Hassan Mujtaba Shahzad Professor	Developing correlations between various geotechnical parameters for non-cohesive and cohesive soils Problematic soils and their mitigation techniques
Dr. Muhammad Azhar Saleem Associate Professor	Application of nano materials in construction, recycled materials, nondestructive testing of concrete structures, bridge rating, assessment and management of bridges, application of ultra-high performance concrete in bridges & low-cost housing.
Dr. Safeer Abbas Associate Professor	Precast Tunnel Lining Design & Application. Durability of RCC, Fiber Reinforced Concrete, Structural Optimization.
Dr. Qasim Shaukat Khan Associate Professor	Fiber reinforced tube confined concrete, Geopolymer concrete
Dr. Ali Ahmed Associate Professor	Low-Cost housing, Rehabilitation of damaged structural elements, Properties and durability of concrete, Dynamic behavior of structures, Structural Health Monitoring, Bio-Inspired Construction Materials & Sustainable Construction.
Dr. Nauman Khurram Associate Professor	Non-Linear FE analysis of RCD & steel structure, structural Health Monitoring strengthening & Retrofitting of structures
Dr. Jahanzaib Israr	Soil Mechanics and Foundation Engineering stability of granular filters under cyclic loading

Associate Professor	
Dr. Muhammad Irfan-ul-Hassan Associate Professor	Cement and ConcreteComposites, Experimental & Multiscale Modelling Approach, Analysis and Design of Structures, Sustainable Construction Materials , Low-Cost Housing and Development of Innovative Products for Construction
Dr. Wasim Abbas Associate Professor	Fiber reinforced concrete, supplementary cementitious composites, Durability of concrete, High performance concrete
Dr. Rizwan Azam Associate Professor	Assessment and rehabilitation of structures. Sustainable building materials. Design optimization.
Dr. Muhammad Mazhar Saleem Associate Professor	Dynamic Testing, Properties and durability of concrete, Beam-Column joint behavior and its dynamics, Dynamic behavior of structures, Structural Health Monitoring
Dr. M. Rizwan Riaz Associate Professor	Earthquake Engineering, Disaster Management, Structural Dynamics, Finite Element Modelling, Eco-friendly structural materials
Dr. Syed Asad Ali Gillani Associate Professor	Durability of thin bonded cement-based overlays
Dr. Usman Akmal Associate Professor	Durability of Concrete, Analysis and Design of Tall building and Dynamics Analysis of structures
Dr. Imtiaz Rashid Assistant Professor	Geotechnical Exploration
Dr. Muhammad Yousaf Assistant Professor	Self-Compacting Concretes
Dr. Umbreen us Sahar Assistant Professor	The numerical modelling and simulation of mechanical behavior of strain hardening cementitious composites and high strength concrete under short-term and time-dependent loading.
Dr. Aqsa Shabbir Assistant Professor	Project Management
Dr. Muhammad Ali Falak Assistant Professor	Engineered Barrier systems for radioactive materials
Dr. Muhammad Kashif Assistant Professor	Non-Linear Structural Analysis, 3D Finite Element Modeling of Early-Age Concrete Cracking, Structural Performance of Continuous Reinforced Concrete, Finite Element Simulation of Reinforced Concrete Structures
Dr. Ehtesham Mehmood Assistant Professor	Geotechnical engineering, Rock fall hazard assessment
Dr. Ubaid Ahmed Mughal Lecturer	Confined Masonry structures, Ferrocement, Finite Element modelling
Engr. Usman Ali Assistant Professor	Hydraulics engineering, hydraulic structures

List of M.Sc. Subjects Offered

Notes:

- Most of the subjects are 3(3+0) credit hours unless specified.
- Degree requirement is completion of 30 credit hours including 24 credit hours of course work and 6 credit hours of research thesis.
- For non-thesis option (only for weekend program), two subjects from the list of Electives may be taken in lieu of Research Thesis with the approval of the Chairman.

M.Sc. Structural Engineering

Course Code	Course Title
Compulsory Subjects	
STE-501	Advanced Structural Analysis
STE-602	Advanced Reinforced Concrete Design
STE-603	Advanced Structural Materials
STE-504	Prestressed Concrete
STE-505	Design of Steel and Composite Structures
STE-506	Seismic Analysis and Design of Structures
Elective Subjects (Any two)	
STE-507	Bridge Engineering
STE-609	Theory of Plates and Shells
STE-511	Stability of Structures
STE-612	Advanced Structural dynamics
STE-513	Seismology and Earthquake Engineering
STE-514	Seismic Design of Masonry Structures
STE-615	Structural Optimization
STE-616	Fracture Mechanics of Concrete
STE-517	Advanced Concrete Technology
GTE-601	Advanced Soil Mechanics
GTE-602	Advanced Foundation Engineering
GTE-505	Geotechnical Investigation
GTE-509	Geoenvironmental Engineering
GTE-511	Numerical Methods in Engineering
HIE-601	Hydraulic Structures
HIE-503	Hydro Power Engineering
HIE-504	Irrigation & Drainage Engineering
HIE-511	Application of RS & GIS in Civil Engineering
TE-503	Pavement Analysis and Design
TE-505	Airport Planning and Design
TE-506	Advanced Railway Engineering
TE-510	Highway Construction Materials and Equipment
STE-699	Research Thesis

M.Sc. Geotechnical Engineering

Course Code	Course Title
Compulsory Subjects	
GTE-601	Advanced Soil Mechanics
GTE-602	Advanced Foundation Engineering
GTE-503	Applied Soil Dynamics
GTE-504	Dam Engineering
GTE-505	Geotechnical Investigation
GTE-506	Soil Improvement Techniques
Elective Subjects (Any two)	
GTE-507	Earth Retaining Structures
GTE-509	Geoenvironmental Engineering
GTE-511	Numerical Methods in Engineering
GTE-513	Geotechnical Risk Assessment
GTE-514	Environmental Impact Assessment
TE-502A	Geometric Design and Highway Safety
TE-503A	Pavement Analysis and Design
TE-505A	Airport Planning and Design
TE-506A	Advanced Railway Engineering
TE-507A	Pavement Evaluation and Rehabilitation
TE-510A	Highway Construction Materials and Equipment
TE-515A	Statistical Analysis with computer application
HIE-601	Hydraulic Structures
HIE-504	Irrigation & Drainage Engineering
HIE-505	Applied Hydrology
HIE-511	Application of RS and GIS in Civil Engineering
STE-602	Advanced Reinforced Concrete Structure
STE-603	Advanced Structural Materials
STE-505	Design of Composite and Steel Structures
STE-506	Seismic Analysis and Design of Structures
Min-E-611	Rock Slope Engineering
Min-E-503	Advanced Excavation Engineering
Min-E-657	Engineering Data Analysis
Geo-E-519	Advanced Rock Engineering
Geo-E-512	Advanced Engineering Geology
Geo-E-522	GIS & Remote Sensing
Geo-E-501	Under Ground excavation and Tunneling
CWR-698	Research Methodology
GTE-699	Research Thesis

M.Sc. Hydraulics & Irrigation Engineering

Course Code	Course Title
Compulsory Subjects	
HIE-601	Hydraulic Structures
HIE-602	Advanced Fluvial Hydraulics
HIE-503	Hydro Power Engineering
HIE-504	Irrigation & Drainage Engineering
HIE-505	Applied Hydrology
HIE-519	Experimental and Numerical modelling in Hydraulics
Elective Subjects (Any two)	
HIE-507	Fluid Mechanics
HIE-508	Drainage Engineering
HIE-509	Computer Aided Design of Hydraulic Structures
HIE-510	River Engineering & Flood Management
HIE-511	Application of RS & GIS in Civil Engineering
HIE-612	Soil Erosion & Watershed Management
HIE-613	Hydrological Modelling
HIE-514	Water Resources Planning & Management
HIE-515	Ground Water Engineering
HIE-605	Sediment Transport
STE-602	Advanced Reinforced Concrete Design
STE-603	Advanced Structural Material

STE-507	Bridge Engineering
GTE-601	Advanced Soil Mechanics
GTE-504	Dam Engineering
GTE-505	Geotechnical Investigation
GTE-506	Soil Improvement Techniques
GTE-507	Earth Retaining Structures
GTE-509	Geo-environmental Engineering
TE-503A	Pavement Analysis and Design
TE-505A	Airport Planning and Design
TE-506A	Advanced Railway Engineering
TE-510A	Highway Construction Materials & Equipment
CWR- 615	Physical and Numerical Modelling
CWR-603	Statistical Hydrology
CWR-606	Groundwater Hydrology and Exploration
CWR-621	Design of Hydropower Plants
WR-633	Water Quality Modelling and Management
CWR-652	Groundwater Modelling
CWR-691	Environmental Impact Assessment
CWR-696	Computer Applications in Water Resources
CWR-698	Research Methodology
HIE-699	Research Thesis

DEPARTMENT OF TRANSPORTATION ENGINEERING & MANAGEMENT

The Department of Transportation Engineering and Management (DTEM) was established under the Faculty of Civil Engineering in 2002. The establishment of this Department aimed to produce transportation engineers capable of planning, designing, constructing, managing, operating, and maintaining various modes of transportation such as highways, railways, airways, seaways, and pipe ways. The Department has the distinction of being the first department in Pakistan to offer a formal M.Sc. Degree course in Transportation Informatics.

Mission Statement

Our mission is to produce transportation engineering graduates with sound knowledge and skills to meet the evolving needs of the society for national and international socio-economic development.

Educational Objectives

Graduates actively engage themselves in problem-solving to address the evolving transportation needs of the society for sustainable development.
Graduates exhibit sound professionalism, managerial qualities, effective communication, and capacity building in the field of transportation engineering.
Graduates demonstrate commitment to serving the society with a sense of responsibility, moral values, and teamwork.

Courses of Study

The Department offers the following postgraduate courses of studies:

1. M.Sc. Transportation Engineering
2. M.Sc. Transportation Informatics
3. Ph.D. Transportation Engineering

The emphasis of the Master's degree courses is on the application of advanced principles of design, analysis, evaluation, material characterization that constitute practice (design and construction), research and development of Transportation Engineering. The courses consist of lectures, design/practical work, laboratory/field investigations, presentations, and research thesis (optional).

Laboratories and Other Facilities

The Department has various dedicated laboratories for postgraduate research that include Geo-materials, Pavement Materials, Transportation Computer Aided Design, Asphalt and Concrete Mix Design, Traffic Engineering, and is in the process of establishing Railway Engineering and Geomatics Engineering Labs. The Department also uses laboratories from the Departments of Civil, Environmental, Geological, Polymer, Chemical, Physics and Electrical Engineering. The Department is using state-of-the-art software and tools for postgraduate teaching and training purposes. The Department has a well-stocked library with a large number of the latest relevant books, journals, and research publications.

Transportation engineering graduates of this program have sufficient opportunities of getting jobs in various government/private departments including (but not limited to), Lahore Development Authority (LDA), Traffic Engineering & Transport Planning Agency (TEPA) under Lahore Development Authority (LDA), Punjab Masstransit Authority (PMA), Transport Department Government of Punjab, Orange Line Metro Rail Transit System (OLMRTS), Lahore Ring Road Authority, Punjab Safe City Authority, Urban Unit, National Engineering Services Pakistan (NESPAK), National Transport Research Centre (NRTC), Pakistan Army, TransPeshawar, TransKarachi, Daewoo, VEDA Transit Solutions, Ravi Urban Development Authority (RUDA), Associated Consultant Engineers (ACE), National Development Consultants (NDC), SKB Engineering & Construction, Mott MacDonald Pakistan (MMP), Frontier Works Organization (FWO), National Logistics Cell (NLC), National Highway Authority (NHA), Multan Development Authority (MDA) and many other public and private sector organizations. There is a high employment demand for Transportation Engineers in the Middle East, Europe, Australia, and the United States. A number of our alumni are successfully serving in different international engineering and research organizations around the globe. Since the accreditation of the undergraduate program with PEC level- II Washington Accord, the international recognition and acceptance of our graduates is rapidly increasing.

Postgraduate Faculty & Their Research Interests

Teacher Name	Research Interest
Prof. Dr. Khalid Farooq Dean	Geotechnical Characterization, Slope Stability, Problematic Soils and Soil Improvement Techniques
Prof. Dr. Ammad Hassan Khan Chairman	Road Traffic Operation Analysis & Transportation Planning
Dr. Abdur Rahim Associate Professor	Asphalt technology, Construction materials and pavements
Dr. Izza Anwer Assistant Professor	Information and Communication technologies, Transportation Management
Dr. Hina Saleemi Assistant Professor	Transportation Management
Dr. Saadia Tabassum Assistant Professor	Transportation Management
Dr. Mujassim Ali Rizvi Assistant Professor	Transportation Management
Dr. Bilal Zia Malik Assistant Professor	Transportation Management

DEGREE OPTIONS FOR MSc

Following options are available:

- Thesis Option: 8 Subjects including compulsory and elective (24 credit hours) + Research Thesis (6 credit hours)
- Non-thesis option: 10 Subjects including compulsory and elective (30 credit hours)

SUBJECTS OFFERED in M.Sc./Ph.D.

Note: All courses are 3(3+0) credit hours each unless otherwise specified

M.Sc. Transportation Engineering	
Compulsory Subjects	
TE-501A	Transportation Planning and Engineering
TE-502A	Geometric Design and Highway Safety
TE-503A	Pavement Analysis and Design
TE-504A	Advanced Traffic Engineering
TE-506A	Advanced Railway Engineering
TE-513A	Asphalt Mix Design and Construction
Elective Subjects	
TE-505A	Airport Planning and Design
TE-507A	Pavement Evaluation and Rehabilitation
TE-508A	Planning for Traffic Safety and Injury Prevention
TE-509A	Pavement Management Systems
TE-510A	Highway Construction Materials and Equipment
TE-511A	Harbor and Dock Engineering
TE-512A	Bridge and Tunnel Engineering
TE-514A	Pavement Distress Identification and Preservation
TE-515A	Statistical Analysis with Computer Application
TE-516A	Field Investigation for Transportation Structures
TE-517A	Soil Dynamics
GE-501	Advanced Soil Mechanics
GE-502	Foundation Engineering-I
GE-503	Foundation Engineering-II
GE-504	Dam Engineering
GE-505	Geotechnical Investigation
GE-506	Soil Improvement Techniques
GE-508	Rock Engineering
SE-502	Reinforced Concrete Structures
SE-504	Prestressed Concrete
SE-506	Seismic Design of Structures
HI-511	Application of RS & GIS in Civil Engineering
TE-518	MSc Thesis
TE-520	Ph.D Thesis

M.Sc. in Transportation Informatics	
Compulsory Subjects	
TI-501	Intelligent Transportation System and their Applications
TI-502	Intelligent Solutions in Transportation
TI-503	Data Science for Transportation Informatics
TI-504	Programming Fundamentals and Data Structures
Elective Subjects	
TI-505	Transport Informatics
TI-506	Transport Planning GIS (Geographic Information System) – Expert Systems inTransportation
TI-507	Transport Planning
TI-508	Big Data Management and Analysis in Transportation
TI-509	Management of Urban Traffic Congestion
TI-510	Economic Analysis of Transportation Alternatives
TI-511	Forecasting Urban Travel Demand
TI-512	Control Theory for Transportation Engineering
TI-636	Cloud Computing
TI-640	Knowledge Discovery in Databases
TI-641	Design of Intelligent System
TI-643	Machine Learning
TI-644	Experts Systems and Knowledge Management

INSTITUTE OF ENVIRONMENTAL ENGINEERING & RESEARCH

Mission

To produce graduates capable to solve complex engineering problems related to environmental engineering, provide innovative and sustainable solutions for water supply, sewerage, water and wastewater treatment, solid waste management & air pollution problems, and devise appropriate solutions for above utility services.

Introduction

This Institute was established in 1972 as a post-graduate research institute. It is the premier educational institution in the field of Environmental Engineering in Pakistan. Its programs of education, training, research, advisory services and publications made their impact at national level. High quality problem-based research is the top priority of the Institute. Publications from the research work are accepted in high quality international journals and are widely cited throughout the world. It is also one of the oldest and most reliable organization providing commercial testing services in water, wastewater and air. The Institute played major role in framing National Environmental Quality Standards (NEQS) and National Standards for Drinking Water Quality (NSDWQ).

Laboratories and Library

The Institute has following state of art laboratories for the research and investigations:

1. Unit Process Lab
2. Instrumental Lab
3. Environmental Microbiology Lab
4. Water and Wastewater Analysis Lab
5. Wet Chemistry Lab
6. Air & Noise Pollution Control Lab
7. Computer Lab

Water and Wastewater Analysis, Air Pollution Measurement, Solid Waste Analysis, Heavy Metal Analysis, Pesticides, Insecticides, and other organic compounds analysis are performed in these laboratories. These laboratories provide facilities for routine laboratory work associated with undergraduate

and postgraduate courses and also used for postgraduate research students. In addition, commercial testing of water and wastewater samples and air quality is also carried out in the labs.

The Institute is also equipped with one library containing literature on various aspects of environmental engineering. At present it has about 2,000 titles including proceedings of symposia, workshops, conferences, seminars and journals on air pollution, solid waste management, water and wastewater engineering, noise pollution and other related fields. The library is augmented with regular additions of books and reading material by utilizing its own resources. It is used by the University staff and students. Online digital library having more than 24,000 journals is now added to IEER library.

Research

Research is conducted in the Institute by the faculty and postgraduate students. The Institute has more than 240 M.Sc. thesis and 09 Ph.D. thesis to its credit. Faculty has published more than 230 research papers in national and international journals. This research work is cited in more than 4500 international research papers and books. The faculty has also authored 3 books on the subject of (1) Laboratory Techniques in Environmental Field, (2) Solid Waste Management and (2) Water Supply and Sewerage.

Consultancy and Advisory Services

Institute renders advisory and consulting services to international and national organizations. To name few are: World Bank, Asian Development Bank, UNICEF, UNDP, USAID, The Urban Unit Punjab, PHED, National Planning Commission, Environmental and Urban Affairs Division, Provincial Public Health Engineering Departments and EPAs, Water and Sanitation Agencies, City Governments, and individual establishments. These services are provided in the following fields.

1. Water & wastewater testing
2. Air pollution control
3. Solid waste management
4. Environmental impact assessment
5. Investigations and design of rural and urban water supply
6. Sanitation systems
7. Planning and design of water & wastewater treatment facilities

Academic Programs

The Institute offers postgraduate programs leading to the following degrees

1. M.Sc. Environmental Engineering
2. M.Phil. Environmental Science
3. Ph.D. Environmental Engineering

Postgraduate Faculty & Their Research Interests

Teacher Name	Research Interest
Prof. Dr. Khalid Farooq Professor and Dean	Geotechnical Site Characterization, Rock Mass Classification Systems and Deformation Modulus, Relative Compaction and Relative Density of Granular Soils, Identification and Stabilization Techniques of Expansive Soils, Rainfall-induced Slope Failures
Prof. Dr. Amir Ikhlaq Professor and Director	Nanotechnology for environmental remediation, porous adsorbents for wastewater treatment, Advanced catalytic technology for water treatment
Dr. Javed Anwar Aziz	Waste Water Treatment
Dr. Sajjad H. Sheikh Professor	Water and Wastewater Treatment, Designing and Optimization of Water Supply and Sewerage System using Computer Software, Water Source Development and Testing, Solid Waste Management

Dr. Muhammad Umar Farooq Associate Professor	Water Quality Analysis, Nanotechnology in Environmental Chemistry, Adsorption & Removal of Contaminants, Air Pollution
Dr. Muhammad Irfan Jalees Associate Professor	Environmental Chemistry, Analysis and Removal of Heavy Metals, Organic Geochemistry, Health Risk Assessment
Dr. Mehwish Anis Associate Professor	Advanced Wastewater Treatment, Treatment of Emerging Contaminants, Solid Waste Management
Dr. Ghulam Hussain Associate Professor	Water Treatment, Water Supply, Sewerage and Drainage, Water Quality Modelling
Dr. Fizza Zahid Assistant Professor	Modeling of water systems, Lattice Boltzmann method, Pore-scale modeling of multi-phase flow, Numerical Modeling of Environmental Systems
Dr. Gul -E- Hina Lecturer	Water Supply & Sewerage System Design, Water Quality Modelling, Water & Wastewater Treatment, Solid Waste Management

M.Sc. Environmental Engineering

	Core Courses
Course Code	**Course Title**
Env-E-501	Environmental Management and Impact Assessment
Env-E-502	Physicochemical Processes in Environmental Systems
Env-E-503	Wastewater Treatment and Design
Env-E-504	Experimental Methods in Environmental Engineering (2+1)
Env-E-505	Industrial and Hazardous Waste Management
Env-E-521	Water Supply and Wastewater Collection Systems
Env-E-509	Air and Noise Pollution Control
Env-E-523	Water Quality Modelling
Env-E-516	Municipal Solid Waste Principles and Management
Env-E-517	Research Methods in Environmental Engineering
	Elective Courses
Env-E-522	Environmental Chemistry and Microbiology
Env-E-519	Ecological Risk Assessment and Management
Env-E-518	Environmental and Occupational Health and Safety
Env-E-513	Marine Pollution and Control
Env-E-524	Modelling of Environmental Systems
Env-E-515	Agricultural Pollution and Control
Env-E-520	Remote Sensing and GIS Applications in Environmental Systems (2+1)
EnS-552	Climate Change Adaptation and Mitigation
EnS-553	Strategic Environmental Assessment
EnS-558	Environmental Risk Assessment and Management
EnS-562	Remediation Strategies for Contaminated Environment
EnS-564	Environmental Applications of Nanomaterials
	Research/Thesis
Env-E-549	Thesis

Coursework requirement: Any six (06) from Core Courses and two (02) from Elective Courses + Thesis

M.Phil. Environmental Sciences

Course Code	Course Title
	Compulsory Courses
EnS-551	Research methods in Environmental Sciences
EnS-552	Climate Change Adaptation and Mitigation
EnS-553	Strategic Environmental Assessment
EnS-554	Environmental Analytical Techniques (2+1)
EnS-556	Water Quality & Treatment
EnS-562	Remediation Strategies for Contaminated Environment
EnS-564	Environmental Applications of Nanomaterials
	Elective Courses
EnS-555	Environmental Chemistry
EnS-557	Solid and Hazardous Waste Management
EnS-558	Environmental Risk Assessment and Management
EnS-559	Principles and Applications of Bioremediation
EnS-560	Health, Safety and Environment Management
EnS-561	Energy and Environment
EnS-563	Treatment and Management of Wastewater
	Research/Thesis
EnS-565	Thesis

Coursework requirement: Four (04) Compulsory Courses and any four (04) from Elective Courses

DEPARTMENT OF ARCHITECTURAL ENGINEERING & DESIGN

In view of the tremendous challenges being faced by the construction industry in Pakistan, the University of Engineering and Technology, Lahore, established the department of Architectural Engineering and Design during the year 2001that became pioneer of Architectural Engineering discipline in Pakistan. The key objective of this department is to give quality education to the students and prepare them for the construction industry of Pakistan as successful professionals with innovative and multi-disciplinary approach. Architectural Engineering is a multidisciplinary program incorporating Structural Engineering, Energy Efficient Design and Analyses & Design of various Services; Mechanical, Electrical and Plumbing. The courses offered in various post graduate programs cover the core area of Building Engineering and Construction Management. The courses are based on the industry needs and have been designed with the consultation and feedback from professionals and experts serving in the construction industry.

The department offers the following post graduate programs

1. M.Sc. Building Engineering (Evening and / or Weekend)
2. M.Sc. Construction Management (Evening and / or Weekend)
3. Ph.D. Architectural Engineering
4. Ph.D. Architectural Engineering (subject to issuance of NOC from HEC)

Laboratories

The department has six laboratories for various subjects where undergraduate and post graduate students are working daily on various experiments.

- Structural
- Construction
- Survey
- Geotechnical
- Electrical
- Environmental

Postgraduate Faculty & Their Research Interests

Teacher Name	Research Interest
Prof. Dr. Khalid Farooq Dean	Geotechnical Characterization, Slope Stability, Problematic Soils and Soil Improvement Techniques
Prof. Dr. Sajjad Mubin Chairman	Construction Management, Integrated Building Design
Dr. Sabahat Arif Professor	Construction Management, Integrated Building Design
Dr. Khuram Rashid	

Professor	
Dr. Maria Idrees* Associate Professor	Construction Management, Integrated Building Design
Mr. Imran Ahmad Saeed Assistant Professor	Construction Management, Integrated Building Design
Dr. Nasir Javed Assistant Professor	Construction Management, Integrated Building Design
Dr. Ahmad Riaz Assistant Professor	Construction Management, Integrated Building Design
Dr. Sidra Jamshed Assistant Professor	Construction Management, Integrated Building Design
Mr. H. Abrar Ahmad Lecturer	Construction Management, Integrated Building Design
Mr. Abdul Mueed Iqbal Lecturer	Construction Management, Integrated Building Design
Ms. Afia Razzaq Lecturer	Construction Management, Integrated Building Design
Ms. Khadija Mawra Lecturer	Construction Management, Integrated Building Design

Curriculum for M.Sc. in Building Engineering (revised w.e.f. 2024)

GROUP A: Compulsory Courses	
Course No.	**Course Name**
AED-655	*Foundation Engineering*
AED-656	*Advanced Structural Design*
AED-672	*Advanced Building Materials and Technology*
AED-611	*Building Information Modelling*
AED-609	*Building Safety*
CM-501	*Construction Project Management*
Group B: Elective Courses	
AED-610	*Building Structures and Aesthetics*
AE-654	*Earthquake Engineering*
AE-653	*Finite element method in Engineering*
CM-502	*Procurement and Contract Management*
AED-670	*Engineering Optimization*
AED-669	*Building Pathology and Monitoring*
AE-651	*Advanced Concrete Technology*
AE-652	*Advanced Reinforced Concrete Structures*
AED-671	*Design of Tall Buildings*

Note: Degree requirement is completion of 30 credit hours including 24 credit hours of course work and 6 credit hours of research thesis for evening program as per university policy. For non - thesis option (for weekend program) 30 credit hours excluding thesis as per university policy. From Group A, minimum four or more will be offered subject to availability of teacher.

Curriculum for M.Sc. Construction Management

GROUP A: Compulsory Courses	
Course No.	**Course Name**
CM-501	*Construction Project Management*
CM-502	*Procurement and Contract Management*
CM-503	*Risk Management in Construction*
CM-505	*Advanced Construction Materials and Technology*
CM-510	*Economic Decision in Construction*
CM-520	*Engineering and Construction Laws and Regulations*
GROUP B: Elective Courses	
CM-506	Construction Projects and Human Resource Management
CM-508	Software application in Construction Project Management
CM-509	Building Systems Integration
CM-517	Construction Cost Estimation and Bidding
CM-518	Construction Equipment and Productivity
CM-512	Advanced Research Methodology for Construction
CM-514	Construction Health and Safety
CM-516	Project Monitoring and Evaluation
CM-519	Quality Management in Construction Projects
HI-514	Water Resources Planning & Management
TE-510	Highway Construction Materials & Equipment
TE-502	Geometric Design & Highway Safety
HI-511	Application of RS &GIS in Civil Engineering
AED-611	Building Information Modelling for Integrated Design
AED-651	Advanced Concrete Technology
AED-652	Advanced Reinforced Concrete Structures

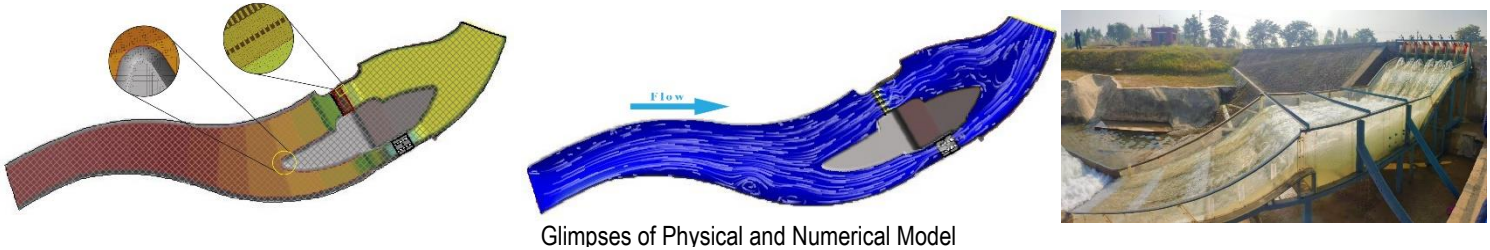
Note: Degree requirement is completion of 30 credit hours including 24 credit hours of course work and 6 credit hours of research thesis for evening program as per university policy. For non - thesis option (for weekend program) 30 credit hours excluding thesis as per university policy. From Group A, minimum four or more will be offered subject to availability of teacher.

CENTER OF EXCELLENCE IN WATER RESOURCES ENGINEERING

Centre of Excellence in Water Resources Engineering (CEWRE) was established in 1976 under the Presidential Act. The Centre was primarily established with the objectives of high-level goal oriented teaching and research in water resources. These objectives are being followed by imparting M.Sc. and Ph.D. degrees in disciplines of water resources, conducting specialized training programs, dissemination of knowledge through short courses, seminars, workshops and conducting research on problems of national importance. Water resources development and its management is an intricate and complex problem and engineers to be polished with the updated latest knowledge and engineering techniques. Therefore, it is imperative to impart advanced training to create adequate research interest in engineers to enable them find balanced solutions of day-to-day technical problems arising in the water sector in the country.

Laboratory and Research Facilities

The Centre has several well-equipped laboratories including Hydraulics, Hydrology, Irrigation and Drainage, Soil & Water Analysis, Remote Sensing & GIS and Computer. There is a well-equipped distance learning conference room. In addition, there is a large Model Tray Hall having facilities for analysis of physical and scale models of river and other water resources engineering structures e.g., dams, spillways, tunnels, etc. Research facilities also include electronics and machine shop. Field equipment is available for geo-physical investigations, flow and sedimentation measurements, infiltration tests, sprinkler and drip irrigations, and soil moisture monitoring and hydro-meteorological observations.



Glimpses of Physical and Numerical Model

Library

Library of the Centre has a very large collection of books and journals relating to water resources and allied fields. Apart from books, the library possesses proceedings of international seminars and conferences, publications of FAO & UN agencies and back files of thirty international journals relating to hydrology, hydraulic and water resources. The Centre also collects local project reports for reference by the students and researchers.

Academic Programs

The Centre offers postgraduate programs leading to M.Sc and Ph.D degrees in four disciplines namely Engineering Hydrology, Water Resources Engineering, Water Resources Management and Hydropower Engineering (M.Sc. only). M.Sc degree comprises of course work and a research thesis.

In-Service Training Programs

To benefit the in-service engineers and scientists, this Centre frequently holds refresher courses and training workshops of 1-3 weeks duration. These short courses are usually arranged on latest topic to impart training of specialized nature. Centre has history of conducted more than 70 refresher courses and training workshops benefiting professionals. Mostly, the Centre takes initiative to conduct a particular training. Sometime, these programs are also arranged on **special** request of department/organization such as WAPDA, PCRWR, PARC, and Irrigation Departments.

Admission Requirement

The applicants should have B.Sc. degree (First Division or CGPA 2.5 out of 4.0) in Civil Engineering or Agricultural Engineering or Geological Engineering or Civil Technology or Agricultural Technology or Hydrology and Water Resources Management or Applied Geology or GIS or Forestry and Range Management or Soil and Environmental Sciences or Environmental Engineering and Sciences or Water Resources Management or Hydrology for admission in M.Sc. degree in Engineering Hydrology. For admission in M.Sc. Water Resources Engineering the applicants should have B.Sc. or equivalent in Civil Engineering or Agricultural Engineering. For admission in M.Sc. Water Resources Management, the applicants should have B.Sc. or equivalent in Civil Engineering or Agricultural Engineering, or Geological Engineering or Applied Geology or Computer Science or Civil Technology or Agricultural Technology or Forestry and Range Management or Agriculture (with major in water resources management or soil science or Economics or Forestry), Marketing and Agribusiness or Soil and Environmental Sciences or Water Resources Management, or Water Resources Management & Planning or Environmental Engineering and Sciences or Agricultural and Applied Economics or Hydrology and Water Resources Management degree or any other degree approved by Centre's Academic Committee/BoS recognized by the Higher Education having sixteen years education with first division or CGPA of at least 2.5 out of 4.0. For Hydropower Engineering, the applicants having B.Sc. Civil Engineering degree (first division or CGPA 2.5 out of 4.0) are eligible. For admission in Ph.D. degree, refer to university regulations.

Research Funding and Fee Regulations

Centre through its faculty provides funds to Research Associates (RAs) for enhancing the research productivity of students and completing the degree on time and improving the research efficiency and visibility at national and international levels. These fund may also be utilized to improve research infrastructure and facilities including laboratories, equipment, and computing resources. Also, Centre provides tuition fee waiver of up to 75% for Ph.D and 80% for M.Sc students. For more details about the fee structure in CEWRE, please visit https://cewre.edu.pk/web/.

Postgraduate Faculty & Their Research Interests

Teacher Name	Research Interest
Dr. Khalid Farooq Professor and Dean	Geotechnical Characterization, Slope Stability, Problematic Soils and Soil Improvement Techniques
Dr. Muhammad Atiq Ur Rehman Tariq Director and Professor	Flood Risk Management, Smart Cities, Hydro-politics, Water Footprint and Virtual water Trades, Hydraulic structures, Water Governance
Dr. Muhammad Kaleem Sarwar Associate Professor	Hydraulic Structures Hydropower Engineering Physical and Numerical (CFD) Modelling of Hydraulic Structures, Dam Engineering
Dr. Ghulam Nabi Associate Professor	Sediment Transport, Remote Sensing and GIS, Ground Water Molding, Irrigation Management, Hydrology and Climate change, Hydraulic Structures, Open Channel Hydraulics
Dr. Muhammad Waseem Associate Professor	Extreme Events Assessment, Projection and Outlook, Statistical and Distributed Hydrological Modeling and Simulation, Watershed Modeling Climate-Vegetation-Hydrology Interaction Mechanism

Dr. Muhammad Masood Assistant Professor	Open Channel flow & Computational Hydraulics, Physical & Numerical Modeling, Remote Sensing & GIS Database Management
Dr. Mudassar Iqbal Assistant Professor	Hydrology and Water Resources, Hydro-meteorological Extreme Event Analysis, Land Surface Process and Climate Change, Sediment Transport and River Engineering

Scheme of Studies

- The list of subjects given below include Ph.D. level subjects
- All subjects are 3(2+1) credit hours unless specified.
- M.Sc degree requirement is completion of 30 credit hours including 24 credit hours of course work and 6 credit hours of research thesis.

M.Sc. Water Resources Engineering

Course No.	Course Title
	Compulsory
CWR-601	Applied Hydrology
CWR-611	Advance Open Channel & Computational Hydraulics
CWR-612	Dam and Reservoir Engineering
CWR-613	Design of Hydraulic Structures
CWR-614	Sediment Transport and River Engineering
CWR-615	Physical and Numerical Modelling
	Electives
CWR-602	Catchment Modelling
CWR-603	Statistical Hydrology
CWR-604	Reservoir Design and Operation
CWR-605	Flood Estimation and Control
CWR-606	Groundwater Hydrology and Exploration
CWR-621	Design of Hydropower Plants
CWR-622	Planning and Development of Hydropower Projects
CWR-631	Drainage Engineering
CWR-632	Irrigation Engineering and Management
CWR-633	Water Quality Modelling and Management
CWR-651	Arid Zone Hydrology
CWR-652	Groundwater Modelling
CWR-653	Hydrometeorology
CWR-654	Snow and Ice Hydrology
CWR-655	Watershed Planning and Development
CWR-671	Geological and Geotechnical Investigations
CWR-681	Pressurized Irrigation System
CWR-682	Land Water Management
CWR-690	Advance Research Methodology
CWR-691	Environmental Impact Assessment
CWR-692	Project Construction and Management
CWR-693	Remote Sensing and GIS Applications in Water Resources
CWR-694	Water Resources Planning and Economics
CWR-695	Water Resources System Analysis
CWR-696	Computer Applications in Water Resources
CWR-697	Participatory Water Management
CWR-698	Research Methodology
	Seminar & Thesis
CWR-699	Seminar on current issues and special topics (0+1)
CWR-700	M.Sc. Thesis (6 Credit Hours)
CWR-800	Ph.D. Dissertation

M.Sc. Water Resources Management

Course No.	Course Title
	Compulsory
CWR-601	Applied Hydrology
CWR-632	Irrigation Engineering and Management
CWR-633	Water Quality Modelling and Management
CWR-693	Remote Sensing and GIS Applications in Water Resources
CWR-694	Water Resources Planning and Economics
CWR-696	Computer Applications in Water Resources
	Electives
CWR-602	Catchment Modelling
CWR-603	Statistical Hydrology
CWR-604	Reservoir Operation and Design
CWR-605	Flood Estimation and Control
CWR-606	Groundwater Hydrology and Exploration
CWR-611	Advance Open Channel & Computational Hydraulics
CWR-612	Dam and Reservoir Engineering
CWR-613	Design of Hydraulic Structures
CWR-614	Sediment Transport and River Engineering
CWR-615	Physical and Numerical Modelling
CWR-631	Drainage Engineering
CWR-651	Arid Zone Hydrology
CWR-652	Groundwater Modelling
CWR-653	Hydrometeorology
CWR-654	Snow and Ice Hydrology
CWR-655	Watershed Planning and Management
CWR-681	Pressurized Irrigation System
CWR-682	Land and Water Management
CWR-690	Advance Research Methodology
CWR-691	Environmental Impact Assessment
CWR-692	Project Construction and Management
CWR-695	Water Resources System Analysis
CWR-697	Participatory Water Management 3(3,0)
CWR-698	Research Methodology
	Seminar & Thesis
CWR-699	Seminar on current issues and special topics (0+1)
CWR-700	M.Sc. Thesis (6 Credit Hours)
CWR-800	Ph.D. Dissertation

M.Sc. Engineering Hydrology

Course No.	Course Title
	Compulsory
CWR-601	Applied Hydrology
CWR-602	Catchment Modelling
CWR-603	Statistical Hydrology
CWR-604	Reservoir Design and Operation
CWR-605	Flood Estimation and Control
CWR-606	Groundwater Hydrology and Exploration
	Electives
CWR-611	Advance Open Channel & Computational Hydraulics
CWR-612	Dam and Reservoir Engineering
CWR-613	Design of Hydraulic Structures
CWR-614	Sediment Transport and River Engineering
CWR-615	Physical and Numerical Modelling
CWR-631	Drainage Engineering
CWR-632	Irrigation Engineering and Management
CWR-633	Water Quality Modelling and Management
CWR-651	Arid Zone Hydrology
CWR-652	Groundwater Modelling
CWR-653	Hydrometeorology
CWR-654	Snow and Ice Hydrology
CWR-655	Watershed Planning and Development
CWR-681	Pressurized Irrigation System
CWR-682	Land and Water Management
CWR-690	Advance Research Methodology
CWR-691	Environmental Impact Assessment
CWR-692	Project Construction and Management
CWR-693	Remote Sensing and GIS Applications in Water Resources
CWR-694	Water Resources Planning and Economics
CWR-695	Water Resources System Analysis
CWR-696	Computer Applications in Water Resources
CWR-698	Research Methodology
	Seminar & Thesis
CWR-699	Seminar on current issues and special topics (0+1)
CWR-700	M.Sc. Thesis (6 Credit Hours)
CWR-800	Ph.D. Dissertation

M.Sc. Hydropower Engineering

Course No.	Course Title
	Compulsory
CWR-601	Applied Hydrology
CWR-611	Advance Open Channel & Computational Hydraulics
CWR-612	Dam and Reservoir Engineering
CWR-613	Design of Hydraulic Structures
CWR-621	Design of Hydropower Plants
CWR-622	Planning and Development of Hydropower Projects
	Electives
CWR-602	Catchment Modelling
CWR-603	Statistical Hydrology
CWR-604	Reservoir Design and Operation
CWR-605	Flood Estimation and Control
CWR-606	Groundwater Hydrology and Exploration
CWR-614	Sediment Transport and River Engineering
CWR-615	Physical and Numerical Modelling
CWR-651	Arid Zone Hydrology
CWR-652	Groundwater Modelling
CWR-653	Hydrometeorology
CWR-654	Snow and Ice Hydrology
CWR-655	Watershed Planning and Development
CWR-671	Geological and Geotechnical Investigations
CWR-690	Advance Research Methodology
CWR-691	Environmental Impact Assessment
CWR-692	Project Construction and Management
CWR-693	Remote Sensing and GIS Applications in Water Resources
CWR-694	Water Resources Planning and Economics
CWR-695	Water Resources System Analysis
CWR-696	Computer Applications in Water Resources
CWR-698	Research Methodology
	Seminar & Thesis
CWR-699	Seminar on current issues and special topics (0+1)
CWR-700	M.Sc. Thesis (6 Credit Hours)

DEPARTMENT OF CHEMICAL ENGINEERING

The Department of Chemical Engineering was established in 1962 at this University and is the first institution in the Country to offer B.Sc., M.Sc., and Ph.D. degree programs in Chemical Engineering. Currently, it has an enrolment of about 400 students pursuing undergraduate studies. The Department started M.Sc. Chemical Engineering degree program in 1970, and since then the postgraduate program has been on the road to progress. At present, there are more than 80 students pursuing M.Sc. studies. In addition, 20 scholars are pursuing their Ph.D. degrees in different areas of Chemical Engineering.

COURSES OF STUDY

The Department offers courses of study leading to the following degrees:

1. Ph.D. Chemical Engineering
2. M.Sc. Chemical Engineering
   a. Specialization in Process Engineering
   b. Specialization in Biochemical Engineering
   c. Specialization in Energy Engineering
3. B.Sc. Chemical Engineering

Ph.D. Chemical Engineering

For Ph.D. degree, the students undertake supervised research work for a minimum residency period of three years. Original research contributions are expected for the successful completion of the degree. On completion of research work, a thesis has to be submitted. A Ph.D. degree is awarded after international review and approval of thesis by a board of examiners. Fifteen (15) doctorate degrees have been awarded by the Department in the recent past.

M.Sc. Chemical Engineering

The curriculum for the M.Sc. program has evolved over the years and is designed to prepare the students for research and development work. Students are encouraged to work independently on the assigned projects from their specialization.

Orientation (6 CH)

Both M.Sc. by coursework and M.Sc. by research are offered as part of the M.Sc. Chemical Engineering program. By the end of the first semester, the students are required to submit Form ChE-PG-01 (Preference for degree program, specialization and research area) clearly mentioning:

- Whether M.Sc. by coursework or M.Sc. by research is chosen
- Order of preference (at least 3) from the departmental focus research areas
- If the student is opting for M.Sc. by research, the Form ChE-PG-01 must also be signed by a potential supervisor.

The students opting for M.Sc. by coursework are required to pass any two (2) of the following courses:

- Core courses not already taken
- Specialization courses not already taken
- Courses from any other area of specialization
- Additional postgraduate courses

The students opting for M.Sc. by research are required to undertake a supervised research project.

Research Extension and Advisory Services

The Department is engaged in a number of research projects of industrial and theoretical significance under its postgraduate and faculty research programs in the areas of pollution control, energy management, process development, unit operations, and process simulation. The outcome of this research is regularly published in journals of repute and receives recognition from the community of chemical engineers.

Laboratories and other Facilities

The Department has well-equipped and well-maintained laboratories in the following fields:

- Chemical Engineering Thermodynamics
- Chemical Reaction Engineering
- Computer Applications and Process Simulation
- Energy Engineering
- Environmental Engineering
- Fluid Flow
- Heat Transfer
- Instrumentation and Control
- Mass Transfer
- Process/Wet Analysis
- Catalysis

The Environmental Engineering laboratory is equipped with state-of-the-art equipment including atomic absorption spectrophotometer (AAS), Fourier transform infrared spectrophotometer (FTIR), and ultraviolet (UV) spectrophotometer. The recently established Catalysis and Energy Research lab is equipped with gas chromatograph (GC), gas chromatograph for natural gas analysis (GC-NGA), Karl–Fisher titrator, bomb calorimeter, fluorescence spectrophotometer, high-pressure batch reactor, multizone tube furnace, high-precision weight balance, rotary evaporator, centrifuge, and multimeter for

water analysis.

The Department has a computer center equipped with the latest systems. Apart from learning computer languages and applications in various courses of Chemical Engineering, the students are encouraged to use this laboratory for their design projects, research dissertations, and class assignments.

The Department has a well-organized library with a large number of textbooks, handbooks, reference books, journals, design projects, and research theses submitted in the past. Latest publications are regularly added to the collection to cope with modern research in the field.

Sponsored Projects

A number of sponsored research projects are being pursued in the Department. The current projects include:

- Development and performance evaluation of hierarchical nanocomposites for harsh environments
- Development of low-cost catalysts for the hydrogenolysis of glycerol to propanediols
- Development of novel catalyst for fixation of carbon dioxide for environment sustainability
- Development of sustainable fuel for practical applications
- Establishment of a state-of-the-art fuel/gas analysis lab at the Department of Chemical Engineering, UET Lahore
- Finding the optimal positioning of sensors to measure emissions in indoor environment
- Hydrocarbon fuels from agricultural wastes: Development and optimization of a demonstration unit
- Reclamation of Industrial Wastewater to cope with Water Scarcity

Postgraduate Faculty and Their Research Interests

Teacher Name	Research Interest
Dr. Naveed Ramzan Professor and Dean	Computer aided design; Process modeling; Simulation and safety; Process systems engineering
Dr. Hafiz Muhammad Zaheer Aslam Professor and Chairman	Adsorption; Wastewater treatment; Reaction engineering
Dr. Saima Yasin* Professor	Colloid and interface science; Nanotechnology; Rheology; Surface engineering
Dr. Farhan Javed Associate Professor	Advanced oxidation processes; Wastewater treatment
Dr. Muhammad Asif Akhtar Associate Professor	Renewable Energy; Gasification; pyrolysis
Dr. Muhammad Azam Saeed Associate Professor	Combustion engineering
Dr. Muhammad Faheem Associate Professor	Catalysis/kinetics; Computational chemistry; Process modeling and simulation
Dr. Umair Aslam Associate Professor	Biomass processing
Dr. Usman Ali Associate Professor	Post combustion CO_2 capture from power plants
Dr. Ayesha Irshad Assistant Professor	Combustion; Gasification
Dr. Farhan Ahmad Assistant Professor	Plasma catalysis

Dr. Hirra Anjum Assistant Professor	Ionic liquids; Polymers
Dr. Humayun Wali Assistant Professor	Phytochemicals and their metal complexes for drinking water disinfection
Dr. Muhammad Wasim Tahir Assistant Professor	Electrochemical energy storage and conservation; Battery modeling; Finite element and CFD modeling; Heat transfer
Dr. Saira Bano Assistant Professor	Composite materials
Dr. Umer Afzal Assistant Professor	Computational fluid dynamics

* On Ex-Pakistan leave

Following degree options are available:

a) Thesis option: 8 subjects (24 credit hours) + Research thesis (6 credit hours)
b) Non-thesis option: 10 subjects (30 credit hours)

M.Sc. Chemical Engineering

Course No.	Course Title
	Compulsory
	(Common for all specializations)
ChE-501	Separation Processes
ChE-502	Transport Processes
ChE-503	Statistical Methods in Research
ChE-504	Mathematical Methods in Chemical Engineering
ChE-505	Advanced Reaction Engineering
ChE-506	Advanced Chemical Engineering Thermodynamics
	Electives
	Specialization in Process Engineering
ChE-511	Advanced Process Control
ChE-512	Optimization of Chemical Processes
ChE-513	Computer-Aided Process Synthesis
ChE-514	Process Intensification
ChE-515	Advanced Process Safety
	Specialization in Biochemical Engineering
ChE-521	Advanced Biochemical Engineering
ChE-522	Bioreactor Design
ChE-523	Bioseparations
ChE-524	Biofuels and Biorefineries
ChE-525	Biochemical Treatment of Wastes

Course No.	Course Title
	Specialization in Energy Engineering
ChE-531	Energy Conservation and Auditing
ChE-532	Energy and Environment
ChE-533	Oil and Natural Gas Energy
ChE-534	Coal Technologies
ChE-535	Combustion Engineering
	Electives
	Additional Postgraduate Courses
ChE-541	Project Management for Engineers
ChE-542	Entrepreneurship for Engineers
ChE-543	Advanced Process Economics
ChE-551	Multiscale Modeling
ChE-552	Statistical and Molecular Thermodynamics
ChE-553	Advanced Distillation Technologies
ChE-554	Industrial Catalysis
ChE-555	Biofuels Development and Applications
ChE-556	Colloid and Interface Engineering
ChE-599	Thesis (for M.Sc. Research only) (6 credit hours)

DEPARTMENT OF POLYMER ENGINEERING

Polymers are emerging materials for research and industrial commercialization that are finding a wide-spread and fast-growing use ranging from consumer market to specialized industrial and defense applications. In Pakistan, polymer industry is one of the fastest growing sectors that needs trained manpower and research support. Keeping this in view, the undergraduate degree program in Polymer and Process Engineering was launched, in 2002, under Polymer Engineering Division of the Department of Chemical Engineering. As a result of a far-reaching ambition, and keen vision which led to the realization of the increasingly important role that Polymer Engineering plays in the world today, the university decided to upgrade the division into an independent degree awarding department in January 2006. Further to this development, the postgraduate degree program in Polymer and Process Engineering was started in 2007.

The Department of Polymer and Process Engineering has already gained considerable prestige and standing in the academic and industrial world due to motivated and outstanding faculty (100% PhD, Foreign Qualified), hardworking and dedicated administration and state-of-the-art laboratories costing more than 150 million rupees. These factors led to the commencement of an interdisciplinary **M.Phil. Polymer Science and Technology**, and **Ph.D. Polymer Science and Engineering** degree programs in 2017 and 2020, respectively.

Programs being offered

The Department offers following degree programs:

1. B.Sc. Polymer Engineering
2. M.Sc. Polymer and Process Engineering
3. M.Phil. Polymer Science and Technology
4. Ph.D. Polymer Science and Engineering

The M.Phil./M.Sc. programs are offered on both Thesis (Research) and Course Work (Taught) basis depending on candidate's choice.

Research Focus

The focus areas of the research in the Department include:

a. Polymer membranes for reverse osmosis, electrodialysis, fuel cells, Batteries, pervaporation and gas separation
b. Polymer blends and polymer recycling/upcycling
c. Rubbers and Elastomers
d. Polymer composites
e. Dye-sensitized solar cells (DSSC)
f. Nanomaterials and sensors

Recent Funded Projects and Assistantships

- Pilot-scale manufacturing of flat-sheet polymer membranes (Dr. Sarfraz, HEC Funded)
- Solid-State Dye-Sensitized Solar Cells/Modules as alternative to battery technology and grid connection (Dr. Umer, HEC Funded)
- Development and Fabrication of Broad Band EMI Shielding Materials (Dr. Qaiser, NESCOM Funded)
- Fabrication of functional ion exchange membranes and state-of-the-art electro-dialyzers (Dr. Aamir, HEC Funded)
- Development of economical nanocomposites through upcycling of Personal Protective Equipment (PPE) waste (Dr. Yasir, PSF Funded)
- Development of Styrenics Blends (Dr. Qaiser, PSF Funded)
- Development of Rotatory Ultrasonic Machining System (RUSM) for advanced aerospace composites (Dr. Qaiser, completed)
- Development of Fuel Cell Membranes (Dr. Qaiser, Completed)

These funded projects offer a number of **Graduate Research Assistantships** with a competitive renumeration and a lot of learning opportunities (https://www.uet.edu.pk/newsannouncement/announcements/)

Industrial and Global Recognition

The postgraduate degrees offered by the Department are highly recognized by the industry where our graduates immediately find jobs in the widespread sector of plastics, rubber, paints, composites, fiber, chemicals etc. Moreover, worldwide and the graduates readily get Ph.D. scholarship/studentships from renowned universities all around the world.

Laboratory Facilities

The academic and research laboratories at the Department employ state-of-the-art technology to gain insight into the complex processes and facilitate precise measurements. These laboratories house a wide range of characterization and testing facilities such as Gel Permeation Chromatograph (GPC), Fourier Transform Infra-red Spectroscope (FTIR), Differential Scanning Calorimeter (DSC), Brabender® Melt Measuring Mixer (MMM), Elemental Analyzer, Universal Testing Machine (UTM), Brookfield® Rheometer, Moving Die Rheometer (MDR), Izod/Charpy Impact Tester, Lab Compression Press, UV Spectrometer, Hardness and Electrical Conductivity Testers, Gamry® Potentiostat, Dynamic Mechanical Thermal Analyzer (DMTA), BET Surface Analyzer and Thermal Gravimetric Analyzer (TGA). A number of membrane rigs are available to facilitate the research activities in membrane applications in desalination, nanofiltration, pervaporation and gas separation using real-time membrane samples. In addition, a fully functional Polymer Simulation laboratory is available for the students housing Autodesk® Mold Flow Simulation Software. The department has acquired a fully functional Capillary Rheometer, first of its kind in the country, to fully characterize the melt processing at industrial conditions.

The well-resourced process and synthesis laboratories in polymers, membranes, solar cells, elastomers and polymer composites are the main strength of the department. Melt processing laboratories such as extrusion, injection molding, blown film, blow molding and compounding are unique research resources for the research in polymer blends, nanocomposites, recycling and compounding.

Research Output

The research being carried out at the department is published in renowned international journals such as Journal of Membrane Science, Journal of Polymer Science, RSC Advances, Polymers and Polymer Composites, Carbon to name a few. The students and faculty have published a large number of impact factor research articles and book chapters in the last five years. Moreover, the faculty and students participate in various international conferences as keynote speaker/presenter as well as disseminate their research findings in various poster-presentations. The Department organizes Annual Symposium on Advanced Aerospace Composites in which a large number of experts from academia, industries and strategic organizations participate as presenters. In April 2023, the Department organized **1st Pak Polymer Symposium** that remained a huge success in academic and industrial world (https://www.uet.edu.pk/newsannouncement/Event/Polymer-Engineering-UET-Organized-1st-Pak-Polymer-Symposium-2024.05.14/?instancedate=1715664720000).

Liaison with Industry

At the Department, we believe that universities always have been the centers of scholarship and innovation. Today, they have to extend their function and fully integrate research, education and innovation, and attract other centers of knowledge into cooperation. Research and thus postgraduate studies, have

to be more focused on industrial problems. The Department is working relentlessly to establish a meaningful and productive linkage with prominent polymer related industries. The broad framework of cooperation is as follows:

1. Key sectors of attention at the Department
    - Plastic packaging and recycling
    - Polymer membranes and their industrial applications
    - Flame retardant composites
    - Paints and coatings

- Rubber compounding
- Polymer blending and alloying
- Polymer testing and characterization

2. Industrial Contributors
    - Industrial training and internships
    - Joint research projects and funding
    - Scholarships
3. Modes of Interaction
    - Direct liaison on specific projects
    - Collaboration through HEC-Industry Linkage Program

Under above-mentioned themes, the Department has established very close and congenial relationship with the industries around, including Engro Polymers and Chemicals Pvt Ltd, Descon Chemicals, Awan Sports, Fibrecraft Ltd., Lucky Plastics, Pak Petrochemical, Packages, Roshan Packages, Popular Pipes, T. M. Rubbers, Samad Rubber Works, Minhas Pipes, Service Industries and many others.

The Department has signed Memorandum of Understanding (MOUs) with some of the leading industries. We provide industrial research and testing facilities to these industries whereas the industry provides practical knowledge to our graduates. Some of the major industries entering into agreement with department include:

- Engro Polymer and Chemicals Pvt. Ltd.
- Packages Pvt Ltd.
- SPELL Group of Industries
- Lucky Plastics
- Fibrecraft Composites.
- Popular Pipes

- BinRasheed® Chemicals
- Minhas Pipes
- Pak Petrochemical Ltd.
- G.M. Cables
- Panther Tyres
- T.M. Rubbers

Industrial Consultancy and Testing

The Department is engaged with industry in research and developmental projects in Membranes Technology, Advanced Functional Polymers, Polymer Adhesives, Polymer Composites, Rheological Characterization, Polymer Modification, Polymer Blending, Process Simulation and Design. Testing and characterization of industrial materials and products using ASTM, BS and ISO standards is a valuable industrial linkage mode where the Department generates a handsome revenue for the university.

Postgraduate Faculty & their Research Interests

Teacher Name	Research Interest
Dr. Ing. Naveed Ramzan Professor and Dean	Computer aided design; Process modelling; simulation and safety; Process systems engineering
Dr. Asif Ali Qaiser Professor and Chairman	Membranes, Polymer Blending and Alloying, Batteries and Fuel Cells
Dr. Farhan Saeed Professor	Elastomeric Materials, Polymer Processing and Compounding
Dr. Atif Javaid Associate Professor	Multifunctional Polymers Composites
Dr. Muhammad Sarfraz Associate Professor	Polymer Membranes: Manufacturing and Applications
Dr. Yasir Qayyum Gill Associate Professor	Flexible Packaging, Polymer Recycling and Processing
Dr. Rabia Nazar Associate Professor	Photo-synthesis of Metal Nano-particles
Dr. Muhammad Farooq Assistant Professor	Rubbers and Elastomers
Dr. Umar Mehmood Assistant Professor	Dye-synthesized Solar Cells
Dr. Muhammad Aamir Assistant Professor	Membranes for Electrodialysis
Dr. Zaman Tahir IPFP Fellow (Assistant Professor)	Membranes for Liquid Separations

M.Sc. Polymer and Process Engineering

Course No.	Course Title
Core	
PPE-501	Polymer Rheology and Viscoelasticity
PPE-502	Macromolecule Design and Characterization
PPE-503	Advanced Separation Processes

PPE-504	Optimization and Process Design
Electives (any four)*	
PPE-505	Polymer Reactor Design
PPE-506	Modelling and Simulation in Polymer Processing
PPE-507	Elastomeric Materials & Processes
PPE-508	Advanced Polymer Composites
PPE-509	Polymer Membrane Design and Applications
PPE-510	Compounding Principles and Polymer Blending
PPE-511	Advanced Functional Polymers
PPE-512	Polymer Coatings and Applications
PPE-513	Statistical Techniques for Data Analysis
PPE-514	Advanced Process Control
PPE-515	Polymer Packaging

* 12 Credit Hours (4 courses from above list for M.Sc. Research)
* 18 Credit Hours (6 courses from above list for M.Sc. Course Work)
Thesis (for M.Sc. Research only)
PPE-601 Master Thesis (6 Credit Hours)
PPE-602 Design Project (Non-credited)

M.Phil. Polymer Science and Technology

Course No.	Course Title
Core	
PST-501	Polymer Processing Technology
PST-502	Polymer Materials and Synthesis
PST-503	Physical and Mechanical Properties of Polymers
PST-504	Polymer Testing and Characterization
Electives (any four)*	
PST-505	Functional Nano-Materials
PST-506	Polymer Composites
PST-507	Polymer Compounding and Blending
PST-508	Degradable Polymeric Materials
PST- 509	Polymer Coating Technology
PST-510	Packaging Technology
PST-511	Elastomeric Materials and Technology
PST-512	Membrane Science and Technology
PST-513	Advanced Surface Chemistry
PHY-726	Spectroscopy

* 12 Credit Hours (4 courses from above list for M.S. Research)
* 18 Credit Hours (6 courses from above list for M.S. Course Work)
Thesis (for M.S. Research only)
PST-601 Master Thesis (6 Credit Hours)
PST-602 Design Project (Non-credited)

Ph.D. Polymer Science and Engineering

Course No.	Course Title
PPE-603	Advanced Characterization Techniques
PPE-604	Polymers in Energy Storage and Generation
PPE-605	Advanced Functional Polymers
PPE-606	Elastomer Engineering
PPE-607	Membrane Separation Technology
PPE-608	Smart Packaging
PPE-609	Multifunctional Polymer Composites
PPE-610	Nanomaterials
PPE-611	Electrochemical Methods

PPE-612	Research Methodologies
PPE-613	Polymer Rheology and Viscoelasticity
PPE-614	Essentials of Polymer Science and Engineering
PPE-699	Ph.D. Thesis

DEPARTMENT OF METALLURGICAL AND MATERIALS ENGINEERING

The Department of Metallurgical and Materials Engineering was established in 1965. It has the distinction of being one of the oldest institutions in the country to offer a bachelor's and master's degrees in Metallurgy. This department has been a fundamental contributor to the teaching of Metallurgy and Materials in Pakistan, and thus continues to play a leading role in Metallurgical & Materials Engineering education. The graduate programs include studies leading to M.Sc. and Ph.D. The Master's degree program was started in 1978 and focuses not only on theory, but also on research. The courses have been designed primarily for Metallurgical and Materials Engineers who are working in the materials industry and research organizations. Emphasis is being laid on the development of students' ability to integrate and apply their knowledge effectively in industrial organizations. Most of the students enrolled for the M.Sc. come from major organizations of the country. Students have conducted comprehensive research projects on metals and materials industry problems. The Ph.D. studies are based both on research and course work.

The department has a highly qualified faculty. At present, all our faculty members hold Ph.D. degrees. The department also invites a number of prominent metallurgical engineers and professionals from various organizations as visiting teachers and examiners.

The Department has organized the research work in a way that it directly benefits our national industry. The Department has links with several industries/organizations which provide necessary facilities for postgraduate projects, research and experiments. The experimental facilities relate to foundry techniques, forging, rolling, heat treatment, inspection and testing, welding, corrosion protection, ceramics, electronic materials, construction materials etc.

Number of research publications in well-reputed research journals by the faculty members and students from our department are continuously on the rise. Four of our postgraduate faculty members have won major research grants from different funding agencies of the country. Postgraduate students can avail several options to finance their studies. They are also encouraged to apply for several scholarships and teaching assistant jobs at the Department.

The Department has access to most of the modern research equipments required for specialization in the relevant Metallurgical and Materials engineering fields. These include high temperature furnaces, LCR meter, atomic force microscope, ball mills, mechanical testing equipments, facilities for metallography, optical microscopes, corrosion analysis equipment, additive manufacturing facilities, and many more. The equipments like scanning electron microscope, XRD and nano-indenter are also available as centralized facilities for the University students at the centre of nano and advanced research materials. Transmission electron microscope is also in the process of installation at the same centralized research centre of the University.

Currently more than 15 Masters and PhD students are either studying or doing research at the Department. The Departmental library is well equipped with up-to-date books for the use of teachers and students. In addition to this, a well-equipped computer laboratory has also been set up to meet the academic and research requirements. The Department regularly organizes seminars and workshops in various areas of Metallurgical and Materials Engineering. Furthermore, department offers testing and consultancy services to the local industry.

Postgraduate Faculty & Their Research Interests

Teacher Name	Research Interest
Dr. Ing. Naveed Ramzan Professor and Dean	Computer aided design; Process modelling; simulation and safety; Process Systems
Dr.-Ing. Furqan Ahmed Professor and Chairman	Physical Metallurgy, Mechanical behavior of Materials, Failure Analysis, Thin film and Coatings, Modelling and Simulation
Dr. Muhammad Asif Rafiq Professor	Ceramics & Composites, Electrical & Magnetic Materials, Characterization Techniques, High Temperature Materials
Dr. Ehsan-ul-Haq Associate Professor	Geopolymers, Ceramics & Composites, Bio Materials, Nano-Materials, Energy Materials
Dr. Adnan Maqbool Associate Professor	Nanomaterials, Electrical Materials, Energy Materials
Dr.-Ing. Muhammad Zubair Assistant Professor	Macro and micromechanical testing, microscopic characterization, plastic deformation of alloys, alloy designing
Dr.-Ing. Khushnuda Nur Assistant Professor	Field assisted sintering, cold sintering, electrochecimal analysis of Li ion batteries, materials characterization
Dr. Syed Farrukh Alam Zaidi Lecturer	Polymer electrolytes, sensors, conductive hydrogels, biomolecule-based modification, flexible conductors.
Dr. Amjad Ali Lecturer	Optical materials, analytical spectroscopy techniques, iinstrumentation

M.Sc. Metallurgical and Materials Engineering

Course Code	Course Title
Core	
MME-501	Mechanical Behavior of Engineering Materials
MME-502	Characterization of Engineering Materials
MME-503	Corrosion and Corrosion Control
MME-504	Production of Metals and Alloys
MME-500	Thesis
Electives	
MME-505	Advance Ceramics
MME-506	Composite Materials
MME-507	Joining of Materials
MME-508	Solidification Processes
MME-509	Metal Working Processes
MME-510	Fracture Mechanics and Failure Analysis
MME-511	Coating Techniques and Surface Analysis
MME-512	Polymeric Materials Electronic,
MME-513	Magnetic and Optical Material
MME-514	Phase Transformation in Materials
MME-515	Nuclear Materials
General Electives	
MME-526	Production Management and Quality Control
MME-527	Industrial Safety and Occupational Hazards

M.Sc. Metallurgical and Materials Engineering with Specialization in Nano and Advanced Materials	
Core	
MME-501	Mechanical Behavior of Engineering Materials
MME-502	Characterization of Engineering Materials
MME-503	Corrosion and Corrosion Control
MME-504	Production of Metals and Alloys
MME-500	Thesis
Electives	
MME-516	Nanomaterials and Nanotechnology
MME-517	Energy Materials
MME-518	High Temperature Materials
MME-519	Biomaterials
MME-520	Advanced Materials
MME-521	Nanostructured Devices
MME-522	Carbon Nanomaterials
MME-523	Thin film Technology
MME-524	Advanced Powder Processing
MME-525	Nanocomposites
General Electives	
MME-526	Production Management and Quality
MME-527	Control Industrial Safety and Occupational Hazards

M.Sc. Surface Science and Engineering

Course Code	Course Title
Core	
SSE-501	Principles of Surface Science
SSE-502	Surface analysis and characterization
SSE-503	Mechanical Behaviour of Thin Films and Coatings
MME-504	Corrosion and Corrosion control
SSE-500	Thesis
Electives	
SSE-504	Conventional Surface Engineering Methods
SSE-505	Advance Surface Engineering Practices
SSE-506	Tribology of Surfaces
MME-502	Composite Materials
MME-518	High Temperature Materials
SSE-508	Functional Materials and Coatings
SSE-509	Biomaterials and Bioactive Coating
MME-512	Polymeric Materials
SSE-510	Vacuum Technology
General Electives	
MME-526	Production Management and Quality Control
MME-527	Industrial Safety and occupational hazards

DEPARTMENT OF MINING ENGINEERING

The Department of Mining Engineering was established in 1954 as part of the Maclagan Engineering College. It is one of the oldest and best mining schools of the region. The faculty is highly motivated and is focused on carrying out research to find innovative and sustainable solutions for mining industry and the society. There is a well-stocked and a well-equipped computer center for the postgraduate students. The Department offers consultancy and testing facilities to various Mining, Geotechnical, Geological and Civil Engineering Companies as well as Government and Public sector agencies involved in Mining, Minerals and Earth- sciences fields.

The postgraduate program in Mining Engineering started in 1976. M.Sc. and Ph.D. degrees in Mining Engineering are currently being offered by the Department. Since September 2017, the Department has been offering a new M.Sc. degree program in "Tunnelling and Underground Excavation Engineering".

The M.Sc. courses are aimed at bringing the students abreast with the most recent developments in their fields of specialization. The Master's degrees are offered on Full-time basis. The Ph.D. program is, however, offered as Full-time studies for external students and as Part-time studies for the teachers of the department.

Postgraduate Courses of Study

1. M.Sc. Mining Engineering
2. M.Sc. Tunnelling and Underground Excavation Engineering
3. Ph.D. Mining Engineering

M.Sc. in Mining Engineering

The M.Sc. in Mining Engineering was started in 1976 and is producing good quality graduates, who are serving in Pakistan and abroad. The Department aims to improve the quality of the program through continuous self-assessment, planning and implementation. The eligibility for admission for M.Sc. in Mining Engineering includes a B.Sc. degree in Mining Engineering, Civil Engineering, Geological Engineering, Petroleum and Gas Engineering, and other relevant Engineering field.

M.Sc. in Tunnelling and Underground Excavation Engineering

The Department of Mining Engineering has started a new program in "Tunnelling and Underground Excavation Engineering" to cater to the needs and requirements of the tunnel industry. This initiation of this program is based on the overwhelming feedback of stakeholders and alumni. The program will consider applicants from relatively diverse academic backgrounds including Mining Engineering, Civil Engineering, and Geological Engineering.

PhD in Mining Engineering

The PhD. in Mining Engineering was started in 1976 and is producing good quality graduates, who are serving in Pakistan and abroad. The Department aims to improve the quality of the program through continuous self-assessment, planning and implementation. The eligibility for admission for PhD. in Mining Engineering includes a M.Sc. degree in Mining Engineering, Civil Engineering, Geological Engineering, Petroleum and Gas Engineering, and other relevant Engineering field.

Postgraduate Faculty & Their Research Interests

Teacher Name	Research Interest
Dr. Muhammad Zubair Abu Bakar Professor and Dean	Mechanical Rock Fragmentation
Dr. Shahab Saqib Chairman	Explosives Engineering, Mineral Exploration, Mine Surveying, Rock Slope Engineering, & Mineral Processing.
Dr. Zulfiqar Ali Professor	Mineral Processing, Coal Cleaning and Desulphurization, Simulation & Modelling of Mineral Processing Circuits

Dr. Yasir Majeed Professor	Rock Engineering & Underground Mine Design and Excavation Engineering.
Dr. Muhammad Zaka Emad Associate Professor	Numerical modelling, Rock mechanics, Rock Fragmentation, Ground control and Mine Design
Dr. Muhammad Azeem Raza Associate Professor	Surface Mine Planning & Design, Computer Applications in Mining, Operations Research, Mine Process Optimization, Engineering Education and Immersive Learning.
Dr. Muhammad Badar Hayat Assistant Professor	Mineral Processing, Explosive Engineering, Machine learning and Artificial Intelligence, Rock Mechanics and Hydrometallurgy.
Dr. Muhammad Usman Khan Assistant Professor	Ventilation Engineering, Mine Management and Mine Health & Safety.
Dr. Muhammad Shahzad Assistant Professor	Mineral Processing, Coal Technology, Coal Preparation, Rock Slope Engineering, Mine Hazards and Safety.

M. Sc. Mining Engineering

Course Code	Course Title
Group A (Any Three)	
Min-E-501	Advanced Rock mechanics
Min-E-502	Advanced Explosives Engineering
Min-E-503	Advanced Excavation Engineering
Min-E-504	Advanced Mine Ventilation
Min-E-505	Advanced Mineral Processing
Min-E-506	Open Pit Mine Planning & Design
Group B (Any Five)	
Min-E-611	Rock Slope Engineering
Min-E-612	Subsidence Engineering
Min-E-613	Stability of Underground Openings
Min-E-614	Finite Element Method
Min-E-615	Geo Statistics Ore Reserve Modelling
Min-E-621	Environmental Controls for Blasting
Min-E-631	Non-Explosive Rock Fragmentation
Min-E-651	Advance Coal preparation
Min-E-652	Processing Engineering
Min-E-653	Chemistry of Flotation
Min-E-654	Mineral processing Simulation and Control
Min-E-655	Advanced Flotation
Min-E-656	Design of Mineral Processing Plants
Min-E-657	Engineering Data Analysis
Min-E-661	Surface Coal Mining & Equipment Design
Min-E-662	Mine Operation Analysis
Min-E-663	Mine Systems Simulation
Min-E-701	Modern Mine Management
Min-E-702	Mine Cost Analysis & Control
Min-E-703	Mineral Economics
Min-E-704	Management Finance
Min-E-705	Management Information System
Min-E-706	Mine Waste Management
Min-E-711	Rock Mechanics-I
Min-E-712	Rock Mechanics-II
Min-E-790	Research Philosophy & Methods
Group C	
Min-E-799	Research Thesis

Note:
The completion of M.Sc. (Mining Engineering) degree program requires, a 24 credit hours course work (three courses from group A and five courses from group B)
6 credit hours Research Thesis on Pass/Fail basis (Group C).

M.Sc. Tunnelling & Underground Excavation Engineering

Course Code	Course Title

Group A (Any Two)	
Min-E-500	Tunnel Design
Min-E-501	Advanced Rock Mechanics
Min-E-502	Advanced Explosive Engineering
Min-E-617	Numerical Methods for Design & Construction of Tunnels
Group B (Any Two)	
Geo-E-519	Advanced Rock Engineering
Min-E-503	Advanced Excavation Engineering
Min-E-616	Underground Construction Methods
Min-E-507	Geological Investigation & Ground Characterization
Group C (Any Four)	
GE-501	Advanced Soil Mechanics
GE-502	Foundation Engineering-I
GE-503	Foundation Engineering-II
GE-512	Geotechnical Engineering in Professional Practice
Geo-E-504	Advanced Geotechnical Engineering
Geo-E-512	Advanced Engineering Geology
Geo-E-523	Discontinuous Rock
Min-E-611	Rock Slope Engineering
Min-E-618	Health, Safety & Environmental Considerations
Min-E-619	Construction Management
Min-E-620	Communication & Leadership
Min-E-622	Tunnel Ventilation Engineering
Min-E-631	Non-Explosive Rock Fragmentation
Min-E-632	Soft Ground Tunnelling
Min-E-633	Trenchless Technology
Min-E-657	Engineering Data Analysis
Min-E-711	Rock Mechanics -I
Min-E-712	Rock Mechanics -II
Min-E-790	Research Philosophy & Methods
Group D	
Min-E-800	Research Thesis

Note:
The completion of M.Sc. (Tunnelling and Underground Excavation Engineering) program requires, a

- 24 credit hours course work (Two courses each from Group A & Group B, Four courses from Group C)
- 6 credit hours Research Thesis on Pass/Fail basis (Group D)

DEPARTMENT OF GEOLOGIAL ENGINEERING

The Department of Geological Engineering is continuously striving to improve the standard of postgraduate teaching and research quality to be at par with the best universities in the world. In 2009, the Department started its graduate programs in two disciplines i.e., M.Sc. Geological Engineering and M.Sc. Geological Sciences. In addition, the Department is also offering a Ph.D. degree program in Geological Engineering. These degree programs are designed for students who have the aptitude for pursuing higher education in the fields of rock engineering, geotechnical engineering, engineering geology, exploration of natural energy resources and goenvironmental engineering.

The courses in M.Sc. Geological Engineering and M.Sc. Geological Sciences aim to bring the students abreast with the most recent developments in their field of specialization, either in geotechnical or petroleum exploration sectors. The curriculum of M.Sc. Geological Engineering and M.Sc. Geological Sciences has been designed keeping in view the local needs and international trends.

The Department has a forein qualified faculty for teaching and research at both MSc and PhD level studies. In addition to regular faculty, the Department has a number of professional Mining, Geotechnical (Civil) and Petroleum Engineers and geologists on the list of experts who, are invited as guest speakers, research advisors and external examiners.

The Department offers a well-equipped library and computing center, ensuring that both teachers and postgraduate students have access to a wide range of resources. These facilities are regularly updated to keep up with the latest developments in the field. Additionally, the Department has established collaborations with various industries and organizations, providing invaluable technical support to undergraduate and postgraduate students, as well as faculty research projects. To foster continuous learning and growth, the Department frequently organizes seminars and workshops covering diverse subjects within Geological Engineering and Sciences. These events aim to enhance the knowledge and expertise of both faculty members and students.

International Collaboration

The Department of Geological Engineering is currently collaborating with Saitama University, Japan. This research and academic collaboration is mainly focused on promoting mutual research projects and the exchange offaculty and students between the Department of Geological Engineering and the Department of Civil and Environmental Engineering at Saitama University, Japan.

Postgraduate Faculty & Their Research Interests

Teacher Name	Research Interest
Prof. Dr. Muhammad ZubairAbu Bakar Dean	Mechanical Rock Fragmentation, Abrasion andTool Wear, Rock Mechanics, Engineering Geology
Prof. Dr. Muhammad Farooq Ahmed Chairman	Engineering Geology, Geotechnical and Rock Engineering, GIS & Remote Sensing, Landslide Hazards
Dr. Muhammad Arshad Associate Professor	Geotechnical Engineering, Site Characterization
Dr. Ghulam Mohyuddin Sohail Associate Professor	Geophysics and Geomechanics, Petroleum Related Rock Mechanics, Borehole Geomechanics
Dr. Hafiz Muhammad AwaisRashid Assistant Professor	Geotechnical and Rock Engineering, Geoenvironmental Engineering, Engineering Geology
Dr. Sadia Ismail Assistant Professor	Geoenvironmental Engineering, Hydrogeology

M.Sc. Geological Engineering	
Course No.	Course Title
	Group A
Geo-E-603	Advanced Rock Physics
Geo-E-604	Geomechanics
Geo-E-501	Underground Excavation and Tunneling
Geo-E-502	Advanced Rock Mechanics
Geo-E-503	Geohydrology and Environmental Engineering
Geo-E-504	Advanced Geotechnical Engineering
Geo-E-505	Advanced Foundation Engineering
Geo-E-506	Rock Reinforcement and Strata Control Design
Geo-E-508	Ground Improvement and Geosynthetics
Geo-E-512	Advanced Engineering Geology
Geo-E-516	Slope Stability Analysis
Geo-E-518	Geotechnical Earthquake Engineering
Geo-E-519	Advanced Rock Engineering
Geo-E-527	Geostatistics
Geo-E-601	Earth Dams and Related Problems
Geo-E-602	Geoenvironmental Engineering
	Group B
Geo-S-503	Principles of Basin Analysis
Geo-E-511	Subsurface Geological Investigation
Geo-E-513	Introduction to Reservoir Engineering
Geo-E-514	Advanced Well Logging
Geo-E-515	Mud Logging and Drilling
Geo-E-517	Geophysical Exploration Techniques
Geo-E-520	Geotechnical Construction Practice
Geo-E-522	GIS & Remote Sensing
Geo-E-523	Discontinuous Rock
Geo-E-524	Hydrogeology and Contaminant Transport Processes
Geo-S-521	Tectonics and Structural Geology
Geo-S-524	Field Geology & Report Writing
Geo-S-701	Mechanical Rock Fragmentation
DE-506	Fracture Mechanics
Geo-S-525	Petroleum Geology of Pakistan
Geo-S-601	Seismic Petrophysics
Geo-S-602	Petroleum Structural Geology
Geo-S-603	Geophysical Data Processing
Geo-S-604	Reservoir Geophysics
Geo-S-605	Well Seismic and Borehole Geophysics
Geo-S-606	Advanced Seismic Data Interpretation
	Research Thesis (Module III)
Geo-E-521	Thesis

Note:

1. The completion of M.Sc. (Geological Engineering) degree programme requires total of eight courses with at least four courses from Group A and two courses from Group B.
2. A thesis of 6 credit hours is mandatory for the completion of degree programme.
3. Intake requirement for M.Sc. (Geological Engineering) will be B.Sc. Degree in Geological, Mining, Petroleum & Gas and Civil Engineering or relevant engineering discipline from an HEC recognized university.

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M.Sc. Geological Sciences

Course No.	Course Title
	Group A
Geo-S-501	Reservoir Sedimentology
Geo-E-514	Advanced Well Logging
Geo-S-503	Principles of Basin Analysis
Geo-S-504	Petroleum and Coal Geology
Geo-S-505	Organic & Petroleum Geochemistry
Geo-S-506	Sequence Stratigraphy
Geo-S-511	Soil Mechanics
Geo-E-502	Advanced Rock Mechanics
Geo-E-511	Subsurface Geological Investigation
Geo-E-512	Advanced Engineering Geology
Geo-E-501	Underground Excavation and Tunneling
Geo-S-516	Natural Geological Hazards and their Environmental Impact
	Group B
Geo-S-521	Tectonics and Structural Geology
Geo-S-522	Applied Biostratigraphy
Geo-E-503	Geohydrology and Environmental Engineering
Geo-S-524	Field Geology & Report Writing
Geo-E-515	Mud Logging and Drilling
Geo-E-517	Geophysical Exploration Techniques
Geo-E-522	GIS & Remote Sensing*
Geo-E-527	Geostatistics
Geo-E-513	Introduction to Reservoir Engineering
Geo-E-516	Slope Stability Analysis
Geo-E-519	Advanced Rock Engineering
Geo-E-523	Discontinuous Rock
Geo-E-524	Hydrogeology and Contaminant Transport Processes
Geo-E-602	Geoenvironmental Engineering
Geo-S-525	Petroleum Geology of Pakistan
Geo-S-601	Seismic Petrophysics
Geo-S-602	Petroleum Structural Geology
Geo-S-603	Geophysical Data Processing
Geo-S-604	Reservoir Geophysics
Geo-S-605	Well Seismic and Borehole Geophysics
Geo-S-606	Advanced Seismic Data Interpretation

Research Thesis and Viva Voce	
Geo-S-541	Thesis

Note:

1. The completion of M.Sc. (Geological Sciences) degree programme requires a total of eight courses with at least four courses from Group A and two courses from Group B. At least three of the selected courses should be with science code.
2. A thesis of 6 credit hours mandatory for the completion of degree programme.
3. Intake requirement for M.Sc. (Geological Sciences) will be 16 years education (4-years BS) in Geology or two years M.Sc. in Geology; B.Sc. in Geological, Mining, Petroleum & Gas and Civil Engineering or equivalent from an HEC recognized university

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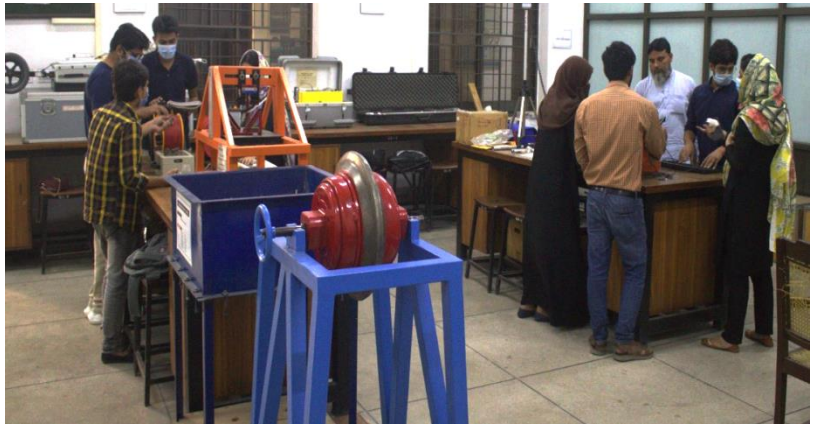
Ph.D.Geological Engineering

Course No.	Course Title
Group A	
Geo-E-501	Underground Excavation and Tunneling
Geo-E-502	Advanced Rock Mechanics
Geo-E-503	Geohydrology and Environmental Engineering
Geo-E-504	Advanced Geotechnical Engineering
Geo-E-505	Advanced Foundation Engineering
Geo-E-506	Rock Reinforcement and Strata Control Design
Geo-E-508	Ground Improvement and Geosynthetics
Geo-E-512	Advanced Engineering Geology
Geo-E-516	Slope Stability Analysis
Geo-E-518	Geotechnical Earthquake Engineering
Geo-E-519	Advanced Rock Engineering
Geo-E-527	Geostatistics
Geo-E-601	Earth Dams and Related Problems
Geo-E-602	Geoenvironmental Engineering
Group B	
Geo-E-507	Basin Analysis
Geo-E-511	Subsurface Geological Investigation
Geo-E-513	Introduction to Reservoir Engineering
Geo-E-514	Advanced Well Logging
Geo-E-515	Mud Logging and Drilling
Geo-E-517	Geophysical Exploration Techniques
Geo-E-520	Geotechnical Construction Practice
Geo-E-522	GIS & Remote Sensing
Geo-E-523	Discontinuous Rock
Geo-E-524	Hydrogeology and Contaminant Transport Processes
Geo-S-521	Tectonics and Structural Geology
Geo-S-524	Field Geology & Report Writing
Geo-S-701	Mechanical Rock Fragmentation
DE-506	Fracture Mechanics
Research Thesis (Module III)	
Geo-E-521	Thesis



DEPARTMENT OF PETROLLEUM & GAS ENGINEERING

Petroleum and Gas Engineering is a field for prospective students who are willing to accept challenges to achieve an exciting and rewarding career. Current oil & gas production in Pakistan is relatively small compared to major oil producing countries in the world; nonetheless, it plays a vital role in Pakistan's economy. Exploring new energy resources and new technologies is an important need of the hour in which petroleum engineers has a lot to contribute. Petroleum & Gas Engineering program at UET Lahore has been ranked (51-100) in the world by prestigious QS Ranking (2021-2023). This makes Department of Petroleum & Gas Engineering at UET, Lahore the first ever department (of any discipline) in Pakistan to achieve this feat. It is all because of continuous support of university administration, faculty, and students.

Addressing local industry issues from an academic perspective is a significant objective of our graduate program, yet, the key focus is to impart necessary skills and inculcate critical thinking and research attitude towards problem-solving. These goals are achieved by utilizing softwares, laboratory investigations and theoretical developments. In recent past, our candidates have successfully conducted research in Well Testing, Water flooding, Enhanced Oil Recovery, Rock Properties, Fluid Properties, Risk Analysis, Numerical Simulation, Gas Condensate Reservoirs, Tight Gas Reservoirs and Naturally Fractured Reservoirs.

Degree Programs

The department offers following degree programs at the postgraduate level:

1. M.Sc. Petroleum & Gas Engineering
2. Ph.D. Petroleum & Gas Engineering

M. Sc. Petroleum & Gas Engineering

The program is aimed at preparing students for conducting industry-oriented research by working on research projects. This brightens their prospects for being absorbed into the local industry.

The admitted students become eligible for the award of degree upon successful completion of twenty-four (24) Credit Hours of course work and research thesis of six (06) Credit Hours. At least twelve (12) out of twenty-four (24) Credit hours of course work must be from Group A. However, there is no research thesis requirement for Weekend Program. The students registered in weekend program will have to study two additional subjects (06 credit hours) in place of thesis.

Ph. D. Petroleum & Gas Engineering

The Ph. D. at the department consists of course work combined with extensive research work. It is one of the conditions for Ph. D. candidates to produce original contribution to the chosen research field/area as per University/HEC criteria.

Eligibility Criteria

The intake criteria for Postgraduate degree in Petroleum & Gas Engineering shall be minimum sixteen years Graduate Engineering degree (or equivalent) in petroleum & gas engineering, geological engineering, mining engineering, chemical engineering, civil engineering and mechanical engineering or any other relevant engineering discipline (to be determined by PGRC). The candidate with a degree other than petroleum & gas engineering may have to take pre-requisite/co-requisite courses as determined by PGRC on a case-by-case basis. Additional eligibility criteria will be applicable as per university admission policy.

Postgraduate Faculty & Their Research Interests

Teacher Name	Research Interest
Dr. Muhammad Khurram Zahoor Professor and Chairman	Integrated Asset Management; Production Optimization; Reservoir Simulation Studies; Designing & Implementing EOR Methods.
Dr.-Ing. Faisal Mehmood Associate Professor	Reservoir management; Unconventional reservoirs; Hydraulic fracture design and optimization; CCUS; Rock mechanics; Numerical Modeling
Dr.-Ing. Muhammad Haris Assistant Professor	Numerical Modelling; Hydraulic fracturing: Geothermal energy; Energy Storage
Dr. Arshad Shehzad Ahmad Shahid Assistant Professor	Geomechanics; Hydraulically Fractured Reservoirs; Fracture Reactivation
Dr. Muhammad Kashif Ali Lecturer	Petroleum Economics and Management, Production Optimization, Stimulation, and Sustainability. Oil and Gas Capitalization.

M.Sc. Petroleum & Gas Engineering

Course Code	Course Title
	Group-A
Pet.E-501	Enhanced Oil Recovery
Pet.E-502	Advanced Well Testing
Pet.E-503	Advanced Production Engineering
Pet.E-504	Advanced Drilling Engineering
Pet.E-505	Advanced Reservoir Engineering
Pet.E-506	Reservoir Simulation –I
Pet.E-507	Subsurface Geomechanics
	Group-B
Pet.E-511	Naturally Fractured Reservoirs
Pet.E-512	Mechanics of Gas Flow in Porous Media
Pet.E-513	Well Log Interpretation
Pet.E-514	Reservoir Simulation-II
Pet.E-515	Petroleum Economics
Pet.E-517	Horizontal Well Technology

Pet.E-516	Petroleum Production Operations
Pet.E-518	Drilling Fluids Hydraulics
Pet.E-519	Production Optimization
Pet.E-520	Natural Gas Processing
Pet.E-521	Technology of Artificial Lift
Pet.E-611	Hydraulic Fracturing
Pet.E-612	Carbon Capture, Utilization and Storage
Pet.E-613	Geothermal Energy
Pet.E-611	Application of Data Science in Petroleum Engineering
	Research Thesis
Pet.E-500	Thesis (M.Sc.)
Pet.E-700	Thesis (Ph.D.)

DEPARTMENT OF ARCHITECTURE

The Department of Architecture was established in 1962 and has the distinction of being the first in the country to offer a bachelor's degree in Architecture. The Department, thus, has been the fundamental contributor towards the founding and establishment of the profession of Architecture in

Pakistan and this maintaining its leading role through offering higher programs of architectural education. These programs include Master of Architecture (M.Arch) and Doctor of Philosophy (Ph.D.).

Master of Architecture (M.Arch)

The Master's degree program in Architecture was instituted in 1990. It comprises of 24 credit hours of coursework and a research dissertation. Ever since, students from all over the country as well as from outside the country, has shown keen interest to obtain admission. The M.Arch students have carried out comprehensive research projects related to various aspects of our built environment and architectural heritage. The projects help understand hitherto unexplored aspects of our built environment and propose innovative solutions. The minimum and maximum duration for M.Arch is 1.5 and 4 years respectively which is counted from the date of registration.

Doctor of Philosophy in Architecture (Ph.D)

The Ph.D. program is offered to make a distinct and valuable contribution to the existing body of knowledge. It is generally expected that architects who wish to join the program have had significant professional experience and have developed an interest in some particular aspect of the built environment which they wish to explore further. It is hoped that these programs will help develop the culture of research and inquiry beyond the realm of academic world, and will thus contribute towards the development of the profession of architecture in Pakistan. The Ph.D. program is undertaken by taught courses and research work (Thesis). The minimum and maximum duration for Ph.D. is 5 and 7 years respectively, which is counted from the date of registration.

About the Postgraduate Programs

The Department has a highly qualified faculty. In addition to the regular faculty, the Department also invites a number of prominent architects and other professionals from the field as visiting teachers, jurors and examiners. Most of the faculty is also involved in research which mainly includes postcolonial theories in architecture, contemporary architecture in Pakistan, energy efficient architecture, planning and design for disaster-prone areas, housing and urban studies and digital architecture.

In addition to above, a fully equipped computer laboratory has also been set up to meet the academic and Information Technology requirements. The department is also working to establish a Centre for Architecture in Pakistan, which will focus on studying and analyzing the past, present and the future trends for the development of built environment in Pakistan.

Admission Criteria

a. Primary undergraduate degree of those seeking admissions should be either Bachelor of Architecture or B.Sc City & Regional Planning or B.Sc Civil Engineering or B.Sc Architectural Engineering & Design from a PCATP/HEC accredited/recognized institute.
b. For M.Arch the applicant should have scored a minimum of 60% marks under term system or 2.5 CGPA under semester system (details in section: Postgraduate Application Process).
c. For Ph.D the applicant should have scored a minimum of 70% marks under term system or 3.0 CGPA under semester system (details in section: Postgraduate Application Process).
d. Subject test and interview will be conducted by the department. Qualifying score in subject test is 50% for M.Arch and 70% for Ph.D.

Postgraduate Faculty & Their Research Interests

Teacher Name	Research Interest
Dr. Rizwan Hameed Professor, Dean	Environmental Planning, Transport & Environment, Housing Policy and Practice, Waste Management
Dr. Munazzah Akhtar Associate Professor, Chairperson	Architecture & Art of Islam, South Asian Visual Culture, British Colonial Architecture, Cross Cultural Issues in Architecture
Dr. Malik Usman Mehmood Awan	Sustainable Architecture, Energy Efficient Architecture, Efficient Building Services,

Assistant Professor	Environmental and Low Carbon Building Desigs
Dr. Mamuna Iqbal Assistant Professor	Architectural Pedagogy, Social Side of Architecture
Dr. Maryam Siddiq Assistant Professor	Sustainable and Environmentally Friendly Design, Social Sustainability and Identity, Research Methods
Ar. Fatima Javeed Assistant Professor	Computational Design, Data and information Modelling in Architecture, Artificial Intelligence in Architecture
Ar. Rabia Ahmed Qureshi Assistant Professor	Sustainable Architecture, Climate Appropriate Design & Human Well-being, Deep Beauty in Architecture, Landscap Architecture
Prof. Dr. Neelum Naz Professor Emeritus	Architectural History & Theory, Design Theories

M.ARCH & PH.D. Scheme of Core, Elective, and Mandatory Courses

Course Code	Course Title
Group-A: Core Courses	
Arch: 602	Research Methodology
Arch: 603	Architectural Heritage of Pakistan
Arch: 605	Theory of Architecture
Arch: 610	Energy Efficient Architecture
Arch: 614	Framework for Sustainable Design
Arch: 621	Understanding Urban Settlements
Arch: 638	Architectural Research Methods
Arch: 640	Analysis of Architectural Precedent
Group-B: Electives Courses	
Arch: 601	Architectural Design Studio-I
Arch: 604	Contemporary Architecture in Pakistan
Arch: 606	Urban Design Studio-I
Arch: 607	History of Urban Form
Arch: 608	Integrated Building Design
Arch: 609	Building Services and Systems
Arch: 611	Earthquake Architecture-I
Arch: 612	Sultanate Period Architecture
Arch: 613	Theory of Digital Design Culture
Arch: 615	History of Lahore
Arch: 616	Interior Design
Arch: 617	Landscape Architecture
Arch: 618	Oriental Language
Arch: 619	Approaches to Study Architectural History
Arch: 620	Architectural Design Studio-II
Arch: 622	Advanced Architectural Presentation
Arch: 623	Business Communication
Arch: 624	Conservation of Architectural Heritage
Arch: 625	Conservation of Urban Built Heritage
Arch: 626	Legislation and Conservation of Cultural Heritage
Arch: 627	Urban Design Studio–II
Arch: 628	Technologies and Strategies for Passive Design Architecture
Arch: 629	Advanced Structural Systems
Arch: 630	Construction Management
Arch: 631	Building Energy Simulation and Design
Arch: 632	Earthquake Architecture-II

Arch: 633	Urban Renewal and Revitalization in Practice
Arch: 634	Comprehensive Urban Planning Studies
Arch: 635	Histography of Islamic Art and Architecture
Arch: 636	Historic Architecture of Gujarat and Rajasthan
Arch: 637	Cross-cultural Visual Art Exchanges: West Asia, Central Asia & Sub-Continent
Arch: 639	Culture in International Contexts
Arch: 641	Parametric Urbanism
Arch: 642	Biomimicry in Architecture
Arch: 643	Islamic Funerary Architecture
Arch: 644	Ornamentation in Islamic Architecture
Arch: 645	Advanced Architectural Studio
Arch: 646	Architectural Informatics and Data in Design
Arch: 647	Architectural Informatics and Semantics with AI
Group-C: Mandatory Courses	
Arch: 699	Thesis (Compulsory)
Arch: 799	PhD Dissertation (Compulsory)
Note: M.Arch degree requirements will be fulfilled upon completion of 30 credit hours which include 24 credit hours of course work and 6 credit hours of Research Thesis. Minimum 3 courses are required to be taken from the list of core courses.	
Note: Ph.D. degree requirement will be fulfilled upon completion of 24 credit hours of course work in addition to Ph.D. Dissertation. Minimum 3 courses are required to be taken from the list of core courses.	

DEPARTMENT OF CITY & REGIONAL PLANNING

The Department of City and Regional Planning (DCRP) is contributing to nation-building through its graduates since 1962. It is an advanced planning institution in Pakistan, offering top-quality education in the fields of:

1. City and Regional Planning (CRP)
2. Community Development and Environmental Management (CDEM)
3. Disaster Management (DM)

The inclusive and vibrant environment of DCRP and internationally recognized degree programs attract national and international students. The teaching focuses on transforming students into proficient, knowledgeable, and ethical professionals. Most of the faculty members of this department are foreign-qualified and hold Ph.D. degrees. They actively conduct research to find innovative solutions to plan and manage resilient and sustainable human settlements. The detail of the department and the faculty can be accessed through the university weblink https://crp.uet.edu.pk/.

To address the need for trained professionals in the real estate sector, the DCRP has taken the initiative to introduce a new postgraduate program in Real Estate Planning and Management. This program has recently obtained statutory approval from the university and is currently in the process of obtaining an NOC from the Higher Education Commission of Pakistan. Additionally, a certificate course (16 weeks, 9 credit hours) and an advanced certificate course (32 weeks, 18 credit hours) in Real Estate Planning and Management have already been approved and will be offered very soon.

National and International Recognition and Collaboration

The Department offers Undergraduate, M.Sc./ M.Phil. and Ph.D. Degree Programs. All degrees are recognized and accredited by the Higher Education Commission (HEC) and Pakistan Council of Architects and Town Planner (PCATP). In addition, the Department has long-established and time-honored recognition by the International professional bodies such as Asian Planning Schools Association APSA (Thailand), American Planning Association APA

(USA), Royal Town Planning Institute RTPI (UK), and the International Society of City and Regional Planners (ISOCARP). The Department has signed various Memorandum of Understanding with national and international organizations and universities, seeking collaboration in research, teaching and exchange of students and teachers. Recently, the DCRP, in collaboration with Technische Universität Dortmund, Germany, has entered into a 3-years (2022-24) project entitled "Planning in Germany and Pakistan; Responding Challenges of Climate Change through Intercultural Dialogue" funded by DAAD (German Academic Exchange Service) worth 270,000 Euros. Some other institutions that have collaborated with the Department in the past are:

1. Technische Universität Dortmund, Germany
2. Northumbria University, UK
3. International Emergency Team, UK
4. Punjab Emergency Services, Government of Punjab
5. Technische Universität Berlin, Germany
6. Trier University, Germany
7. Heriot Watt University, Edinburgh, UK
8. University of Liverpool, UK
9. Government College University, Lahore
10. Heriot Watt University, Edinburgh, UK
11. University of Edinburgh, United Kingdom (UK)
12. The University of Philippines, Diliman, Philippines

Under international collaboration, faculty, and students of DCRP attended summer school in Technical University of Dortmund, Germany from 12th to 21st August 2022, 15th to 22nd June 2023, and from 7th to 19th May 2024. DCRP organized winter school and international conference in collaboration with Technical University Dortmund, Germany from 19th to 23rd December, 2022, and again on 21st to 26th November 2023, These events were attended by international delegates of Technical University Dortmund Germany, and University of Philippines, Philippines and faculty members and students of three national level universities i.e. University of Engineering and Technology (UET), Lahore, Lahore College for Women University (LWCU), Lahore and National University of Science & Technology (NUST), Islamabad.



Infrastructure and Facilities

The department has a seminar hall, lecture theatre, drawing studio, computer lab, conference room, research room and library. State of the art seminar hall and conference rooms are air-conditioned and equipped with smart boards and online lecture facilities. Symposia and extension lectures of world-renowned research scholars, professional planners and students' discussion forums are frequently held in these rooms.

GIS Computer Laboratory: The Geographic Information System (GIS) Laboratory of the department is equipped with latest desktop computers connected to a high-speed server based local network and internet facility. The laboratory is also equipped with modern scanning and printing facilities.

Library and Equipment: Established with the assistance of the British Government departmental library has 3,300 books including a wide range of international journals, and reports. New books and latest editions are added to the stock every year. The Department also has the latest mapping/ planning and survey equipment such as global positioning systems and total station, digital planimeters, pantographs, color plotters, laser jet printers and scanners. In addition, noise level meters, spectrophotometer, and flue gas analyzer for automotive and industrial emissions testing are also available.

Research Extension and Advisory Services: The Department holds seminars, workshops, and symposia to disseminate knowledge. The faculty members extend consultancy services to government and non-governmental organizations. The Department has undertaken several projects such as preparation of Master Plans, Katchi Abadi Improvement Plans, and designing of Housing Schemes. The Department has also worked with Earthquake Reconstruction and Rehabilitation Authority (ERRA) for earthquake hit areas of Azad Jammu & Kashmir and prepared a master plan for Bagh City.

Postgraduate Faculty & Their Research Interests

Teacher Name	Research Interest
Dr. Rizwan Hameed (Professor and Dean)	Environmental Planning, Transportation, Housing Policy, Waste Management, EIA
Dr. Shaker Mahmood Mayo (Professor/ Chairman)	Regional Planning, Participatory Workshops, Project Appraisals, Disaster Management
Dr. Obaidullah Nadeem (Professor)	Urban Land Management, Housing Policy and Practice, Comparative Planning, EIA
Dr. Ijaz Ahmad (Professor)	Regional Planning, Urban Infrastructure Planning, Conflict Resolution and Management
Dr. Amer Aziz (Professor)	Vehicular Pollution and Environment, Land Use Traffic Interaction, Mathematical Models
Dr. Tabassum Raza* (Professor)	Disaster Risk Reduction, Financing and Economics, Climate Change, Policy Design
Dr. Muhammad Asim (Associate Professor)	Land Management, Disaster Risk Reduction, Rural Planning, Research Methods
Dr. Humaira Tabassum (Assistant Professor)	Planning of Safer Cities, Planning Theories, and Community Planning
Mr. Rana M. Sohail Aslam* (Assistant Professor)	GIS and Remote Sensing, Disaster Vulnerability and Risk Assessment, Land Acquisition
Dr. Hania Arif* (Assistant Professor)	GIS, Remote Sensing, Climate Change, Disaster Management, Time Series Analysis

Teacher Name	Research Interest
Dr. Muhammad Farhan Khalid	Urban Safety, Relief operation, Community-based Disaster Management
Mr. Muhammad Shahjahan	Disaster management Policies, Urban Resilience, Disaster Risk Assessment

* Visiting Faculty

Postgraduate Courses of Study

- M.Sc. City and Regional Planning (Morning/ Weekend)
- M.Sc. Community Development & Environmental Management (Morning/ Weekend)
- M.Sc. Disaster Management (Morning/ Weekend)
- Ph.D. City and Regional Planning

M.Sc. City and Regional Planning

Course Code	Course Title
	Core Courses
4 to 6 courses to be selected	
CRP-601	Planning Theory
CRP-602	Comparative Urban Planning
CRP-603	Regional Development Planning
CRP-604	Advanced Research Methods
CRP-605	Advanced Planning Techniques
CRP-606	Housing Policy and Practice
CRP-607	Urban Transportation Planning
CRP-608-A*	Environmental Planning and sustainable Development
CRP-616	Mathematical Models in Planning
CRP-617	Urban Land Management
CRP-618	Implementation of Policies and Plans
	Electives Courses
2 to 4 courses to be selected	
CRP-609	Public Transport Planning
CRP-610	Local Planning Practice
CRP-611	Environment, Resources and Development
CRP-612-A*	Sustainable Urban Design
CRP-613	Rural Planning
CRP-614	Geographical Information Systems
CRP-615	Community Organization and Development
CRP-620	Transport and the Environment
CRP-621	Guided Individual Studies in Urban & Regional Planning
CRP-625	Participation and Social Assessment
CRP-627*	Participative Project Planning and Management

CRP-628	Negotiation and Conflict Resolution Skills
CRP-629	Poverty Alleviation
CRP-630	Infrastructure Development
CRP-631	Disaster Management
CRP-632	Participatory Approaches to Waste Management
CRP-634	Environmental Impact Assessment
CRP-635	Climate Change Impacts and Adaptation
CRP-642*	Urban Planning and Politics
CRP-643*	Urban governance and Public Policy
DM-619*	Disaster Risk and Urbanization
DM-635*	Health Safety and Environment
	Mandatory
CRP-699	Research Thesis (compulsory only for thesis option)
	Total Credit Hours = 30

*Courses approved by academic council recently. This scheme of study will be effective from 2024 session

M.Sc. Community Development and Environmental Management

Course Code	Course Title
	Core Courses
4 to 6 courses to be selected	
CRP-623	Introduction to Community Development Institutions
CRP-624	Local Government and Environmental Laws
CRP-625	Participation and Social Assessment
CRP-626	Community and Sustainable Development
CRP-627-A*	Participative Project Planning and Management
CRP-628	Negotiation and Conflict Resolution Skills
CRP-604-A*	Advanced Research Methods
CRP-634-A*	Environmental Impact Assessment
	Electives Courses
2 to 4 courses to be selected	
CRP-611	Environment, Resources and Development
CRP-629	Poverty Alleviation
CRP-630	Infrastructure Development
CRP-631	Disaster Management
CRP-632	Participatory Approaches to Waste Management
CRP-635	Climate Change Impacts and Adaptation
CRP-613*	Rural Planning
CRP-614*	Geographic Information System
DM-607*	Community Based Disaster risk Management
DM-634*	Health, Safety and Environment
	Mandatory
CRP-699	Research Thesis (compulsory only for thesis option)
	Total credit Hours = 30

*Courses approved by academic council recently. This scheme of study will be effective from 2024 session

M.Sc. Disaster Management

Course Code	Course Title
Core Courses	
(4 courses to be selected from the following in case of thesis option and 5 courses to be selected in case of non-thesis option)	
DM-601	Introduction to Disaster Management
DM-602	Disaster Risk Assessment
DM-603	Disaster Planning and Management
DM-604	Emergency Response Management
DM-605	Disaster and Development
DM-606	Natural Hazards of Pakistan
DM-607	Community Based Disaster Risk Management
CRP-604	Advanced Research Methods
DM-609	Disaster Response and Recovery
DM-610	Disaster Risk Reduction and Preparedness
CRP-614*	Geographic Information System
DM-612**	Climate Change Adaptation and Mitigation
DM-613**	Resilience through Sustainable Development
Electives Courses	
(4 courses to be selected from the following in case of thesis option and 5 courses to be selected in case of non-thesis option)	
DM-614	Management of Desertification of Hazard
DM-615	Disaster Management and Economy of Pakistan
DM-616	Disaster Management Policies Disaster
DM-617	Risk and Vulnerability Assessment
DM-618	Disaster Risk Financing
DM-619	Disaster Risk and Urbanization
DM-620	Management of Drought Hazard
DM-621	Management of Earthquake hazard and mitigation
CRP-634	Environmental Impact Assessment
DM-623	Management of Flood Hazard
DM-624	Forecasting of Hydro-Meteorological Hazards
DM-625	Gender Mainstreaming in Disaster Management
DM-626	Impacts of Climate Change and Disasters in Pakistan
DM-627	Management of Landslide Hazard

DM-628	Disaster Planning and Management in Pakistan
DM-629	Psychological Impacts of Disaster and its Management
DM-630	Media and Disaster
DM-631	Urban Safety
DM-632	Infrastructure Development
DM-633	Hazards and Urban Planning
DM-634*	Fire Safety Management
DM-635*	Health, Safety and Environment
DM-636*	Rural Hazards and Planning
DM-637*	Supply Chain Management in Disasters
CRP-628*	Negotiation and Conflict Resolution Skills
	Mandatory
CRP-699	Research Thesis (compulsory only for thesis option)
	Total credit Hours = 30

*Courses approved by academic council recently. This scheme of study will be effective from 2024 session onwards
Option-1 (Thesis Option): 8 subjects (24 credit hours) + M.Sc. Thesis (6 Credit Hours)
Option-2 (Non-thesis Option for weekend program only): 10 subjects (30 credit hours)

DEPARTMENT OF PRODUCT AND INDUSTRIAL DESIGN

The Department of Product and Industrial Design was established in 2006 in UET, main campus, as a constituent of the Faculty of Architecture and Planning, with a vision to address the emerging challenges in the field of design. Over the years, the department has made significant contributions to various design-related disciplines, including graphics, interior design, furniture, and ceramics. In 2016, the department marked a major milestone by introducing postgraduate studies in Product and Industrial Design, further solidifying its commitment to academic excellence. Throughout its journey of over a decade, our alumni have distinguished themselves as valuable team players in esteemed organizations and industries, such as UX/UI design, Master Tiles, Packages, TEVTA, and several international organizations. Many of our graduates have also pursued careers in academia, while others have successfully established themselves as freelancers, contributing to innovative business ideas and start-ups.

The Master's program in Product and Industrial Design at the UET, Lahore is designed to equip students with the advanced practical knowledge and skills necessary to excel in the field of global product and service design. The program's core objectives are to:

- To investigate complex design problems by the utilization of advanced design knowledge.
- To analyze problems related to Product and Industrial Designs through contemporary research methodologies to formulate integrated design solutions.
- To effectively communicate the design solutions to showcase research outcomes with technical expertise.

By achieving these objectives, graduates of this program will be well-positioned to make a significant impact in either industrial or academic settings, driving innovation and excellence in product and service design.

Laboratory and Library Facilities

The department has set up postgraduate labs (including Digital Graphics, Ceramic, Computer, and Wood labs) for master students to promote the research culture. Besides students also use different labs in respective engineering subjects. A fully functional and furnished library covering a range of relevant academic materials is also available in the department.

Admission Requirement and Eligibility

To be eligible to study a Masters' Program (M.PID), the candidate must have an undergraduate degree in Product and Industrial Design, Product Design, Industrial Design, Interior Design, Multimedia Design, Communication Design, Textile Design, Architecture, City and Regional Planning, Graphic Design or relevant disciplines.

Postgraduate Faculty & Their Research Interests

Teacher Name	Research Interest
Dr.-Ing. Atif Bilal Aslam Associate Professor/ Chairman	Sustainable Development, Resilience, Housing, Urban Mobility, and Migration
Dr. Salman Asghar Assistant Professor	Design by Psychology, Design Thinking, Visual Communication, Product Semantics, Product Design, Assistive Technology, Cross Cultural Psychology

Master Product and Industrial Design

Course No.	Course Title
	Core
MPID-501	Advanced Product Design
MPID-502	Integrated Product Development
MPID-503	Cognitive Ergonomics Design
MPID-504	Visual Communication
MPID-506	Design Psychology
MPID-507	Research Methodology
MPID-509	Design for sustainability & Resilience
	Electives
MPID-505	Graphic Design for Product & Packaging
MPID-508	Advanced Materials
MPID-510	Design History (Industrial / Regional)
MPID-511	Interior Design Studio
MPID-512	Product Life Cycle
MPID-513	Electronic Mockups
MPID-514	Project Planning and Management
MPID-515	Applied Space Methodology
MPID-516	Macro Electronics in Consumer Products
MPID-517	Service Entrepreneurship
MPID-518	Product Marketing & Branding
MPID-519	Design Culture
	Mandatory
MPID-600	Thesis (Compulsory)

DEPARTMENT OF CHEMISTRY

The Department started M.Phil. Applied Chemistry degree program in 2001, and Ph.D. Chemistry degree program in 2004. Further, M.Phil. in Food Science & Technology degree program (morning & evening) was started in 2018. The weekend programs in both M.Phil. Applied Chemistry and M.Phil. Food Science & Technology were successfully started in 2020. At present, near about 215 students are enrolled in M.Phil. (Applied Chemistry and Food Science & Technology) and 38 in Ph.D. Chemistry degree program. So far, 29 students have completed their Ph.D. degree from this Department. The Department is also offering Applied Chemistry courses to undergraduate degree programs of the Engineering and Non-engineering disciplines, including Chemical, Polymer, Metallurgical, Mining, Industrial and Manufacturing, Geological, Transportation Engineering and Management, Petroleum & Gas Engineering, City Regional and Planning and Environmental Science.

The Department has several well-equipped laboratories having a number of modern instruments like UV-Visible Spectrophotometer, Fourier Transform Infrared(FTIR), Atomic Absorption Spectrophotometer, Gas Chromatography-Flame Ionization Detector (GC-FID), Gas chromatography-Flame Photometric Detector(GC-FPD), Gas Chromatography-Mass Spectrometry (GC-MS), High-Performance Liquid Chromatography-Ultraviolet (HPLC-UV), High-Temperature Furnaces, Polarimeters, Potentiometer, Incubator Shaker, High-Speed Control Centrifuge, Low-Temperature Incubators Vacuum Pumps, Schilink Lines, Electrochemical Instruments, Fluorescence Spectrophotometer (Cary Eclipse), Attenuated Total Reflection (ATR Cary630 FTIR), Refractometer (Abbemat 500), Polarimeter (MCP 500), Potentiostat, Ultra-Low Temperature Freezer (U360 Innova), Thermo Scientific Barnstead Smart 2 Pure water (2 No.), Eliza Reader Laminar Flow Hoods, Cool Incubators, Dry Incubators, Oven, Freezer, Orbital Shaker, Spectrophotometer, Antibacterial and Antifungal facility, Colony Counter, etc. In addition, there is a Departmental Library and I.T Computer Laboratory to facilitate the Students. Promotion of higher education and Postgraduate Research continues to be the main objectives of the Department.

The Department has highly qualified faculty to meet the diverse needs of curriculum. The Department features enriched educational and research environment that reflects its tradition of dedication and commitment to the profession. The academic staff of the Department has published a large number of publications in journals of national and international repute. The dedication of our faculty towards teaching and research has made Department one of leading Chemistry Department of the country.

Postgraduate Faculty & Their Research Interests

Teacher Name	Research Interest
Dr. Muhammad Shahid Rafique Professor and Dean	Laser Physics, Experimental Plasma Physics
Dr. Farhat Yasmeen Professor and Chairperson	Analytical, Environmental Chemistry and Nanomaterials
Dr. Fazeelat Tahira Professor Emeritus	Organic Chemistry
Dr. Aneela Anwar Professor	Materials Chemistry, Biomaterials, Nanotechnology, Environmental Chemistry, Green Chemistry
Dr. Humayun Ajaz Associate Professor	Inorganic and Analytical Chemistry
Dr. Arjumand Iqbal Durrani Associate Professor	Organic and Food Chemistry
Dr. Aisha Munawar Associate Professor	Inorganic Chemistry, Biochemistry, Proteomicsand Venom Toxins
Dr. Zahoor Ahmad Associate Professor	Physical and Material Chemistry
Ms. Hina Saleem Assistant Professor	Organic Chemistry including Natural Products, Geo-Chemistry, Organic Spectroscopy and Organomatellics
Dr. Ashi Rashid (On Leave) Assistant Professor	Physical and Electrochemistry
Dr. Iqra Muneer Assistant Professor	Physical and materials Chemistry, Nanotechnology, Energy storage devices
Mr. Asad Abbas Lecturer	Inorganic and Analytical Chemistry

M.Phil. Applied Chemistry

Course No.	Course Title
CORE COURSES	
CY-601	Advanced Physical Chemistry
CY-607	Molecular Spectroscopy
CY-623	Chemistry and Biosynthesis of Secondary Metabolites
CY-625	Advanced Chemistry Projects
CY-641	Coordination Chemistry
CY-642	Advanced Spectroscopic Techniques
CY-647	Bioinorganic Chemistry
CY-658	Quality Control in Chemical Industry
COMMON TO ALL SPECIALIZATIONS	
CY-624	Gas Chromatography - Mass Spectrometry
CY-627	Advanced Organic Chemistry Projects
CY-652	X-ray Diffraction Techniques
CY-654	Liquid Chromatography
CY-657	Liquid Chromatography- Mass Spectrometry

NOTE: Four core courses are compulsory to all specializations. Four courses will be offered from respective specializations/common to all courses. Degree requirement is 24 credit hours theory and 6 credit hour thesis.
24 credit hour's theory and 06 credit hours thesis.

Course No.	Course Title
(A) Physical Chemistry (CY-601 to CY-620, 655)	
CY-601	Advanced Physical Chemistry
CY-602	Applied Electrochemistry
CY-603	Advanced Surface Chemistry
CY-604	Advanced Chemical Kinetics
CY-605	Advanced Quantum Chemistry
CY-606	Statistical Mechanics
CY-607	Molecular Spectroscopy
CY-608	Advanced Solid State Chemistry
CY-609	Nanotechnology
CY-610	Computational Chemistry
CY-611	Fuel Cell Technology
CY-612	Advanced Solution Chemistry
CY-613	Chemistry of Advanced Composite Materials
CY-614	Surfactant and Colloidal Chemistry
CY-615	Physical Chemistry of High Polymers
CY-616	Advanced Nuclear and Radiation Chemistry
CY-655	Electroanalytical Techniques
(B) Specialization In Organic Chemistry	
Organic Chemistry (CY-621 to CY-640)	
CY-621	Heterocyclic Chemistry
CY-622	Chemistry and Biosynthesis of Secondary Metabolites
CY-623	Gas Chromatography-Mass Spectroscopy
CY-624	Advanced Color Chemistry and Technology
CY-625	Advanced Chemistry Projects
CY-626	Food Chemistry and Technology
CY-627	Food Additives and Preservatives
CY-628	Food Analysis
CY-629	Advanced Organic Geochemistry
CY-630	Biomarkers in Sedimentary Environment
CY-631	Petroleum Chemistry & Petrochemicals
CY-632	Advanced Polymer Chemistry
CY-633	Polymer Analysis and Characterization
CY-634	Functional Polymers

C Specialization in Inorganic/Analytical Chemistry	
Inorganic/Analytical Chemistry (CY-641 to CY-660)	
CY-641	Coordination Chemistry
CY-642	Advanced Spectroscopic Techniques
CY-643	Physical Methods in Inorganic Chemistry
CY-644	Advanced NMR Techniques
CY-645	Organometallic Chemistry
CY-646	Inorganic Chemistry Reaction Mechanisms
CY-647	Bioinorganic Chemistry
CY-648	Material Chemistry
CY-649	Metal-Metal Bonds and Cluster Compounds
CY-650	Main Group Chemistry
CY-651	Homogeneous Catalysis
CY-652	X-Ray Diffraction Techniques
CY-653	X-Ray Spectroscopy and Scanning Electron Microscopy

CY-654	Liquid Chromatography
CY-655	Electroanalytical Chemistry
CY-656	Advanced Inorganic Mass Spectrometry
CY-657	Liquid Chromatography-Mass Spectrometry
CY-658	Quality Control in Chemical Industry
CY-659	Drug Testing
CY-660	Advanced Coordination Chemistry
(D) Specialization in Green and Sustainable Chemistry	
Green and Sustainable Chemistry (CY-661 to CY-680)	
CY-661	Sustainable Chemistry
CY-662	Environmental Trace Analysis Techniques and Applications
CY-663	Industrial Green Projects
CY-664	Advanced Environmental Chemistry
CY-665	Environmental Toxicology
CY-666	Green Chemistry and Sustainability
CY-667	Environmental Nanochemistry
CY-668	Sustainable Nanomaterials and Heterostructures
CY-669	Biomass to Biofuels and Bioenergy
CY-670	Integrated Environmental Assessment and Management
CY-671	Environmental Laws and Regulations
(E) Specialization in Biochemistry	
Biochemistry (CY-681 to CY-698)	
CY-681	Fundamental Biochemistry
CY-682	Enzyme and Enzyme Catalysis
CY-683	Pharmacokinetics and Drug Metabolism
CY-684	Applied Microbiology
CY-685	Protein: Structure, Function and Purification
CY-686	Mass Spectrometric Characterization of Proteins
CY-687	Structural Biology
CY-688	Bioanalytical Chemistry
Third and Fourth Semester	
CY-699	M.Phil. Research Thesis and Seminar
Ph.D.	
1. Any Six Courses (18 credit hours) from the above list.	
2. Comprehensive Examination as per Ph.D. requirements	
3. Research Thesis and Public Defense	

Ph. D Chemistry

Course No.	Course Title
CY-701	X-Rays Diffraction Techniques
CY-702	Material Chemistry
CY-703	Advanced Coordination Chemistry
CY-704	Advanced Environmental Chemistry
CY-705	Advanced Composite Materials
CY-706	Mass Spectrometric Characterization of Proteins
CY-707	Gas Chromatography - Mass Spectrometry
CY-708	Modern Methods of Organic Synthesis
CY-709	Fuel Cell Technology
CY-710	Liquid Chromatography- Mass Spectrometry
CY-711	Environmental Trace Analysis Techniques and Applications
CY-712	Green Chemistry and Sustainability
CY-713	Integrated Environmental Assessment and Management
CY-714	Nanomaterials and Heterostructures
1.	First any six courses (18 credit hours from the above list.

2.	Comprehensive examination as per PhD requirements.
3.	Research Thesis and Public Defense
CY-900	Ph. D Research Thesis

M.Phil. Food Science &Technology

Course No.	Course Title
Core Courses	
FST-500	Advanced Food Chemistry
FST-501	Physical Properties of Food
FST-502	Recent Advances in Food Science & Technology
FST-503	Advanced Food Biotechnology
Electives Courses	
Optional Courses (Any Four)	
FST-504	Proteomics in Food Science
FST-505	Polymers in Food Science
FST-506	Functional Foods and Nutraceuticals
FST-512	Food Additives
FST-513	Food Enzymology
FST-514	Food Toxicology
FST-521	Food Laws and Regulations
FST-522	Food Industrial Waste Management
FST-523	Post Harvest Management
FST-524	Food Packaging
FST-525	Food Quality Assurance Management
FST-531	Baking Science & Technology
FST-541	Starch Chemistry and Technology
FST-542	Milling of Cereals
FST-551	Dairy Processing-I
FST-552	Dairy Processing-II
FST-562	Advanced Food Microbiology
FST-571	Chemistry of Edible Oils and Fats
FST-572	Industrial Processing Technology of Edible Oils & Fats Products
FST-581	Meat Science
FST-582	Technology of Processed Meat
FST-591	Advanced Beverage Technology
MATH-552	Mathematical Modelling of Enzyme Kinetics
Note: Students are required to complete four courses (compulsory) and any four optional courses from the above list comprising a one-year research thesis.	
Third and Fourth Semester	
FST-600	Research Thesis and Seminar

DEPARTMENT OF MATHEMATICS

The Department of Mathematics provides an environment to learn foundations, applications and creative approaches related to mathematical and engineering problems. Thus, contributing to research services for science and engineering and giving students opportunities to collaborate with other researchers to broaden their scope for new mathematical approaches. In addition, to this the department offers BS in Mathematics, M.Phil. in Applied Mathematics and Ph.D. in Mathematics.

Postgraduate classes started in 1988. Since then, M. Phil. in Applied Mathematics is being offered as a full-time two-year course on semester basis. The Ph.D. program has also been launched and in the recent past the department has registered research scholars for this program. So far, twenty six scholars of the department have been awarded Ph. D degrees; the first one was awarded in 2006.

Research is an essential component of the academic pursuits of the faculty members and the postgraduate students. The research work of the faculty is published in national and international journals. The department is also equipped with a computer laboratory and Internet facility.
A large number of institutions and organizations seek consultancy and advisory services of the faculty members and benefit from their expertise.

Postgraduate Faculty & Their Research Interests

Teacher Name	Research Interest
Dr. Muhammad Shahid Rafique Professor and Dean	Laser Physics, Experimental Plasma Physics
Dr. Muhammad Mushtaq Professor and Chairman	Fluid Mechanics, Vector and Tensor Analysis
Dr. Asma Rashid Butt Professor	Functional Analysis
Dr. Sabir Hussain Professor	Applied Functional Analysis, Theory of Time Scales, Inequalities with Applications

Dr. Qasim Ali Ch. Professor	Bio Mathematics, Mathematical Modelling, Numerical Analysis
Dr. Muhammad Irfan Qadir Associate Professor	Condensed Matter Physics, Theoretical Mechanics, Numerical Methods
Dr. Shafiq-ur-Rehman Associate Professor	Development of Numerical Integrators for Differential Equation and the use of Simulations to Model the Dynamics of the Solar System.
Dr. Mustafa Habib Associate Professor	Biomathematics
Dr. Samia Riaz Associate Professor	Variational Inequalities, Numerical Analysis
Dr. Saadia Farid Associate Professor	Fluid Mechanics
Dr. Anjum Pervaiz Assistant Professor	Numerical Analysis, Differential Equations
Dr. Shamaila Samreen Assistant Professor	Computer Aided Geometric Design (CAGD), Commuter Graphics, Geometric Modelling, CAD/CAM and CAE
Dr. Kashif Ali Khan Assistant Professor	Fluid Dynamics, Numerical Simulation
Dr. Muhammad Shabbir Assistant Professor	Fourier Analysis, Numerical Solutions of Differential Equations
Dr. Taimoor Iqbal Assistant Professor	Topology Optimization, Finite Element Modelling
Dr. Ali Ovais Lecturer	Graph Theory and Combinatorics

Syllabi & Courses Reading Degree Options

Following option is available:

Thesis Option: 8 Subjects (24 credit hours) + Research Thesis (6 credit hours)

Subjects Offered In M.Phil./Ph.D.

Note: All courses are 3 (3+0) credit hours each unless otherwise specified.

- Ph.D. students may choose courses from the general optional list in addition to the courses mentioned in the lists of optional courses for first and second semesters of M.Phil. Applied Mathematics.

Curriculum for M.Phil. Applied Mathematics

Course Code	Course Title
First Semester	
MATH-701	Integral Transforms
MATH-702	Viscous Fluid Flow
Optional Courses **The student will have choice of two courses out of the following:**	
MATH-703	Applied Linear Algebra-I
MATH-704	Approximation Theory
MATH-705	Advanced Operations Research-I
MATH-706	Electro-hydrodynamics

MATH-707	General Theory of Relativity
MATH-708	Analytical Dynamics
MATH-709	Theory of Splines-I
MATH-710	Applied Functional Analysis-I
MATH-711	Numerical Solutions of Non-Linear System of Equations and Ordinary Differential Equations
MATH-712	Theory of Differential Equations
MATH-766	Optimal Control Theory in Applications to Biology-I
MATH-767	Numerical Solution of Variational Inequalities-I
MATH-768	Mathematical Analysis, Modelling and Applications-I

Second Semester

Course Code	Course Title
MATH-713	Numerical Solutions of Partial Differential Equations
MATH-714	Numerical Solutions of Integral Equations
Optional Courses **The student will have choice of two courses out of the following:**	
MATH-715	Compressible Fluid Flow
MATH-716	Magneto hydrodynamics
MATH-717	Perturbation Methods in Fluid Mechanics
MATH-718	Applied Linear Algebra-II
MATH-719	Theory of Splines-II
MATH-720	Advanced Operations Research-II
MATH-721	Applied Functional Analysis-II
MATH-722	Advanced Complex Analysis
MATH-771	Optimal Control Theory in Applications to Biology-II
MATH-772	Mathematical Modeling in life Sciences
MATH-773	Numerical Solution of Variational Inequalities-II
MATH-774	Mathematical Analysis, Modelling and Applications-II
MATH-799	Research Thesis (6 credit hours)

Further optional courses for Ph.D. mathematics students

Ph.D. students may choose courses from the following list in addition to the courses mentioned in the lists of courses for first and second semesters of M.Phil. Applied Mathematics.

Course Code	Course Title
Math-723	General Topology
Math-724	Measure Theory and Lebesgue Integration
Math-725	Algebraic Topology-I
Math-726	Galois Theory-I
Math-727	Topological Vector Spaces
Math-728	Algebraic Topology-II
Math-729	Galois Theory-II
Math-730	Ordered Linear Spaces
Math-731	Topics in Variational and Quasivariational Inequalities
Math-732	Advanced Algebra
Math-733	Optimization Theory-I (Derivative Based Methods)
Math-734	Optimization Theory-II (Derivative Free Methods)

Math-735	Numerical Solution of Differential-Algebraic Equations
Math-736	Advanced Mathematical Modelling
Math-737	Set-Valued Analysis
Math-738	Fixed Point Theory and its Applications
Math-739	Advanced Graph Theory
Math-740	Genetic Algorithms and Engineering Optimization
Math-741	Advanced Network Flow Theory
Math-742	Fractional Calculus
Math-743	Theory of Time Scales
Math-744	Continuum Mechanics
Math-745	Gas Dynamics
Math-746	Computational Fluid Dynamics
Math-747	General Tensors
Math-748	Special Functions
Math-749	Finite Element Method
Math-750	Boundary Element Methods
Math-751	Introduction to Modelling of Processes in Cell Biology
Math-752	Advance Course in Numerical Analysis: Mathematical Modelling of Biological System
Math-753	Best Approximation
Math-754	Numerical Functional Analysis
Math-900	Ph. D Thesis

DEPARTMENT OF PHYSICS

Courses of Study

The Department offers the following Postgraduate programs:

1. M.Phil. in Applied Physics
2. M.Phil. in Nanoscience and Technology
3. Ph.D. Physics

The highly qualified and motivated faculty includes twenty members with Ph.D. degree. The interdisciplinary curriculum draws on faculty expertise in many areas of Applied Physics and includes such courses as Laser Physics, Plasma Physics, Nanotechnology, Health & Medical Physics, Photonics & Optoelectronics, Applied Optics, Atomic & Nuclear Physics, Solid State Physics, Computer Science & its applications and Electronics, etc.

The department so far has produced **592** M.Phil. and **466** M.Sc. students, who are serving in different educational institutes like Lahore College for Women University, G.C. University Lahore, G.C. University Faisalabad, F.C. College University, COMSATS, PIEAS, etc. R & D Organizations like PAEC, NESCOM, OPTICS Lab. KANUPP etc. and in the field of Medical Physics in Jinnah Hospitals, Mayo Hospital, Shaukat Khanum Hospital, INMOL etc. The department has also produced **32** Ph.D. and **34** are pursuing their Ph.D. degree. Many graduates are serving in foreign institutions.

There are six well equipped laboratories in the department. The research work is backed up by the state-of-the-art equipment where students have the opportunity to perform experiments of advanced level with special emphasis on the applied concepts of Physics.

The Department has also three fully equipped Advanced Research Centers:

(I) Laser & Optronics Centre

This centre provides research facilities in Lasers, Laser Matter Interaction, Laser produced Plasma, Optoelectronics and Photonics, etc. The main equipment includes high power femto-second Ti-Sapphire Laser, Nitrogen Laser, Nd: YAG Laser, Diode Lasers, XeCl Excimer Laser, high resolution Three Stage Optical Microscope, Heating Furnace, Nanodiamond Fabrication Facility, Solid Oxide Fuel Cell Fabrication Facility and more related to mentioned fields.

The research labs, in the Department are well equipped and have the research facilities like Vacuum Systems (turbo molecular pump, Diffusion and Rotary pumps, Vacuum Gauges like Pirani gauge, Ionizing gauge etc), Vacuum Chambers, Spectrometer, Photomultipliers, Digital Storage Oscilloscope and Transmission Optical Microscope. Two Laser Systems KrF Excimer (UV) & Nd: YAG (IR) are also in operation to facilitate the postgraduate and Ph.D. research students to perform experiments on laser-matter interaction, plasma formation and to study radiation emission from laser produced plasmas.

(ii) Nanotechnologies Research Centre

The Nanotechnology Research Centre (NRC) was established in 2008 in the Department of Physics to focus on precision engineering or tailoring of materials at nano scale. In addition to the nano scale research facilities, the NRC also has created programs to attract researchers and to facilitate the scientists.

Nanotechnology Research Centre (NRC) has the following state-of-the-art laboratories

1. Nanofabrication Lab
2. Diagnostic & Characterization Lab

The Labs. at NRC are equipped with Atomic Force Microscope (AFM), Raman Spectrometer, AC Electro-deposition set up, DC Electro-deposition set up, Magnetic Field Annealing System, Multifunctional Generator, Magnetic Stirrer with hot plate, Analytical Balance, Power Supplies etc.

The Department can provide its expertise in the above mentioned areas at National and International level.

(iii) Centre for Nanotechnology and Advanced Material Research (CNAMR)

University of Engineering and Technology established a modern and state of the art Centre for Nanotechnology and Advanced Materials Research (CNAMR) at its Main Campus adjacent to Laser & Optronics Center.

This centre has latest High-tech equipment, Field Emission Scanning Electron Microscope (FESEM), High Resolution Transmission Electron Microscope (HRTEM) and Optical Microscopes, Ion beam milling, sample preparation units, X-ray diffractometer, Nanoindentor with AFM.

(Postgraduate Faculty & Their Research Interest/Fields)

Teacher Name	Research Interest
Dr. Muhammad Shahid Rafique Professor and Dean	Laser Physics, Experimental Plasma Physics
Dr. Anwar Latif Professor and Chairman	Laser Matter Interaction
Dr. Rehana Sharif Professor	Nanotechnology
Dr. Muhammad Iqbal Professor	Theoretical Plasma Physics
Dr. Khurram Siraj Professor	Laser Ablation, thin films, LIBS, Solid Oxide Fuel Cell, Optronics
Dr. Shamaila Shahzadi* Professor	Nanotechnology and Advanced Materials
Dr. Rashid Jalil Associate Professor	Nanotechnology
Dr. Ibtsam Riaz Associate Professor	Nanotechnology

Dr. Abdul Waheed Anwar Associate Professor(TTS)	Nanotechnology / Raman Spectroscopy
Dr. Umber Kalsoom Assistant Professor	Thin Films
Dr. Usman Ilyas* Assistant Professor	Spintronics
Dr. Ishrat Mubeen Dildar * Assistant Professor	Condensed Matter Physics
Dr. Muneeb Irshad Assistant Professor	Solid Oxide Fuel Cell
Dr. Amina Afzal Assistant Professor	Polymeric Membranes
Dr. Jaweria Zartaj Hashmi Assistant Professor	Thin Films (PLD)
Dr. Saima Shaukat Assistant Professor	Thin Films
Dr. Saba Majeed Gondal Assistant Professor	Theoretical Plasma
Dr. Haamid Jamil Assistant Professor	Thin Films
Dr. Sofia Siddique Assistant Professor (TTS)	Nanotechnology / Optronics
Dr. Khadija tul Kubra Assistant Professor	Energy Storage Devices

* On Ex-Pakistan Leave

(OPTICAL MICROSCOPE)

(FIELD EMISSION SCANNING ELECTRON MICROSCOPE FE SEM)

Ph.D. Physics

The Ph.D. Physics program was started in 2001. Since then **32** Ph.D. degrees have been awarded so far in different latest fields of Physics such as Laser Physics, Laser Matter Interaction, Laser Plasmas, Thin Films and Nanotechnology etc. The Ph.D. course works are also related to modern fields of Physics. The Ph.D. degrees are awarded in accordance with HEC Criteria. The course details are given below

M.Phil. in Applied Physics

Course Code	Course Title
Phy-720	Quantum Optics
Phy-721	Optical Properties of Materials
Phy-722	Laser Matter Interaction
Phy-723	Physics of Magnetism and Magnetic Materials
Phy-724	Quantum Transport and Applications
Phy-725	Nanobiophysics
Phy-726	Spectroscopy
Phy-727	Physics of Renewable Energy Sources
Phy-728	Nanomagnetism and Spintronics
Phy-729	Advanced Optoelectronics
Phy-900	Ph.D. Thesis

M.Phil. in Nanoscience and Technology

Course Code	Course Title
NST-501	Fundamentals of Nanotechnology
NST-502	Nano Physics
NST-503	Nanofabrication Techniques
NST-504	Characterization of Nanostructures
Electives	
NST-505	Self-assembly of nanostructures
NST-506	Biomedical applications of Nano materials
NST-507	Nano photonics
NST-508	Industrial Nanotechnology
NST-509	Nanotechnology in Energy Conversion and Storage
NST-510	Nanoscale Magnetic Materials and Devices
NST-511	Nano scale Optical Spectroscopy
NST-512	Metallopolymer Nanocomtesposi
NST-513	Nanosensors
NST-514	Thin film growth and Epitaxy
*PST-505	Functional Nanomaterials
*CY-667	Nano Chemistry
*CY-668	Nanomaterials and Heterostructures
*MATH-551	Nano Fluids
NST-600	Thesis (by experimental research work)

The students have to take 8 (eight) courses in first two semesters from the following list.

M.Phil. in Applied Physics	
Course Code	**Course Title**
Phy-701	Plasma Physics
Phy-702	Physics of the Materials
Phy-703	Atmospheric Physics
Phy-704	Lasers
Phy-705	Experimental Techniques
Phy-706	Cloud Physics
Phy-707	Advanced Lasers & Techniques
Phy-708	Applied Meteorology
Phy-709	Health & Medical Physics
Phy-710	Physics of Advanced Materials
Phy-711	Atmospheric Electricity
Phy-712	Advanced Plasma Physics Techniques & Applications
Phy-713	Environmental Physics
Phy-714	Computer Programming
Phy-715	Nano Physics and Nanotechnologies
Phy-716	High Temperature Super Conductivity
Phy-717	Fractal Analysis
Phy-718	Photonics and Optoelectronics
Phy-719	Applied Optics
Phy-730	Physics of Solid Oxide Fuel Cells
Phy-731	Nanostructures, Nanomaterials and their Characterization
Phy-732	Nanomaterials-Synthesis, Properties and Applications
Phy-733	Computational Solid State Physics
Phy-734	Computational Laser Mater Interaction and Laser Induced Plasma
Phy-735	Physics and Applications of Semiconductor Nanostructures
Phy-736	Advances in Spintronic Materials, Technology and Devices
Phy-737	Graphene: Fundamentals and Application
Phy-738	Composite Materials
Phy-800	Research Thesis
* Crosslisted subjects: the courses are taken from other departments;	

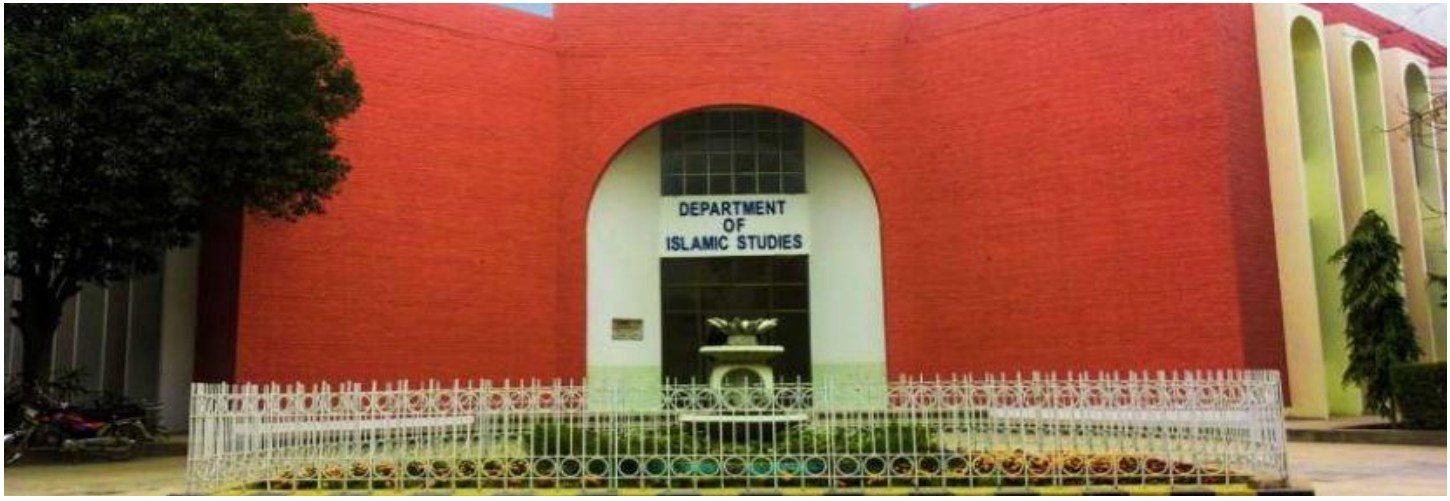
PST-Department of Polymer and Process Engineering, CY-Chemistry Department and MATH-Mathematics department.

The department also offers courses of Applied Physics at undergraduate level to majority of engineering departments, computer science and architecture department. The curricula of the courses cover many branches of physics including recent developments in the subject. These are reviewed periodically to keep them abreast with the rapid changes occurring in the Engineering disciplines and the correlative areas of Physics

(Nano Indentation/AFM)

X-Ray Diffractometer

Transmission Electron Microscope(T.E.M)



DEPARTMENT OF ISLAMIC STUDIES

Mission

To produce a team of scholars:

- who are well equipped with the broad vision and true spirit of Islam.
- who are competent to meet contemporary challenges and provide solutions of the issues faced by the Muslim Ummah in the light of the revealed knowledge i.e. the Holy Quran and the Sunnah of the Holy Prophet (SAWS).
- who have the qualities to introduce the high Islamic values such as unity, tolerance and respect etc. in the society.
- who take active part to maintain inter-faith harmony in Pakistan and in the world.

Postgraduate Faculty & Their Research Interests

Teacher Name	Research Interest
Dr. Muhammad Shahid Rafique Professor and Dean	Laser Physics, Experimental Plasma Physics
Dr. Hafiz Muhammad Shahbaz Professor and Chairman	Hadith, Tafseer, Seerah
Dr. Atiq ur Rahman Associate Professor	Quran, Hadith, International Law
Dr. Hafiz Zahid Latif Assistant Professor	Comparative study of religions, Islam and Science
Dr. Tanveer Qasim Assistant Professor	Comparative study of religions
Dr. Hafiz Qudratullah Assistant Professor	Quran, Hadith, Seerat, Takhreege-al-Hadith
Dr. Muhammad Nadeem Shah Assistant Professor	History, Ideology and Constitution of Pakistan

INSTITUTE OF BUSINESS AND MANAGEMENT

IB&M was established in 2009 to facilitate a community of responsible citizens and aspiring management professionals who can inspire the business landscape through their creativity, integrity, and commitment to excellence and sustainability. The Institute leverages UET's 100 years of academic excellence in innovation, professional expertise, and industry-oriented education. IB&M provides a combination of a robust curriculum, highly qualified faculty with remarkable research contributions, well-equipped business school premises, and a myriad of student support services that synergize into a memorable and rewarding learning experience.

IB&M Vision
To have a transformative impact on society through education and research.

IB&M Mission
To educate the next generation of responsible citizens in a collaborative environment that promotes transformational learning, inspires creativity & solution orientation, and to make a meaningful contribution to business and society through research.

Degree Programs
The Institute offers the following graduate and doctoral degree programs.

- MBA
- Executive MBA
- MS Management
- PhD Business Administration and Management

MBA

The MBA program at IB&M, UET is a transformative learning experience based on a broad business management and leadership curriculum, industrial projects, and participant-centred learning. The program is designed to produce leaders with strong critical analysis, business intelligence, innovative spirit, and soft skills to tackle the complexities of rapidly changing business and technological landscape. The MBA program has two variants:

- 30 Credit Hours (1.5-Years) For Business Undergraduates
- 60 Credit Hours (2-Years) For Non-Business Undergraduates

The program curriculum and other details are available at: https://ibm.uet.edu.pk/mba30/ and https://ibm.uet.edu.pk/mba60/

Executive MBA

EMBA is specifically designed for professionals already in the workforce. The program requires three years of professional experience for admission and spans over two years on the weekends to enable students to earn the degree while continuing with their existing professional commitments. Students in EMBA program come away with an enhanced skills base to advance their career prospects at their organizations, not to mention the credential of a master's degree and a new alumni network. Because most of these executives are also working while earning their EMBAs, they are better positioned to apply the management techniques, and best practices learned in the classroom to real-life situations. The program curriculum and other details are available at: https://ibm.uet.edu.pk/emba/

MS Management

MS Management is a research-based master's degree designed to produce students versed in all aspects of investigating business and management practice. The program has a substantial theoretical and methodological core with an opportunity to build knowledge of specialist areas of business and management. The program differs from a typical MBA as it covers fewer specialist domains in more depth and is valuable for professionals working or intending to work in academia, corporate, policy, or professional organizations where research competence is required. The program curriculum and other details are available at: https://ibm.uet.edu.pk/ms-management/

PhD Business Administration and Management

Ph.D. Business Administration and Management is an academic research degree program aimed at creating a scholarly community that will bring new perspectives and encourages innovative thought in academic business research. The program trains its participants in advanced methods and techniques for scientific inquiry and knowledge creation in business and management. The participant goes through rigorous course work, comprehensive exam, and doctoral dissertation, along with opportunities to practice teaching skills.

Faculty

Dr. Muhammad Shahid Rafique
Dean and Professor

Dr. Muhammad Nasir Malik
Director and Professor, Finance

Dr. Amir Ikram
Assistant Professor, Entrepreneurship

Dr. Asma Abdul Rehman
Assistant Professor, Finance

Dr. Bilal Aziz
Assistant Professor, Finance
Dr. Farah Samreen

Assistant Professor, Management

Dr. Farman Afzal
Assistant Professor, Finance

Dr. Hina Munir
Assistant Professor, Management

Dr. Muhammad Shoaib Farooq
Assistant Professor, Entrepreneurship

Dr. Maria Khan
Lecturer, Marketing
Dr. Mishal Ahmad
Assistant Professor, Finance

Dr. Naeem Akhtar
Assistant Professor, Marketing

Dr. Qurat ul Ain Akhtar
Lecturer, Finance

Dr. Rabia Naseem
Assistant Professor, Management

Dr. Rizwana Hameed
Lecturer, Marketing

DEPARTMENT OF TEXTILE ENGINEERING

The department has started offering BS Textile in 2013, MSc Textile and Materials Engineering in 2020 and PhD Textile Engineering in 2021 with highly qualified faculty and well-equipped laboratories. Faisalabad campus is privileged over other campuses of UET for holding the only degree awarding department in Textile Engineering field. PhD Textile Engineering was also the first PhD engineering program at Faisalabad Campus. The Department of Textile Engineering is offering the following postgraduate programs:

1. M.Sc. Textile and Materials Engineering
2. Ph.D. Textile Engineering

The postgraduate programs aim at bringing the students abreast with the most recent developments in Textile Engineering by enhancing their analytical skills and research capabilities. Through the enhancement of analytical skills, critical analysis and research capabilities of the students, this program tends to provide integrated recent trends, modern studies, insights into the fields of textiles and materials with directed applications to the needs of the industry. The program will prepare postgraduates for careers in teaching, research and development and management for academia, government, and industry.

Department faculty have won funded projects from HEC, PHEC, PSF, UET, industry and NGOs. Paid research associate positions for MS students and PhD students are also available at the Department on competitive basis. The department is currently conducting multi-dimensional research ranging from the sustainability in the textile process, textile machine modification, development of advance materials, recycling, water and energy efficient dyeing and finishing, green conversion of the textile wastes into the synthesis and applications of nanomaterials for widespread applications, innovative material development, innovative fiber from waste (banana, okra and post-consumer waste), efficient carbon fibers, phosphorescent materials, advance digital printing and development of functional conductive inks for digital printing. Active textile sustainability research group is working in the department. The faculty has produced more than 200 research papers, 10 patents and 6 international book chapters in the last six years. Five Ph.D. students have successfully been co-supervised and completed their practical work in the textile labs of the department. Department has developed anti-viral masks, PPEs, innovative banana fabric, innovative okra fabric, natural dyeing and other range of innovative products and processes. In addition, department has licensed the technologies to the textile industry. Department has also won the only prize for Textile Processing Technologies at the 6th, 7th, 8th Invention to Innovation Summit 2017, 2018 and 2019. Its textile engineering students have won 3rd position at the SDC-UK (Pakistan region) textile color competition 2018 and the second place at the European Union (EU) mask competition 2020, prices at the ICST 2024 and PEC project funding 2023-24..

There is 100% job placement for the graduates of the textile department. Graduates of the UET textile department are currently working in government organizations and some of the top mills of the country like Nishat, Interloop, Crescent, Kamal, Master, Sapphire, CBL, Style, Sadaqat, Artistic, Cotton web, Azgard 9, US Apparel, TTI, US denim and Masood textile etc. Since 2018, every year department of textile engineering organize two mega events of textile (International Conference on Sustainable Textile & all Pakistan textile sustainability competition for students as well as Top Pakistani Textile Brands Tribute). 6th International Conference on Sustainable Textile 2023 was held on 8th November 2023. More than 550 student projects were displayed in the student competition 2023. Textile sustainability working group has also been announced at the 4th ICST conference on Sustainable Textile 2021 and it has already been joined by over 300 academia representative and top textile industries of Pakistan for joint projects, training and R&D.

Postgraduate Faculty & Their Research Interests

Teacher Name	Research Interest
Prof. Dr. Tauseef Aized Professor & Dean	Energy Technology, Management and Policy, Manufacturing Processes and Systems.
Prof. Dr. Muhammad Mohsin Professor and Chairman	Sustainable processing, textile recycling, advance material development, cost and energy efficient process development, medical and hygiene textile, ZDHC, textile waste-water treatment, foam & nano bubble dyeing and finishing, toxic free fire retardant & oil and water repellent development, waste recycling and digital printing
Dr. Shaheen Sardar Associate Professor	Garment manufacturing, production management, supply chain management, industrial engineering, modelling and simulation, design and analysis of algorithms, textile sustainability and operations research
Dr. Aamir Abbas Assistant Professor	Textile spinning, high performance carbon fiber development, waster conversion into carbon fiber, nano materials, waste recycling, spinning of innovative natural fibers, conductive inks development
Dr. Usama Bin Humayoun Assistant Professor	Weaving and knitting, Nano-materials synthesis and applications, luminescent textiles, wearable piezo-electric nano-generators, sizing of sustainable materials, inks for digital printing
Dr. Faiza Safdar Lecturer	Textile engineering, Textile materials, Technical textiles, Nanotechnology, Composites, Sustainability
Dr. Haris Ameer Lecturer	Advanced Textile Materials, Polymeric composites, Nonwovens, Natural fibres in composites, Yarn and fabric development and characterization

Research Facilities

In addition to the highly qualified and experienced faculty, staff, the department is well equipped with state of art lab scale equipment. There are more than 160 textile equipment installed in the following labs.

Laboratories

- Mini Spinning Lab-complete range (Pakistan's first and only such lab)
- Pilot Spinning Lab
- Weaving Lab
- Knitting Lab
- Pre-treatment, Dyeing & Finishing Lab
- Wet Processing Research Lab
- Textile Chemical Synthesis and Polymerization Lab
- Testing Lab (Physical & Chemical)
- Scanning Electron Microscope Lab
- Garment Manufacturing Lab
- Pattern Cutting Lab
- Textile Recycling Lab

- Digital Printing and Smart Textile Lab
- Textile Computer Lab
- Textile Nano Materials Lab

Department has well equipped analysis and testing facilities related to textile engineering including Oil Repellency Test, Water Repellency Test, Pilling Resistance (ICI), Colorfastness to Crocking, Colorfastness to Staining, Light Fastness Testing, Dimensional Stability, Crease Recovery Angle, Absorbency Test, Microscopic Analysis, GMS, Burst Strength, Video Analyzer, Thickness Test, Water Quality Testing (TDS, pH, Conductivity etc), Chemical Composition, Material Thickness, Fabric Appearance after Repeated Home Laundering, Cotton Trash Content, Cotton Fineness, Yarn Examination, Single Yarn Strength, Lea Breaking Strength, Bending Length, Perspiration Fastness, Yarn Twist and Color Difference Delta E, Digital Printing Ink Filtration Assembly, Limiting Oxygen Index (LOI) test, Bomb Calorimeter, Potentiostat.

Scope of the Program

The textile sector in Pakistan has an overwhelming impact on the economy, contributing 60% to the country's exports and 46% of the total industrial production. This sector also provides employment opportunities to 45% of country's workforce, which is one of the highest. Therefore, there is huge scope of the textile postgraduate program. The aim of this program is to prepare leaders for the academia, research and technological enterprises within the textile and related industries in order develop novel research-based products and to promote innovative research in the field of textile. The program objective is to foster professionals with competence in analytical thinking, innovation, critical analysis, enhanced problem-solving abilities and research skills to carry out global scientific advancement in the field of textile engineering. It is also the objective of this program to strengthen the linkage with the industry for the mutual benefits. The program will develop highly qualified professionals with the abilities to perform leading and advanced scientific research for the uplift of textile industry of Pakistan as well as to enhance the quality of textile related research at academic institutes. The program will play its role in elevating the global competitiveness of textile sector of Pakistan.

Subjects offered in M.Sc./Ph.D.

There are 30 credit hours for the program of M.Sc. Textile and Materials Engineering. All courses are of 3 (3,0) credit hours each apart from thesis. The program is Outcome Based Education (OBE) based. Following 9 PLOs are mapped with the graduate program offered at the department; Engineering Knowledge, Problem Analysis, Design/Development of Solutions, Investigation, Modern Tool Usage, Impact of Engineer on Society and Environment, Ethics, Leadership and Management, Lifelong Learning.

Course Code	Course Title
TEX-501	Research Methodology
TEX-502	Advanced Materials
TEX-503	Advanced Analytical Techniques
TEX-504	Sustainable Textile
Elective Courses	
TEX-506	Advanced Spinning Techniques
TEX-507	Advanced Weaving
TEX-508	Advanced Knitting
TEX-509	Advanced Wet Processing
TEX-510	Advanced Garment Manufacturing
TEX-512	Advanced Composites
TEX-513	Smart Materials
TEX-516	Advanced Surface Engineering

Elective Courses	
TEX-608	Smart Textile
TEX-609	Nanotechnology in textile
TEX-610	Technical Textile
TEX-611	Advanced Polymer Spinning Systems
TEX-511	Nano Materials
TEX-612	CAD Pattern Making and Fashion Designing
TEX-613	Textile Digital Printing
TEX-614	Denim Manufacturing and Washing
TEX-615	Medical Textile
TEX-517	Production and Operational Management
TEX-514	Supply Chain Management
TEX-515	Advanced Finishing Chemicals and Processes
TEX-699	MSc Textile and Materials Engineering Thesis
TEX-799	PhD Textile Engineering Thesis

DEPARTMENT OF ELECTRICAL, ELECRONICS & TELECOMMUNICATION ENGINEERING

The Department of Electrical, Electronics & Telecommunication Engineering UET Faisalabad Campus is established in 2004 at the Campus. The department started offering the postgraduate admissions in 2018 at the Faisalabad Campus. The department offers M.Sc. and PhD Electrical Engineering with specialization (i) Power systems (ii) Electronics & Communication. The department follows 100% same curriculum as that of Electrical Department UET Lahore Campus.

1. M.Sc. Electrical Engineering
2. Ph.D. Electrical Engineering

The main objective of the postgraduate programmes is to provide students with current knowledge and abilities in Electrical Engineering, with an emphasis on improving their capacity for analysis and research. These programmes seek to provide a thorough awareness of current breakthroughs and cutting-edge studies in the field of electrical engineering by developing their analytical skills, encouraging critical analysis, and honing their research talents. Additionally, the programme is created to offer real-world applications that match the demands of the sector. The objective of this programme is to educate postgraduates for a variety of career pathways, such as teaching, research and development, as well as management positions in academia, government, and industry.
To ensure high-quality education and guidance, the Department is staffed with a team of highly qualified and experienced faculty members. Many of these faculty members have earned their own Ph.D. degrees from esteemed international universities, further enhancing their expertise in their respective fields. Their valuable knowledge and experience contribute to the overall academic excellence and research environment within the Department.

Department Laboratories
The Department has well-equipped and well-maintained laboratories in the following fields:

AC & DC Machine Lab	Computer Lab
Control Systems Lab + M & | Lab	Measurements and Instrumentation Lab
Electric Circuits Lab	Semiconductor Devices Lab
Digital Logic Design Lab	Digital Electronics Lab
Power Electronics Lab	Power System Protection Lab
Advanced Antenna Systems Lab	Communication Systems Lab

Applies Physics Lab	Project Lab

Postgraduate Faculty & Their Research Interests

Teacher Name	Research Interest
Dr. Muhammad Akram Professor and Chairman	Image & Video Compression, processing Computer Vision Machine Learning
Dr. Faizan Dastgeer Associate Professor	Efficiency of DC Power Distribution Networks Renewable Power from Animate Prime Movers
Dr. Muhammad Yasir Jamal Assistant Professor	Wireless Communication, Antennas, Microwaves
Dr. Muhammad Nasir Assistant Professor	Antennas, waveguides and radio propagation, RF & Microwaves: Design and Measurement, Antennas for small portable systems, Diversity and MIMO antennas, Nano and optical antennas and technologies
Dr. Aashir Waleed Assistant Professor	Nanomaterials and Nanostructures; Photodetectors, Solar Cells, Optoelectronics
Dr. Haseeb Hussain Assistant Professor	Power Line Carrier, Image Processing and Computer Networks, Communication Systems Power electronics, Motor drives, Control of Electric Machines including Multiphase Machines, Electrical machines, Renewable Energy Systems

Department of Mechanical, Mechatronics and Manufacturing Engineering

The M.Sc. Mechatronics Engineering program combines elements of mechanical engineering, electrical engineering, and computer science. It is designed to provide students with a comprehensive understanding of the interdisciplinary field of mechatronics, which focuses on the integration of mechanical systems with intelligent control and computer-based technologies. Mechatronics Engineering encompasses the design, analysis, and implementation of complex systems that involve mechanical components, sensors, actuators, and microprocessors. These systems are often found in various industries, including manufacturing, robotics, automation, aerospace, and healthcare. The M.Sc. Mechatronics Engineering program at UET, Lahore, Faisalabad campus was initiated in 2022.

Research

Human-Centered Robotics Lab is part of newly established National Center of Robotics and Automation. The lab aims to indigenously design and develop integrated robotic systems, based on smart sensing and actuation, to seamlessly interact with humans, actively learn from them and eventually create an effective collaborative environment. A dedicated team of Mechatronics Engineers is currently working on the indigenous development of collaborative robots, industrial exo-skeletons and active prostheses. Dr. Farhan Maqbool (Co-PI) and Engr. Saqib Zafar (Post-graduate Researcher) are part of this lab and working on the development of Lower Limb Prosthesis. The faculty is actively engaged with local industry to address the industrial based projects related to textile and healthcare.

Postgraduate degrees offered by the department:

1. M.Sc. Mechatronics Engineering
2. Ph.D. Mechatronics Engineering

Course Requirements

To graduate, a student needs to accumulate a total of 30 credit hours and obtain a minimum of 2.5 CGPA taking 24 credit hours of course work including compulsory and elective courses along with a 6 credit hours of Research Thesis. The department follows 100% same curriculum as that of Mechatronic Department UET Lahore Campus.

Postgraduate Faculty & Their Research Interests

Teacher Name	Research Interest
Prof. Dr. Tauseef Aized Professor & Dean	Energy Technology, Management and Policy, Manufacturing Processes and Systems.
Dr. Hafiz Farhan Maqbool Associate Professor	Bio-mechatronics, Assistive Robotics and Machine Learning
Dr. Asif Ishfaque Associate Professor	MEMS, Bio-inspired Sensors, Acoustics, and Brain-computer Interface
Dr. Nasir Ahmad Assistant Professor	Machine Tools, Machining, Jigs and Fixtures, and 3D Printing
Dr. Hashim Iqbal Assistant Professor	Haptic Devices, Robot Design and Control and Medical Robotics
Dr. Ahmad Ali Assistant Professor	Control Theory, Geometric Control of Mechanical Systems, and Motion Planning for Non-holonomic System
Dr. Muhammad Usman Assistant Professor	Agriculture Robotics, Embedded Systems, Control, Localization, and Mapping
Dr. Imran Mahmood Assistant Professor	Medical Devices, Biomechanics, and Wearable Robots
Dr. Imran Ali Assistant Professor	Fiber Reinforced Composites, Mechanical Design, Automotive Structures, Energy Resources and Utilization
Dr. Asim Ghaffar Assistant Professor	Assistive Devices, Medical Robotics, Cable-Based Parallel Manipulators, and Biomedical Engineering
Dr. Awais Hafeez Assistant Professor	Optical Motion Capture Technologies, Machine Learning
Dr. Ammara Kanwal Assistant Professor	Renewable Energy Resource Assessment and Application in Pakistan
Dr. Aamir Mahmood Lecturer	Energy systems modelling, operations management and optimization, energy decision-making

Department of Chemical, Polymer and Process Engineering

The The Department of Chemical & Polymer Engineering at the FSD Campus, part of the Faculty of Chemical, Metallurgical, and Polymer Engineering, was established in 2004, offers both undergraduate and postgraduate programs. The postgraduate programs include:

1. M.Sc. Chemical Engineering
2. Ph.D. Chemical Engineering

The department is dedicated to forging meaningful and productive connections with leading chemical-related industries. Currently, it maintains strong working relationships with various prominent companies, including Fatima Group, Packages Limited, Millat Tractors, SNGPL, SEAL, SBS, FFC, BIN Rasheed, EPD, Diamond, Descon PPL, and others. The M.Sc. and Ph.D. Chemical Engineering program's curriculum has evolved over the years to prepare students for research and development roles. This curriculum is identical to that of the Chemical Engineering Department at UET Lahore Campus. Students are encouraged to work independently on their specialization projects. By the end of the first semester, students must submit Form ChE-PG-01, indicating

their preferences for the degree programs, specialization, and research area. Those opting for an M.Sc. by research must have this form signed by a potential supervisor and undertake a supervised research project. The department is actively involved in several research projects of both industrial and theoretical significance through its postgraduate and faculty research programs. Key research areas include pollution control, water treatment, nano catalysis, energy management, process development, unit operations, and process simulation. The findings from these research projects are regularly published in globally accepted and reputable journals and receive recognition from the international chemical engineering community.

Laboratories and other Facilities

The Department has well-equipped and well-maintained laboratories in the following fields:

- Chemical Engineering Thermodynamics
- Chemical Reaction Engineering
- Computer Applications and Process Simulation
- Energy Engineering
- Environmental Engineering
- Fluid Flow
- Heat Transfer
- Instrumental Analysis
- Instrumentation and Control
- Mass Transfer
- Process/Wet Analysis
- Catalysis

The Department features a computer center equipped with the latest systems. Students are encouraged to use this facility for learning computer languages and applications in various Chemical Engineering courses, as well as for their design projects, research dissertations, and class assignments. Additionally, the department boasts a well-organized library containing numerous textbooks, handbooks, reference books, journals, design projects, and past research theses. The library collection is continually updated with the latest publications to support modern research in the field.

Postgraduate Faculty

Prof. Dr. Naveed Ramzan, Professor (Dean, Faculty of Chemical, Metallurgical, and Polymer Engineering)
Prof. Dr. Syed Waqas Ahmad, Professor (Chairman, Department of Chemical Engineering)
Dr. Faisal Saleem, Associate Professor
Dr. Muhmmad Danish, Associate Professor
Dr. Khalid Mahmood, Associate Professor
Dr. Haji Ghulam Qutub, Associate Professor
Dr. Abdur Rehman, Associate Professor
Dr. Rabia Shareef, Associate Professor
Dr. Shahzad Zafar, Assistant Professor
Dr. Faisal Rehman, Assistant Professor

Department of Basic Sciences & Humanities

The Department of Basic Sciences and Humanities (BSH) was established in 2004 at the FSD campus with the aim of providing high-quality, equitable foundation courses in basic sciences and humanities. Basic science and humanities courses are the backbone of all disciplines and programs. The department is privileged to have highly qualified, specialized, and experienced faculty with degrees from world-renowned universities. With its highly qualified

and professional faculty, the department offers bridge courses in Mathematics, Physics, Chemistry, Communication Skills and Islamic studies to assist students in getting attuned to specialized domains of engineering and sciences. The syllabus of specialized courses has been designed to enrich students' understanding of the subjects, helping them encounter practical problems in their professional careers. Recently, the department has won various competitive research grants worth more than 15.1 million PKR from HEC and PHEC under the NRPU and Punjab Innovation Research Challenge Award scheme. The Department of Basic Sciences has received NOC from HEC to start an M.Phil. in Applied Chemistry in 2022 and a Ph.D. in Chemistry in 2023. Currently, the department offers undergraduate programs in B.Sc. Chemistry and B.Sc. Environmental Sciences, and B.Sc. Mathematics and BBA programs will be offered in the 2024 session. Under its postgraduate programs, the department offers an M.Phil. in Applied Chemistry and has received NOC for Ph.D. Chemistry (will be started soon).

M.Phil. Applied Chemistry

Program Description

The chemistry is the core of all sciences. At FSD Campus, initially department faculty was teaching chemistry in engineering departments. Gradually it grows and now department is offering M.Phil. Applied Chemistry (Two years Program) & BS Chemistry (Four years program), Ph.D Degree (will be started soon and approvals have already been offered from statuary bodies and from HEC). The department focus on teaching the modern and practical knowledge of the field. The main objective of the department of chemistry is to produce graduates of international standard in the established as well as emerging areas of chemical sciences. We owe highly qualified faculty members having training in diverse areas of specialization and publication in international recognized journals. We have well equipped labs having advance instruments and research facilities. Our goal is to prepare and equip our students with the creative potential so that they can make significant contributions towards society at local and global industries.

Laboratories

The department is equipped with various state-of-the-art laboratories, including a wet analysis lab, general chemistry lab, Hi-tech Chemistry lab, and Applied Physics and Chemistry Research lab. These laboratories possess cutting-edge equipment to enrich the learning experience of young minds with practical work. The Hi-Tech Chemistry lab, established in 2015, facilitates research activities. In addition to various lab utilities, the department's labs feature advanced research instruments like UV-visible Spectrophotometer, FTIR, Atomic Absorption Spectrophotometer, Rotary Evaporator, digital Refractometer & Polarimeter, and Sonicator. The department is engaged in several research projects of industrial and theoretical significance under its postgraduate and faculty research programs in areas such as synthesis, cancer control drugs, pollution remediation, process, and product development. Faculty members have secured various research projects from HEC and PHEC under NRPU and the Punjab Innovation Research Challenge Award. The outcomes of this research are regularly published in internationally reputed impact factor journals, earning recognition from the scientific community. The department also maintains meaningful and productive links with industries like MTM, Nimir, and TTI, fostering strong industry-academia collaboration and enhancing the practical relevance of its research efforts. Additionally, the department organizes regular workshops and seminars to keep students and faculty updated with the latest scientific advancements, further enriching the academic environment. Our commitment to excellence is reflected in the numerous accolades and awards received by our faculty and students in various scientific forums.

Postgraduate Faculty & Their Research Interests

Teacher Name	Research Interest
Prof. Dr. Sajjad Ahmad	Organic/Analytical/Synthetic Chemistry
Dr. Ghufrana Samin	Biodegradation, Protein Engineering
Dr. Ilyas Ali	Operator and Invers Equalities
Dr. Arshi Khalid	Inverse Problems
Dr. Abdur Rehman	Drazin Inverse and Square Matrics
Dr. Shazia Karim	Fractional equations and operators
Dr. Nosheen Shahzadi	Materials and its applications

CENTRE OF ENERGY RESEARCH AND DEVELOPMENT (CERAD)

Introduction

Self-sufficiency in energy is crucial for bolstering any country's economy. Recognizing the challenges posed by energy shortages, the Punjab Government has partnered with UET Lahore to establish the Center for Energy Research and Development (CERAD) at UET Lahore. This research-oriented center focuses on harnessing renewable energy resources within the Punjab province.

The primary goal of CERAD is to develop efficient, innovative, and cost-effective energy solutions tailored to Punjab's needs. The center conducts research across various renewable energy technologies and serves as a platform for evaluating energy systems that are compatible with our environment. Additionally, CERAD contributes to vocational certification and postgraduate programs, further enhancing its impact in the field of energy research and education. Below is a list of brief description of CERAD Labs

Air Conditioner Testing Laboratory

AC Testing Lab was established in partnership with Punjab Energy Efficiency & Conservation Agency (PEECA) and funded by the Energy Department of the Government of Punjab. Due to a lack of standardization, the AC load is often overestimated and needs to be accurately measured. This can be accomplished through reliable certification and standardization processes. The air conditioning testing laboratory provides a platform for standardizing and calibrating AC systems. The efficiency of air conditioners is evaluated by testing heat change and air flow using ISO 5151/ASHRAE 37-2009 standards. In addition, the lab offers research facilities to university students and PhD scholars.

Tests performed in AC Testing lab

As per above mentioned standard, following experiments are performed in the lab.

- Air flow / Indoor-Outdoor enthalpy measurement.
- EER/COP measurement
- Compressor calibration test method.
- Maximum/minimum cooling / heating performance test.

OUTDOOR AC CHAMBER ADJUSTMENT AND WB / DB (WET BULB AND /DRY BULB APPARATUS)

1 INDOOR AC TESTING CHAMBER WITH NOZZLE SIZE ADJUSTMENT

CONTROL PANEL FOR AC TESTING LAB

Outdoor/indoor coolers (3hp, 5hp, 7hp, 10hp)

Cooling tower for indoor and outdoor cooler

Motor Testing Laboratory

The lab is being established in collaboration with the Punjab Energy Efficiency & Conservation Agency (PEECA) and is funded by the Energy Department of the Government of Punjab. The lab will be accredited by the Pakistan National Accreditation Council (PNAC) under ISO17025 to ensure compliance with international standard practices. The laboratory will serve as a platform for standardizing and calibrating motors. Additionally, the lab will provide research facilities to university students and PhD scholars. By 2026, it is estimated that up to 400 MWs of electricity can be saved by implementing Minimum Energy Performance Standards (MEPS) and labelling.

Tests performed in Motor Testing lab

- No-load Test (Open-circuit Test)
- Locked-rotor Test
- Load Test

- Temperature Rise Test
- Insulation Resistance Test
- Dielectric Strength Test

Energy Efficiency and Conservation Lab (EECL)

EECL Lab has been established in order to develop strong linkage with local industries with energy conservation key concept in mind. The lab performs domestic, commercial and industrial energy audits, provides hands on training to Engineers and Diploma holders. Leveraging our knowledge and experience to deliver long term energy efficiency and conservation solutions to our stakeholders through innovative systems, strategies & concepts of EE/RE energy efficiency improvement and renewable energy.

Industrial Energy Audit Services

- Comprehensive Energy Audits of Electrical &Thermal utilities in Industrial and Commercial sectors.
- Implementation of ISO-50001 Energy Management System
- Total Energy Management solution and control upgrades
- Electrical Power Quality Analysis (Voltage, current, power factor, active power, reactive power, unbalance, Transients)
- Thermography Audit (Electrical motors, Steam Generation and Distribution, Building, Air conditioning & Insulation testing)
- Ultrasonic leak detection (compressed air & steam)
- Stack Analysis and fuel Flu Gas Analysis in terms of CO2, O2, CO and NOX.
- Pressure measurement (Steam, Fuel, Combustion air, Draft (Force /Induced))
- Flow measurement (Fuel, Steam, Feed water, Condensate water, Combustion Air)
- Water Condition Monitoring (TDS, PH, Blow Down rate and quantity)
- PV Solar Feasibility Study

Achieved Best Consultant Award

2nd Best Energy Efficiency Consultant Award by UNIDO

Energy Audit of Compressors

Energy Audit Training at Industry

Energy Audit of Electric Panels

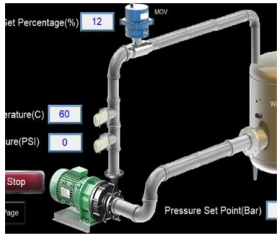
Energy Efficiency Advisor Course

A first ever "Energy Efficiency and Advisor" training course is started in Pakistan funded by GIZ SEQUA gGmbH under the umbrella of CERAD, UET. This course is a Level-V course certified by TEVTA. The aim of the training is to develop a range of skills, techniques, and attributes that are essential for performing the tasks as energy advisor, energy manager, energy efficiency consultant, energy efficiency trainer or management representative for ISO-50001 as per industry requirements. Training collaborator are NAVTTC, PBTE, GIZ Germany

Pump Testing Facility

The current local manufacturing methods for water pumps and turbines are outdated, resulting in poor performance output. To address this issue, a test facility has been developed to conduct necessary tests on water pumps and analyze their efficiency in terms of output delivery and performance. The project incorporates pump performance testing and efficiency enhancement techniques to improve pump efficiency. The test facility provides highly accurate pump performance analysis, which is essential in improving water pump performance.

Manel Control Panel view



HMI Flow Control

Outdoor Assembly

PV Module Testing Lab

- State-of-the-art Solar PV testing facility
- International Protocols of Performance and Safety Qualification Testing
- ISO 9001 certified
- Clients: Module manufacturers, PV system designers, distributors, installers and owners who are interested in evaluating the performance and safety parameters of either new or aged PV modules

Introduction:

PV Module testing lab was established in 2015 in Center for Energy Research and Development (CERAD), UET Lahore. The primary goal to establish this lab was to ensure quality of the solar panels disseminated in the market. Due to the demand supply gap that the country is facing, there is no option except to increase the installation of renewable energy systems. It is evident that solar systems are penetrating at a faster rate to meet the energy demands in different sectors. To ensure the quality of Solar PV System, PV Lab recognizes its responsibility as provider of quality testing services in accordance with international IEC standards.

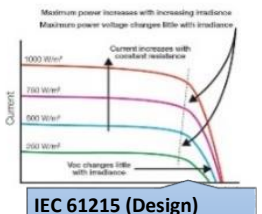
Below is the list of PV panel test available in PV Lab CERAD:

IEC 61215 (Design)	IEC 61730-2 (Safety)	IEC 61701	Others
Visual Inspection	Accessibility Test	Salt Mist Corrosion Test	Electroluminescence Test
Maximum Power Determination Test	Cut Susceptibility Test		Thermal Conditioning Test
Pmax at low Irradiance	Impulse voltage Test		Light Induced Degradation Test
Insulation Resistance Test	Reverse current overload Test		
Wet Leakage Current Test	Ground Continuity Test		
Mechanical Load Test	Module Breakage Test		
Hail Test	Water Spray Test		

IEC 61215 (Design)
• Visual Inspection Test

IEC 61215 (Design)
• Max Power Determination Test

IEC 61215 (Design)
• Outdoor Exposure Test



IEC 61215 (Design)
• Performance at low Irradiance

IEC 61215 (Design)
• Insulation Resistance Test

IEC 61215 (Design)
• Wet Leakage Current Test

IEC 61215 (Design)
• Mechanical Load Test

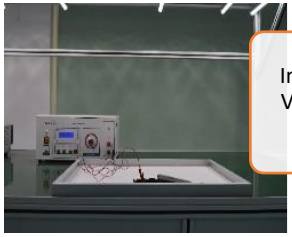
IEC 61215 (Design)
• Hail Test

IEC 61215 (Design)
• UV Pre Conditioning Test

Manufacturers Test
• ElectroLuminescence Test

Manufacturers Test
• Flash Test

IEC 61730-2 (Safety)



Impulse Voltage Test

IEC 61730-2 (Safety)

Reverse Current Overload Test

IEC 61730-2 (Safety)

Ground Continuity Test

IEC 61730-2 (Safety)

Module Breakage Test

IEC 61730-2 (Safety)

Water Spray Test

IEC 61701

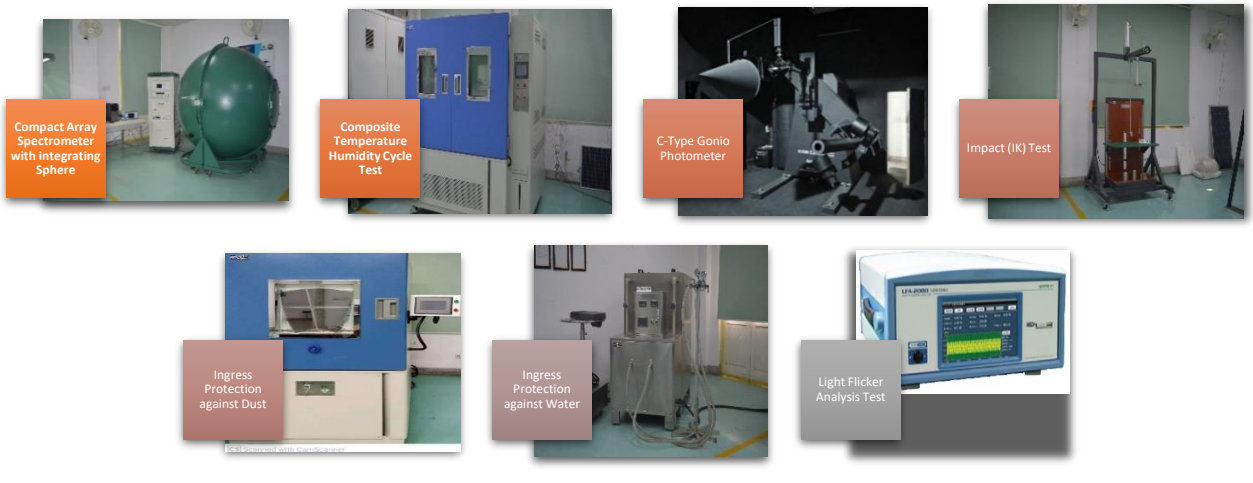
Salt Mist Corrosion Test

LED Lights Testing Lab

- State-of-the-art LED Testing Laboratory
- International Protocols of Testing
- ISO 9001 certified
- Clients: Public/Private, LED light manufacturers, importers, suppliers interested in assessing the Electrical & photometric parameters of the lights

Test Name	Reference Standard
Electrical and Photometric Measurements	LM-79
Chromaticity Measurements	LM-79
Harmonic Current Emission Test	IEC 61000-3-2
Corrosion in artificial Atmosphere/Salt Spray Test	ISO 9227
Surge Immunity Test Report	IEC 61000-4-5
IK Test	IEC 62262
Ingress Protection against Dust Penetration (IP5X/IP6X)	IEC 60529
Ingress Protection against Water Penetration (IPX5/IPX6)	IEC 60529
Dry Heat Temperature Test/Dry Cold Temperature Test	IEC 60068-2-34
Damp Heat/Cyclic Test	IEC 60068-2-7
LED Driver Test	N/A
Electronic Ballast Test	N/A
Light Flicker Analyzer Test	IEC 61000-3-3
Vibration Test	N/A

LED testing Lab furnished with following state of the art testing equipment.



A Glimpse of LED light testing installation & Training by Chinese Expert

Miscellaneous Testing services

Other testing services include: Batteries, Inverters, Cables, Mounting Structure, and Charge Controller. The lab is intended to enhance its scope in future by addition of testing equipment for these BOS.

Upcoming Service and Scope Upgrade

Compliance testing or quality testing procedures ensure the blockage of low-quality products into the consumer market. CERAD is the only center in Pakistan that is addressing the national need of compliance testing in energy market and is opting to provide such scale of energy services and quality assessments.

CERAD's PV testing lab was the first state-of-the-art solar PV testing facility, having been operational since 2015. Since then, the technology has been upgraded introducing various technology, size and capacity of modules (Mono PERC, N-Type/Bifacial, HJT). Considering the diversity and advancement, we are focusing on upgrading the Solar PV module and LED lights testing equipment as well as introducing the scope of testing for Lithium-Ion batteries due to its upcoming boom triggered by the electric vehicle (EV) market, and Energy storage solutions (ESS) in RE; and also fan testing facility to facilitate the fans market.

Scope and Services:

The major areas of our services are defined below:

Energy Audit Services and Third Party Validation

- Walk Through Audit
- Load Assessment
- Energy Conservation Recommendations (ECRs)
- RE Potential Assessment
- Third Party Validation Services

Solar PV Module Testing

- Performance standards IEC 61215, IEC 61701, IEC 60904-9, IEC 61000
- Safety standard IEC 61730-2

LED Light testing

- IEC 60598
- IEC 60068-2-1, IEC 60068-2-2
- IEC 60529, IEC 61000-4-5, EN61000-4-5
- IEC 62384:2006, IEC60929, IEC60969
- IEC 61000-3-2
- IES LM-79

Academic Programs & Trainings

- MSc. Energy Engineering
- Solar PV System design, installation, testing, manufacturing
- Renewable Energy Technologies (Solar, Wind, Biomass etc.)
- NAVTTC, PSDF, Professional

MSC Energy Engineering:

Masters in Energy Engineering is one of the earlier post-graduate programs in Energy offered by UET, Lahore. It is the unique master's program, as it is a cross and inter disciplinary program in which beside CERAD faculty, faculty members from four departments (Mechanical, Chemical, Electrical, and Energy Engineering Departments) of three faculties (Faculty of Mechanical Engineering, Faculty of Chemical, Metallurgical & Polymer Engineering, and Faculty of Electrical Engineering) are involved in teaching and research activities of the Center.

SR. #	Name & Designation	Research Areas
1.	Dr. Waqar Mahmood Professor / Director	Modeling, Control and Optimization, Discrete Event Systems, Communication Systems, Digital Signal Processing, Power Electronics
2.	Dr. Fahad Noor[1] Professor	Advance energetic materials, Heat transfer, Biofuels, Phase change materials, Solar desalination
3.	Dr. Shahid Imran[1] Professor	Sustainable Fuels for Power Production and Transportation, Energy Sustainability and Framework Development

4.	Dr. Zahid Anwar[1] Professor	Single- & two-phase heat transfer, Mini & micro channels, Flow boiling & visualization, Heat transfer with nanofluids, Energy modeling
5.	Dr. Muhammad Farhan[1] Associate Professor	Computational fluid dynamics, Thermal management of low temperature electronic devices
6.	Dr. Muhammad Farooq[1] Associate Professor	Biogas production and upgradation techniques, Energy management audit, Alternative fuels for power generation
7.	Dr. Syed Mohsin Ali Kazmi[2] Professor	Energy and environment; Renewable Solutions, Wastewater Treatment
8.	Dr.-Ing. Izzat Iqbal Cheema[2, *] Associate Professor	Energy Systems Engineering, Process Systems Engineering
9.	Dr. Asif Nadeem Tabish[2] Associate Professor	Fuel Cell systems, Advanced Electrochemistry, Waste to energy, Energy conservation, Biodiesel
10.	Dr. Chaudhary Haider Ali[2] Associate Professor	Biofuels, Biodiesel, Enzymes, Catalysts, Environment & Energy
11.	Dr. Muhammad Irfan[2] Assistant Professor	Green energy, Sustainable environment, Microbial enhanced energy recovery, Densification of biomass for fuels & energy
12.	Dr. Ali Raza[3] Associate Professor	Operation & control of multi-terminal VSC-HVDC, Protection of HVDC grids, Topological evaluation of multi-terminal VSC-HVDC systems, Smart grids
13.	Dr. Hifsa Shahid[3] Associate Professor	Nanotechnology, Renewable energy, Semiconductor materials, Optronics
14.	Dr. Muhammad Ali[3] Associate Professor	Satellite networking, Cryptography and network security
15.	Dr. Hasan Erteza Gelani[4] Associate Professor	DC microgrids, DC distributions system efficiency, Energy efficiency, DC residential systems, AC vs DC systems efficiency
16.	Dr. Haris Mehmood Khan[4] Assistant Professor	Biofuels, Biomass and bioenergy
17.	Dr. Hira Tahir[4] Lecturer	Microgrids, Energy storage technologies, Optimization, Ramp rate control

[1] Faculty member from Mechanical, Mechatronics & Manufacturing Engineering Department
[2] Faculty member from Chemical, Polymer and Composite Materials Engineering Department
[3] Faculty member from Electrical, Electronics & Telecommunication Engineering Department
[4] Faculty member from Energy Engineering Department
* Director/Coordinator Postgraduate Studies

Program Education Objectives (PEOs)
The graduates will be:

1. Able to pursue successful professional career as individual member or leader of the team by applying knowledge related to energy engineering.

2. Able to contribute to the development of sustainable solutions in line with society's current energy needs by integrating key science and engineering principles.

3. Able to demonstrate continuous professional and personal growth in a multidisciplinary engineering environment.

Curriculum for Masters in Energy Engineering

Two options in M.Sc. Energy Engineering program, each with total 30 credit hours are being offered:

a. Thesis option: 8 courses (24 credit hours) + research thesis (6 credit hours)
b. Non-thesis option: 10 courses (30 credit hours)

Note: All courses are 3 (3+0) credit hours.

Course Code	Course Title
Core Courses	
CERD-502	Energy Statistics and Forecasting
CERD-505	Energy Resources, Economics, and Environment
CERD-506	Energy Auditing and Conservation
CERD-507	Numerical Methods for Engineers
Elective Courses	
CERD-503	Clean Coal Technologies
CERD-510	Advanced Materials for Energy applications
CERD-511	Energy Materials Characterization
CERD-512	Research Methodologies in Engineering
CERD-513	Management of complex projects and procurements
CERD-514	Optimization Techniques
CERD-515	Advanced Power Systems
CERD-516	Introduction to Turbo Machines
CERD-601	Wind Energy
CERD-603	Design and Management of Energy System
CERD-616	Bio-Fuels Development and Applications
CERD-618	Fuel Cell Systems
CERD-619	Power System Quality, Planning, and Reliability
CERD-620	Solar Energy Systems
CERD-621	Thermodynamics for Energy Systems
CERD-622	Waste to Energy
CERD-700	Thesis

DEPARTMENT OF CHEMICAL, POLYMER AND COMPOSITE MATERIALS ENGINEERING

The Department of Chemical, Polymer, and Composite Materials Engineering, established in 2007, has grown significantly to become a leader in industrially oriented research, training, and consultancy in the field of Chemical Engineering. Over the years, the department has graduated more than 1,000 students who have gone on to excel in renowned organizations both locally and internationally. With state-of-the-art laboratories, well-equipped research facilities, and highly qualified faculty, the department is committed to providing students with a comprehensive education that blends theoretical knowledge with hands-on experience. The department's academic programs equip students with specialized scientific knowledge, advanced analytical skills, and a creative, solution-oriented mindset, preparing them to tackle real-world challenges. Graduates are trained to design innovative chemical processes and products, enhance existing systems, and contribute to the development of sustainable process systems.

In response to the growing demand for expertise in workplace safety, environmental protection, and health management, the department launched the MS Safety, Health and Environment (SHE) program in 2019. This program, the only HSE program in the region to have received a No Objection Certificate (NOC) from the Higher Education Commission (HEC), equips graduates with the essential knowledge and skills to address Safety, Health and Environment challenges across industries and workplaces. The program focuses on developing critical and analytical thinking in safety management, industrial hygiene, and environmental protection. Students learn to apply engineering principles to identify, assess, and mitigate hazards, both qualitatively and quantitatively, while ensuring compliance with local and international safety regulations. MS SHE program prepares graduates to lead safety initiatives and drive positive changes in workplace practices, contributing to healthier, safer, and more sustainable environments. The detail of the department and MS SHE program can be accessed through webpage: https://chemksk.uet.edu.pk/.

MS Safety, Health and Environment Program Structure

The MS Safety, Health and Environment (SHE) program comprises of 30 credit hours. The program has a core-elective-thesis-orientation structure. All the courses are of 3 (3+0) credit hours, unless specified. The students can take a maximum of 12 credit hours in a semester.

Core Courses	
Code	**Title**
SHE-501	Industrial Safety Fundamentals
SHE-502	Basics of Environmental Protection
SHE-503	Industrial Toxicology
SHE-504	Occupational Health & Ergonomics
SHE-505	Physical Hazards
SHE-506	Chemical Hazard Management

Research Thesis	
Code	**Title**
SHE-599	Thesis (6 Credit Hours)

Elective Courses	
Code	**Title**
SHE-507	Industrial Ventilation System
SHE-508	Fire Protection & Prevention
SHE-509	Hazard Identification & Evaluation
SHE-510	Electrical Safety
SHE-511	Quantitative Risk Analysis
SHE-512	Safety Engineering
SHE-513	Emergency Preparedness & Planning
SHE-514	Occupational Safety, Health Management & Law
SHE-515	Machine Learning in Safety, Health & Environment
SHE-516	Sustainable Workplaces

Both MS by research and MS by coursework are offered as part of the MS Safety, Health and Environment (SHE) program. By the end of first semester, the students are required to submit their preference for undertaking MS by research or coursework (only for weekend program).

- **MS SHE by research:** The students opting for MS SHE by research are required to pass four core courses, four elective courses and undertake a supervised research thesis.
- **MS SHE by coursework:** The students opting for MS SHE by coursework are required to pass four core courses, four elective courses and two additional courses.

Supporting Infrastructure and Facilities

It is pertinent to mention that besides basic facilities and chemical engineering field related laboratories. The department has a Smart Classroom, High Performance Computing Facility, Postgraduate Research Laboratory, Employability Skills Development Laboratory, Library, Seminar and Conference Rooms. State of the art Smart Classroom for online distance learning facility is air-conditioned equipped with idea hub and thirty computers. Workshops, Discussion Tables, Seminars, Extension and Invited Lectures by world-renowned SHE Researchers, Professionals, Practitioners and Advisors are frequently held in these rooms.

Smart Classroom

Shahmim Irshad - High Performance Computing Facility

Postgraduate Research Laboratory

Employability Skills Development Laboratory

Workshops, Discussion Tables, Seminars, Extension & Invited Lectures by world-renowned HSE experts (for detail visit our LinkedIn Page)

Postgraduate Faculty & Their Research Interests

Teacher Name	Research Interests
Dr.-Ing. Naveed Ramzan Professor and Dean	Process Safety and Risk Analysis, Process Simulation and Optimization, Energy Engineering, Water and Wastewater Treatment, Nano Technology
Dr. Syed Mohsin Ali Kazmi Professor and Chairman	Environment and Energy, Engineering Education, Policy Design
Dr.-Ing. Izzat Iqbal Cheema Associate Professor and Director Postgraduate Studies	Sustainable Process and Energy Systems Engineering, Process Safe Operating Envelope and Limits, Process Designing, Modeling, Simulation and Optimization
Dr. Asif Nadeem Tabish Associate Professor	Water and Wastewater Treatment, Chemical Process Design and Simulation, Sustainable Energy Conversion, Electrochemistry
Dr. Chaudhry Haider Ali Associate Professor	Environment and Energy, Biofuels, Biodiesel, Enzymes, Catalysts
Dr. Hamayoun Mahmood Associate Professor	Biocomposites, Lignocellulose Biorefinery, Ionic Liquids
Dr. Muhammad Imran Rashid Associate Professor	Process Safety and Risk Assessment, Environment and Energy
Dr. Muhammad Asif Jamil Assistant Professor	Membrane Technology, Polymer-Nanocomposites, Polymer Technology
Dr. Muhammad Irfan Assistant Professor	Process Safety, Risk Assessment and Management, Sustainable Environment, Greenhouse Gas Mitigation Technologies, Bioenergy and Biofuels, Microbial Enhanced Oil and Energy
Dr. Muhammad Raashid Assistant Professor	Environment and Energy, Water and Wastewater Treatment
Dr. Muhammad Sulaiman Assistant Professor	Environmental Impact Assessment, Safety Audit
Dr. Samreen Hameed Assistant Professor	Renewable Energy, Modeling and Simulation
Dr. Zohaib Atiq Khan Assistant Professor	Modeling and Simulation, Image Processing
Dr. Fahad Ali Rabbani Lecturer	Biowaste Sustainable Solution

Rachna College of Engineering and Technology, Gujranwala

Department of Mechanical Engineering

The Department of Mechanical Engineering at RCET was established in 2003. The department is offering M.Sc. in Mechanical Engineering. This program aims to produce graduates with advanced knowledge of different mechanical engineering streams required for solving industrial and research challenges. The program is designed to cover streams such as (i) Thermo-fluids, (ii) Mechanical Design, (iii) Industrial and Manufacturing Engineering, and (iv) Research intensive courses.

The main objectives of the program are to:

1. Acquire advanced engineering knowledge, analytical and problem-solving skills related to mechanical engineering.
2. Apply research tools and technologies to develop efficient and sustainable solutions of mechanical engineering related problems.
3. Assume collaborative and leadership positions with effective management skills in professional careers.

The department has well-qualified Ph.D. faculty members. The departmental faculty has successfully won various funded research projects.

Postgraduate Faculty and Their Research Interests

Teacher Name	Research Interest
Prof. Dr. Tauseef Aized Dean and Professor	Energy Technology, Management and Policy, Manufacturing Processes and Systems.
Dr. Muhammad Salman Abbasi Associate Professor and Chairman	Micro-Fluidics, Heat Transfer, Soft Matter, Computational Fluid Dynamics, Multidisciplinary
Dr. Qasim Ali Ranjha Assistant Professor	Thermo-fluids, Design, Computational,
Dr. Tariq Nawaz Assistant Professor	Energy, Computational, Multidisciplinary
Dr. Ali Akbar Assistant Professor	Materials/Design, Computational, Multidisciplinary

M.Sc. Mechanical Engineering

Course Code	Course Title
Group A	**Compulsory Subjects**
MER-511	Advanced Thermo-fluids
MER-521	Advanced Mechanical Design
MER-531	Production and Operation Management
MER-541	Research Methodology and Engineering Analysis
Group B	**Elective Subjects**
MER-512	Advanced Fluid Mechanics
MER-513	Advanced Thermodynamics
MER-514	Combustion and Environment
MER-515	Advanced Heat Transfer
MER-516	Advanced Computational Fluid Dynamics
MER-517	Advanced HVAC Systems
MER-618	Renewable Energy Systems

MER-522	Advanced Finite Element Methods
MER-523	Advanced Stress Analysis
MER-524	Design Optimization and Analysis Techniques
MER-625	Failure Analysis of Engineering Materials
MER-532	Advanced Manufacturing Processes
MER-533	Supply Chain Management in Engineering
MER-534	Advanced Measurements and Instrumentation
MER-635	Reliability and Quality Engineering
MER-542	Advanced Numerical Methods
MER-643	Advanced Topics in Mechanical Engineering
Group C	**Research thesis**
MER-699	Research Thesis in the relevant area and Oral Examination

Rules & Regulations Relating to Admissions, Examinations & Discipline

IMPORTANT INFORMATION

1. **Definitions**
   a) "University" means the University of Engineering and Technology, Lahore
   b) "College" means the Constituent/ Affiliated College of the University
   c) "Faculty" means the concerned faculty of the University
   d) "Vice-Chancellor" means the Vice-Chancellor of the University
   e) "Pro Vice-Chancellor" means the Pro Vice-Chancellor of the University
   f) "Dean" means the Dean of the concerned faculty
   g) "Principal" means the Principal of a college
   h) "Chairperson" means the Chairperson of the concerned department of the University/College
   i) "Controller" means the Controller of Examinations of the University
   j) "Student" means a bonafide student of a degree program of the University who does not maintain admission simultaneously in any other degree/diploma program of the University or in any other Institution
   k) "Candidate" means a student who intends to appear in an examination
   l) "Board of Studies" means the Board of Studies of the concerned discipline of the University/College

   Explanations
   - The pronoun "he" and its derivatives are used for both male and female persons.
   - Depending upon the context, the words imparting the singular number include the plural number as well.

2. **Modification of Rules and Regulations**
   The rule and regulations governing various aspects of students' life at the University (such as discipline, admissions, examination, migration, fees and charges, etc.) are given in this prospectus as they stood at the time of its publication. There is no guarantee that these rules and regulations will remain unchanged throughout a student's stay at the University, nor does it in any way restrict or curtail the inherent powers for the University authorities to modify them whenever in their judgment any modifications are called for, and to implement the modified rules and regulations from a date which they deem appropriate.

3. **Special Provisions**
   a) In all cases where the regulations are silent, the decision of the Vice Chancellor shall be final.
   b) Interpretation of these rules and regulations by authorized officers of the University shall be final.
   c) The University authorities reserve the right to make any changes in the existing regulations, rules, fee structure and courses of study that may be considered necessary at any time without prior notice.
   d) No student is allowed to maintain simultaneous enrolment in any other program of studies in the university or any other educational institution within or outside Pakistan, unless permitted by the competent authority as an Exchange Student.
   e) In case a student enrolled in this University is found to be a regular student of some other university/institution whether local or foreign, his admission in this university shall be cancelled.
   f) Students are required to know the rules and regulations mentioned in the prospectus and notified time to time. Ignorance of rules and regulations does not absolve them of their responsibilities and shall not be treated as an excuse.

4. **Liability for Injury, Damage and Loss**
   The University teaching programs include training in its workshops and laboratories, places of engineering and architectural interest, industrial concern, and construction jobs. The University or other concerns shall not be responsible in the event of an injury, damage or loss to a student resulting from any cause whatsoever during the course of such training.

CODE OF ETHICS

بسم الله الرحمن الرحيم

In the name of Allah, the Beneficent, the Merciful

Whereas Allah enjoineth upon his men faithfully to observe their trusts and their covenants;

- that professional expertise is a sacred trust entrusted to those whom Allah in his magnificent bounty has endowed with this skill and knowledge;
- that every member of the profession shall appreciate and shall have knowledge as to what constitutes this trust and covenant and that a set of dynamic principles derived from the Holy Quran shall guide this conduct in applying his knowledge for the benefit of society,

It shall be incumbent upon the members of the professional community to subscribe to individually and collectively and to uphold the honour and dignity of their profession:

1. "Allah commands you to render back your trusts to those to whom they are due, and that when you judge between people you judge with justice. Allah admonishes you with what is excellent." (4:58)
   - You shall be honest, faithful and just, and shall not act in any manner derogatory to the honour, integrity or dignity of their profession.
2. "And let not hatred of a people incite you not to act equitably. Be just that is nearer to observance of duty." (5:8)
   - You shall not injure, maliciously, directly or indirectly the reputation or employment of another Engineer, nor shall you fail to act equitably while performing professional duty.
3. "Give full measure and weight justly and defraud not men of their things and act not corruptly in the land making mischief." (11:85)
   - You shall use your knowledge and skill of engineering for human welfare and render professional service and advice which reflects your best professional Judgement.
4. "And swallow not up your property among your salves by false means, nor seek to gain access thereby to the judges, so that you may swallow up a part of the property of men wrongfully while you know." (2:188)
   - You shall not abuse you position or power, nor accept illegal gratifications of any sort.
5. "Fulfil the obligations." (5:1)
   - You shall faithfully observe and fulfil all your obligations.
6. "And speak straight words." (33:70)
   - You shall express your opinion on professional or other matters in a frank, open and straight forward manner.
7. "Avoid most of suspicion for surely suspicion in some cases is sin; and spy not nor let some of you backbite others." (69:12)
   - You shall not criticize another professional's work without his knowledge nor malign, or injure his professional reputation.
8. "Ye who believe. Let not some men Among you laugh at others. It may be that the (latter) are better than the (Former); Nor let some women Laugh at others: It may be that the (latter) are better than the (Former)" (49: 11)
   - You shall not ridicule fellow professional nor let one professional discipline deride other disciplines or professions.
9. "Nor defame nor be sarcastic to each other. Nor call each other By (Offensive nicknames)" (49:11)
   - You shall not directly or indirectly discredit other professionals nor assign (derogatory) epithets to their persons or work.
10. "And follow not that of which thou hast no knowledge. Surely the hearing and the sight and the heart, of all these it will be asked." (17:36)
    - Your professional advice shall be based on full knowledge of the facts and honest conviction, and you shall not write articles or advertise in self laudatory language or in any manner derogatory to the dignity of the profession.
11. "O ye who believe: If a wicked person comes to you with any news, Ascertain the truth lest Ye harm people unwittingly." (49 :6)
    - You shall ascertain facts before accepting them and shall not encourage or cause others to carry tales. Credulity is no credit.
12. "And help one another in righteousness and piety and help not one another in sin and aggression and keep your duty to Allah." {5:2)
    - You shall help one another in upholding and doing what is right and shall not associate with those who transgress and those who indulge in unethical practices.
13. "And forget not kindness among yourselves." (2:237)
    - You shall be kind and considerate to others and shall not fail to be co-operative and accommodating.
14. "And whose affairs are decided by counsel among themselves." (62:38)
    - You shall decide matters of common professional interest by mutual consultation.
15. "And hold fast by the covenant of Allah all together and be not disunited." (3:102)
16. "And obey Allah ad His apostle; And fall into no disputes Lest ye lose heart and reputation." (8:40)
    - You shall strive individually and collectively to enhance the prestige of your profession by ordering your conduct in accordance with this Code of Ethics and shall not be disunited.

PG SEMESTER REGULATIONS

1.0 Introduction

The following regulations govern the Semester System for the Postgraduate degrees awarded by University of Engineering and Technology (UET), Lahore.

i. Classification of postgraduate degrees offered at the University under Semester System are given in the following table:

Degree Nomenclature	Abbreviation	Areas
Doctor of Philosophy	Ph.D.	Engineering disciplines, Computer Science, City and Regional Planning, Architecture, Chemistry, Physics, Mathematics, Islamic Studies, Business Administration and Management Sciences.
Master of Science (18 years equivalent)	M.Sc.	Engineering disciplines, Computer Science, Energy Sciences, Geological Sciences, City and Regional Planning, Business Administration and Management
Masters (18 years equivalent)	M.Arch., M.PID., M.REPM	Architecture, Product & Industrial Design and Real Estate Planning and Management
Master of Philosophy (18 years equivalent)	M.Phil.	Applied Chemistry, Applied Mathematics, Applied Physics, Business Economics, Food Science & Technology and Islamic Studies
Master of Science (18 years equivalent)	M.S.	Polymer Science and Technology
Masters (18 years equivalent)	M.B.A.	Business Administration

ii. Masculine gender used in the following regulations implies male students as well as female students.

iii. The medium of instructions and examinations shall be English for all subjects except Islamic Studies for which the medium of instructions and examinations shall be either Arabic, Urdu or English.

iv. The term "Academic Year" refers to the period of study at the University comprising of two regular semesters and an optional summer semester.

v. The term "Contact Hour" refers to a 50 minutes period of contact with the students.

vi. The term "Credit Hour (CH)" refers to a unit of academic credit during a semester. Each credit hour is related to a one or more "Contact hours per week" according to subject type as defined in these regulations.

vii. The term "Pre-requisites" refers to subjects that must be successfully completed prior to registration in a subject requiring these pre-requisites.

viii. The term "Co-requisite" refers to subjects that must be registered simultaneously if studied for the first time. During repetition, simultaneous registration of such subjects is not necessary.

ix. The term "Advisor" refers to a faculty member of the student's department deputed to counsel a group of postgraduate students.

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2.0 Degree Duration

The minimum and maximum duration for various postgraduate degrees is given in the table below. The duration spent by a student is counted from the date of his registration as a postgraduate student until completion of the semester in which the maximum duration ends:

Degree Programs	Duration (in academic years)	
	Minimum	Maximum
Doctor of Philosophy	03	08
Master of Science (18 years equivalent)	1½	04
Masters (18 years equivalent)	1½	04
Master of Philosophy (18 years equivalent)	1½	04
Executive M.B.A.	1½	04

Under exceptional circumstances, the Vice Chancellor is authorized to grant extensions up to a maximum period of two years for Ph.D. and other programs on the recommendation of the respective Postgraduate Research Committee (PGRC) and the Dean..

3.0 Student Status

a. Postgraduate students shall be classified as "Regular" students during the minimum duration of their respective degree program while registering in at least 6 credit hours during fall and spring semesters and 3 credit hours during summer semester.
b. Students shall be classified as "Casual" students if:
   i. They register in less than 6 credit hours during fall and spring semesters and less than 3 credit hours during summer semester; Or;
   ii. They register for credit hours after completion of their minimum degree duration period.

4.0 Credit Hours Requirement

a. The minimum credit hours requirement for the award of Ph.D. degree shall be 90 credit hours beyond a 16 years BS/ BSc or equivalent degree, including a minimum of 42 credit hours of Ph.D. research culminating in a thesis.
b. The minimum credit hours requirement for the award of 18 years equivalent degree, beyond a 16 years degree, shall be:
   i. 30 credit hours of course work; Or
   ii. 24 credit hours of course work along with a minimum of 6 credit hours of M.Sc./ M.Phil. thesis. Thesis is mandatory for students enrolled in programs that are offered in the morning or evening. However, it is optional for students enrolled in the weekend program. The only exception being Executive MBA and MBA. All students, who opt for a thesis, need to publish, out of their research, a paper in an impact factor or Scopus indexed journal. For issuance of the degree, the status of the paper should be “under review”. Extension in study period is available only to the student whose topic has been approved by ORIC.
c. The minimum credit hours requirement for the award of Executive M.B.A. shall be 60 credit hours beyond the degree specified in the admission requirements

5.0 Semesters Nomenclature, Duration and Registration Matters

a. There shall be two regular semesters, namely fall and spring semesters, and an optional summer semester during each academic year.
b. Duration of fall and spring semesters will be of 16 to 18 weeks. The duration of summer semester will be 8 weeks with weekly contact hours being double from those of fall and spring semesters.
c. The maximum and minimum permissible number of students to be allowed registration in a subject section will be decided by the concerned Board of Studies.
d. Students may consult their advisors for registration guidelines.
e. A student, regular or casual, may be allowed to register in:
   i. Case of Ph.D. and 18 years equivalent degrees, at most 12 credit hours during fall and spring semesters such that the contact hours per week do not exceed 15. In case of 16 years equivalent degrees, at most 18 credit hours during fall and spring semesters such that contact hours do not exceed 24;

ii. At most 6 credit hours during summer semester such that the contact hours per week do not exceed 10.

f. Registration in a subject section will be closed if the maximum student enrollment ceiling in that section has been reached.

g. A subject section will be closed if less than the minimum numbers of students register in that section. Such students who have been denied registration due to a closure of a section may add some alternate subject(s) during add and drop period.

h. During summer semester, selected subjects may be offered in accordance with departmental policy for that semester.

6.0 Curriculum and its Sub-Categories

a. The curriculum, subject identification numbers, the credit hours allocated to each subject and detailed syllabus shall be according to the proposals made by the Post Graduate Research Committee / Board of Studies and the Board of Faculty concerned and approved by the Academic Council.

b. Classification of sub-categories are given below:

i. "Theory" wherein the primary mode of teaching shall be lectures given by teachers supplemented by home assignments. For the purpose of these regulations, subjects of this type shall be referred to as Type-A;

ii. "Practical" wherein the primary mode of teaching shall be experiments, studio laboratory, designs, drawings, assignments and projects conducted/executed by students as specified in the syllabus. For the purpose of these regulations, subjects of this type shall be referred to as Type-B;

iii. Research work required towards completion of 16 years equivalent degrees culminating into a project / thesis shall be classified as Type C sub-category.

iv. Postgraduate research work required towards completion of thesis / dissertation for 18 years equivalent and Ph.D. degrees culminating into thesis / dissertation shall be classified as Thesis sub-category.

7.0 Type-A Sub-Category Evaluation and Contact Hours

a. In Type-A subjects, there shall be a mid-term examination of at least one hour duration and a final examination of at least one and a half hour duration. These examinations shall carry 30 and 40 percent weights, respectively. The teacher shall schedule additional assessment instruments such as quizzes, assignments, presentations, seminars, group discussions, field study reports, etc. as specified in the syllabus or as determined by the teacher. These assessment instruments shall carry the remaining 30 percent weight of the subject.

b. There shall be one contact hour per week for the duration of a regular semester for each credit hour assigned to Type-A subjects.

8.0 Type-B Sub-Category Evaluation and Contact Hours

a) In Type-B subjects, each Experiment, Studio work, Jury Presentation, Design, Drawing, Project or Assignment shall be considered an independent assessment instrument. Relative weight of each independent assessment instrument shall be determined by the concerned teacher in computing the cumulative performance, on a scale of 100, of all assessment instruments completed during the regular semester.

b) There shall be two to three contact hours per week for the duration of regular semester for each credit hour assigned to Type-B subjects.

9.0 Type C Sub-Category and Thesis Sub-Category

a) In Type-C subjects, each exercise, project or assignment shall be assessed for process during its life time (i.e., continuous assessment) while the end product shall be assessed, right after its submission, through Viva-Voce (i.e., terminal assessment).

b) Continuous Assessment and Terminal Assessment of Type-C subjects may carry 60 and 40 percent weights, respectively.

c) External Examiners / Jurors shall be involved in the assessment of all Type-C subjects.

d) There shall be two to four contact hours per week during fall and spring semesters for each credit hour assigned to Type-C subjects.

e) Thesis sub-category evaluation process would be followed as prescribed in relevant regulations.

10.0 Award of Letter Grades

a) The subject teacher, having interacted with the students, taught them and having assessed them over the semester, shall award letter grades to the students. Chairperson of the concerned degree awarding department will be consulted while finalizing the letter grades. Letter grade in each

Type-A subject shall be awarded on a Relative Scale whereas, letter grade in Type-B and Type-C subjects may be awarded on an absolute scale if deemed fit by the subject teacher.

b) Following steps in awarding letter grades on a relative scale may be followed:
   i. Minimum marks threshold linked to content mastery shall be established for award of a passing letter grade. Students earning marks below this threshold shall be awarded "F" grade;
   ii. Maximum marks threshold shall also be established. Student(s) crossing the maximum threshold, if any, will be awarded “A+” grade. The grade points of “A+” and “A” are same. As such, it is expected that only exceptional students demonstrating outstanding results are given recognition by award of this grade.
   iii. Students earning marks between the maximum and minimum thresholds are listed in descending order of merit and the average and standard deviation is computed;
   iv. Passing letter grades are awarded according to the table given below, with "A" being the highest passing grade and "D" being the lowest passing grade.
   v. The cluster of students falling within half standard deviation of average marks may be graded as “B” or “B+“;
   vi. Other passing letter grades may be awarded on the basis of clusters of students within narrow ranges for a population less than 100; Or on a normal curve basis if the population of students is more than 100;
   vii. It is not essential that every class should have all letter grades awarded, that is, it is possible that a class does not have any student below the minimum threshold; Or in another scenario in which no student, in the opinion of the instructor, is eligible for the award of “A” grade. There may be cases where no student qualifies for some intermediate grade.
   viii. An upper limit on percentage of students in a subject who can earn a particular passing grade may be placed, if required.

a) The letter grades and their corresponding Grade Points (GP) are given in the table below.

Letter Grades & Corresponding Grade Points

	A	A-	B+	B	B-	C+	C	C-	D+	D	F	W	WF	I	IP
4.0	4.0	3.7	3.3	3.0	2.7	2.3	2.0	1.7	1.3	1.0	0	-	-	-	-

d) Subjects repeated to improve grades, excluding "W" or "WF" grades, will be shown on the transcript with a suffix "R".

11.0 Result Computation Scheme

11.1 The Grade Point Average (GPA) and Cumulative Grade point Average (CGPA) shall be computed according to the following formula:

$$GPA = \sum_{i=1}^{n} (GP_i \times CH_i) \Big/ \sum_{i=1}^{n} CH_i$$

where *n* is the number of subjects in the semester for which GPA is computed.

$$CGPA = \sum_{i=1}^{m} (GP_i \times CH_i) \Big/ \sum_{i=1}^{m} CH_i$$

where *m* is the number of total subjects covered in all semesters up to the semester for which CGPA is to be computed.

11.2 Credit hours earned for thesis graded as “Approved” shall not be counted towards computation of CGPA.

12.0 Thesis, "IP" and Award of "W", "WF", "I" Grades

12.1 Thesis Award and In Progress "IP"

a) Credit hours registered towards completion of Type C sub-category and Thesis sub-category will be shown as "IP" on the transcript until completion of the respective sub-category. "IP" credits will be counted towards degree credit requirements, but these credits will not be used in computation of GPA / CGPA.

b) Each portion of a Type C subject spread over two semesters may have been prescribed different nomenclature and different subject code. First portion of such a subject may be graded as "IP" upon completion, if the department decides to award the final letter grade upon completion of the second portion.

c) In case of Type C sub-category, grades assigned in the semester in which the subjects are completed will be used in computation of Semester GPA with total credit hours of the subjects being counted for this purpose.

d) Thesis sub-category shall be graded as "Approved" on successful completion and credit hours accumulated for this category will not be used in computation of CGPA.

12.2 Withdrawal ("W" Grade)

a) A student may be allowed to withdraw from a subject in which he is registered. Applications (Form 1) to withdraw from a subject shall be entertained latest up to the 6th study week during Fall and Spring semesters and up to 3rd study week during Summer semester. Withdrawn subjects shall appear in the transcript with a letter grade "W" and shall not be used in computation of GPA. In the transcript, subjects repeated after withdrawal will not be suffixed with a "R".

b) If a student withdraws from a subject which he is repeating, the previous grade earned will be retained in computation of CGPA and in assessing degree completion requirements.

12.3 Forced Withdrawal ("WF" Grade)

a) A student registered in a subject may not be permitted to continue due to shortage of attendance or other disciplinary action. Such students shall be awarded a Forced Withdrawal (WF) grade. It shall appear in the transcript as such and shall not be used in computation of GPA. Subjects repeated after forced withdrawal will not be suffixed with "R".

b) If a student withdraws from a subject, which he is repeating, the previous grade earned will be retained in computation of CGPA and in assessing degree completion requirements.

c) A student who does not drop a subject nor appear in any assessment instrument will not be eligible for "WF" grade and will be awarded a "F" grade.

12.4 Incomplete "I" Grade

A student, who because of illness or any other acceptable reason approved, after verification, by the concerned Chairman, fails to complete the required instruments in any subject, shall be awarded an Incomplete (I) grade as an interim grade if their attendance is at least 50% in that subject. This grade shall appear in the transcript temporarily until it is replaced by the actual grade and will not be treated as an "F" grade. The student receiving such a grade shall make up the unfinished portion of his subject to the satisfaction of the faculty member who awarded this grade, and is given a letter grade as per regulation 10 at the discretion of the faculty member without prejudice to the previous grade "I". In case, the student fails to complete the unfinished portion within the following semester, i.e., spring semester for an "I" grade awarded in fall semester and fall semester for an "I" grade awarded in spring semester, his "I" grade would be converted to an "F" grade by the Controller of Examinations. The responsibility for completing the unfinished portion and satisfying the faculty member lies with the affected student.

13.0 Repetition of Subjects

1. Students are permitted to repeat subjects to improve their grades in a semester within their maximum credit hours registration limit.
2. Separate repetition of Type B part or Type A part of a subject, which is combination of Type A and Type B, is permitted.

3. In case of repetition of a subject, the new grade earned shall replace the previous grade, whether high or low.
4. Alternate elective subject(s) may be studied to improve grade(s) earned in elective subject(s).
5. All subjects studied and their grades will be shown on the transcript. If more than the required number of elective subjects have been studied, then the required number of elective subjects, with highest grades, will be used in computation of CGPA.

14.0 Separation / Removal From Rolls

a. Postgraduate students shall be separated from the program:
   i. If they do not register for two subjects during the first semester after their enrollment;
   ii. On the recommendation of PGRC, if they fail to register for two consecutive semesters.
b. b) Removal from rolls of Ph.D. students will be governed by the approved Ph.D. regulations.

15.0 Official Authority for Computation of Result

a. Grade points in each subject, Semester Grade Point Average and Cumulative Grade Point Average of each student shall be computed and notified by the Controller of Examinations at the end of each semester.
b. Provisional results displayed / communicated to the student in the department, after approval of the Chairperson but before publication of official results, may be used for deciding removal cases and for registering students for repetition of subjects by the departments.

16.0 Award of Degree

a) Students, who are eligible for the award of degree, are required to submit a Degree Requirements Completion Form (Form-2) to their respective Chairperson for onward submission to the Controller of Examinations. Degree status would be decided only after receipt of this form.
b) Eighteen years equivalent M.Sc./Master/M.Phil. degree shall be awarded to those students:
   i. Who have earned a minimum CGPA of 2.5 in prescribed course work with no outstanding "F", "W", "WF" or "I" grade in core courses.
   ii. Who have repeated elective subjects in which they have earned "F", "W", "WF" grade, or have taken alternate elective subjects to complete the subjects credit hours requirements.
   iii. Whose thesis, if opted for, has been approved after fulfilling prescribed requirements.
c) Students deciding to exit the eighteen years equivalent M.Sc./ Masters/ M.Phil. program without completing their thesis shall be awarded the Postgraduate Diploma (PGD) if they complete 24 credit hours of course work fulfilling conditions 16 b(i) and 16 b(ii). The minimum time period requirement for the award of PGD will be one year.
d) Ph.D. degree shall be awarded to those students, who have fulfilled prescribed requirements as stated in Ph.D. regulations.
e) All subjects studied and their grades will be shown on the transcript. If more than the required number of elective subjects have been studied, then the required number of elective subjects, with highest grades, will be used in computation of CGPA.

17.0 Grade Change Request

A student may submit a Grade Change Request (Form Sem-1) to the Chairperson's Office stating the specific reason for change in grade. Grade Change requests must be submitted not later than one week after the first grade was posted or within the first week of the following semester, whichever is later. The request will be submitted to the concerned faculty member. Normally, the only person who can change a grade is the faculty member who gave the grade; however, in case that faculty member is no longer available or cannot be reached, the department's Chairperson has the authority to evaluate the situation and change a grade, if required. When a grade is to be changed, the Chairperson shall forward the case to the Dean with justification for change. The result will be modified after approval of the Vice Chancellor on the recommendation of the Dean.

18.0 Students Registration and Hostel Accommodation

a) Regular and casual students may register for subjects being offered during that semester within their maximum permissible credit hours registration limit.
b) The student may add or drop subjects within first two weeks of fall and spring semesters and within first week of summer semester.

c) A student, who is fulfilling requirements of an "I" grade in a semester, is not required to register in the subject in which he has been awarded an "I" grade.
d) Hostel accommodation will be provided to postgraduate students subject to availability of accommodation. Casual students will not be eligible for hostel accommodation. However, foreign casual students may be allowed to continue staying in hostels by the Senior Warden after approval of the Vice Chancellor.

19.0 Deferment of Studies (Freezing)

a) Students enrolled in the first semester cannot apply for deferment.
b) There shall be no relaxation in the maximum degree duration period for students seeking deferment.
c) A student may defer studies for at most two consecutive regular semesters, for medical or other circumstances beyond his control, with summer semester not being counted. In such cases, the student shall apply (Form 4) to the Chairperson concerned, at least 15 days before the commencement of the semester, for approval of deferment by the concerned Dean. CAC, after approval, shall notify deferment for a specified period.

20.0 Attendance Requirements

a) Students failing to maintain a minimum attendance of 75% in a subject during a semester shall be awarded a "WF" grade. Chairperson in consultation with the respective Dean shall review cases of students seeking relaxation of up to 10% in attendance requirement. The relaxation shall be allowed after approval by the Dean. Any relaxation in excess of 10% shall be forwarded to the Vice Chancellor through the respective Dean for final decision.
b) Leaves availed by a student after approval of the Chairperson will not be counted towards attendance.
c) Students eligible for award of an "I" grade will be awarded such a grade only if their attendance is at least 50%.

21.0 Re-Admission Policy

a) A candidate seeking re-admission shall apply to the Vice-Chancellor. The application, duly recommended, will be routed through the PGRC and the Dean. Students Section will prepare the case for approval of the Vice-Chancellor.
b) Re-admission, if approved, shall be granted only once.
c) Subjects and examinations of re-admitted students may be exempted / transferred as provided for in the exemption / transfer regulations.
d) A re-admitted student shall deposit a clearance certificate from all concerned.
e) Readmitted student will be granted admission as a fresh student and assigned a new registration number. All dues applicable to a freshly admitted students will be applicable.

22.0 Special Provisions

a) In all cases where the regulations are silent, the decision of the Vice Chancellor shall be final.
b) Interpretation of these rules and regulations by authorized officers of the University shall be final.
c) The University authorities reserve the right to make any changes in the existing regulations, rules, fee structure and courses of study that may be considered necessary at any time without prior notice.
d) No student is allowed to maintain simultaneous enrollment in any other program of studies in the University or any other educational institution within or outside Pakistan, unless permitted by the competent authority as an Exchange Student.
e) In case a student enrolled in this University is found to be a regular student of some other University / institution whether local or foreign, his admission in this University shall be canceled.
f) Students are required to know the rules and regulations mentioned in the prospectus and notified time to time. Ignorance of rules and regulations does not absolve them of their responsibilities and shall not be treated as an excuse.
g) The Vice Chancellor has been authorized by the Syndicate, on the recommendations of the Deans, to make amendments in these regulations and remove any difficulties faced during implementations of these regulations.

EXAMINATION REGULATIONS

1.0 Evaluation Process of Subjects

1.1 Evaluation of Type-A Subjects

a. For mid-term and final examinations of Type-A subjects, the teacher of a subject shall set the question paper of that subject, supervise its examination, mark the answer books and prepare the award list. Any teaching resource provided to assist a teacher cannot be tasked to mark answer books of mid-term and final examinations.
b. Every teacher of Type-A subjects shall return the marked quizzes, assignments, etc. and mid-term examination scripts to the students for review, and in case of presentations, etc. communicate the earned score to the student within one week of the event. Mid-term scripts, however, would be recovered from the students and deposited with the Chairperson concerned.
c. At the end of scheduled teaching period of a semester but before commencement of the final examinations, the teacher shall prepare and display the Interim Award List. Composition, display, correction, and reporting requirements/procedures of Interim Award List shall be as prescribed in these rules.
d. Teachers would mark the final examination scripts, and prepare and display complete Award List, excluding letter grades, within one week after the examination of the subject.
e. The students may be shown the final examination marked scripts before submission of Comprehensive Award List to the Controller of Examinations, if they so desire.

1.2 Evaluation of Type-B Subjects

a. Teachers of Type-B subjects shall keep all students informed of their performance at every stage in each category of task performed. Immediately after the end of each stage/assessment event, teachers shall prepare and communicate the earned score to the student in that stage/assessment event.
b. At the end of semester and before the end of examination period, teachers shall prepare and display the Interim Award List. Content and other requirements regarding Interim Award List shall be as prescribed in these rules.
c. After following the procedures and requirements regarding Interim Award List, the teachers shall prepare and display complete Award List, excluding letter grades, within one week after the end of scheduled teaching period.

1.3 Evaluation of Type-C Subjects

a. Teachers of Type-C subjects shall keep all students informed of their performance at every stage in each category of task performed. Immediately after the end of each stage/assessment event, teachers shall prepare and display a list of earned score of each student in that assessment instrument.
b. At the end of first of the two semesters of a Type-C subject and before the end of examination period, teachers would prepare and display an Intermediate Award List. This list would be similar to the Comprehensive Award List of Type-A and Type -B subjects except that letter grade assignment based upon this list will be limited to "IP" Grade.
c. At the end of second of the two semesters of a Type-C subject and before the end of examination period, teachers shall prepare and display the Interim Award List. Content and other requirements regarding Interim Award List shall be as prescribed in these rules.
d. Within one week of the conduct of Viva-voce/Jury examination, internal and external examiners shall prepare and display complete Award List excluding the letter grades.

1.4 Interim Award List

a. Interim Award List would show the percentage as well as weighted score of each stage/assessment instrument of that subject including the mid-term examination in case of Type-A subjects.
b. The Interim Award List will be communicated to all students via electronic means or/and displayed on the Notice Boards for at least two working days to permit students to point out any anomalies, errors, omissions, etc. in the list.
c. The teachers shall give due consideration to any anomalies, errors, omissions, etc. in the list pointed out by any student, and may correct the list.

d. Any further processing of the list shall be carried out only after it has been displayed on the Notice Boards for the mandatory period and decisions regarding all matters pointed out by students have been taken.

1.5 Comprehensive Award List

The Comprehensive Award List shall show, for each student:

a. The weighted combination of the Interim Award and Final Examination award in percentage format and Letter Grades corresponding to the comprehensive award.
b. Sealed Comprehensive Award List will be sent to the Controller by the concerned teacher with a copy to the Chairperson for record only.

1.6 Thesis Sub Category Evaluation

1.6.1. Ph.D. thesis evaluation would be processed as per approved prescribed regulations for the purpose.

1.6.2. Eighteen Years M.Sc. /Master/M.Phil. thesis evaluation process would be followed as prescribed below:

i. The External Examiner for the thesis shall be appointed by the Vice Chancellor on the recommendation of the PGRC/Dean of the relevant Department from a panel of proposed external examiners.
ii. The Final Report on the Thesis and Viva Voce Examination by the Examiners shall be submitted on the prescribed proforma.
iii. In case there is a difference of opinion between the Examiners, the Vice-Chancellor, shall appoint a third Examiner on the recommendations of the Board of Postgraduate Studies of the department, whose opinion shall be final.
iv. If a candidate, whose thesis has not been approved, is permitted to revise his thesis, he must submit the revised thesis for evaluation not later than six months from the announcement of the decision requiring him to revise the thesis.

2.0 Conduct of Examination of Type A Subjects Under Semester System

2.1 Question Papers

a. All question papers are set by the concerned teacher.
b. The paper setters, who also ensure their correctness, supervise the photocopying or duplicating of the papers.
c. Question papers are kept in the safe custody of the teacher till the start of examination. He shall bear legal and moral responsibility for the safe custody and secrecy of the question papers.

2.2 Reference Material during Tests/Examinations

Prior to class tests, mid-term/final examination, the subject teacher announces such books, notes or other material that can be referred to by the students during the test or examinations. All other books, notes, papers, etc., are withdrawn from the examinees.

2.3 Examination Schedule

The Chairperson of the department publishes the mid-term and final examination schedule at least two weeks before start of the examinations in accordance with the University's academic calendar.

2.4 Conduct of Mid-Term and Final Examinations

a. The Chairperson shall depute teachers or staff as Deputy Superintendent and Invigilators for the conduct of examinations. The number of invigilators will be estimated on the basis of one invigilator for every twenty-five students.
b. The subject teacher shall be the Superintendent for the conduct of examination. The Superintendent shall ensure the following:
   i. That all answer books used in the examination are signed or initialed. The teacher may require the students to answer on the question paper itself. No other answer book is to be used in this case.
   ii. Answer books are issued to the invigilators 5 minutes before the commencement of the examination and retrieved at the end of the examination.
   iii. The absentee report, if any, is prepared and forwarded to the Chairperson's office at the end of each examination.

2.5 Teachers or Staff acting as invigilators are detailed by the respective Chairperson. They ensure the following:

a. That the students are identified through means such as University identification card or a valid photo ID.
b. That the students are warned against the use of unfair means and have been advised to surrender mobile phones, notes, papers or other unauthorized material before the commencement of the examination.
c. That the students are not allowed to talk with or copy from other students during the examination.
d. That no student is allowed to join the examination thirty minutes after its commencement.
e. That no student is allowed to submit the answer sheet and leave the examination room within thirty minutes of commencement of examination. Visits to toilets are carefully controlled.
f. That the question papers and answer books of a student detected using unfair means or assisting another candidate, are taken away and the matter is reported to the Controller of Examinations. The superintendent records all available evidence to be used as proof later on.
g. That the students write their registration numbers, name and class on the front cover of each additional answer sheet used. If more than one answer book is used, these are stapled together.

2.6 The subject teachers, being the Superintendent(s), shall:

a. Supervise distribution of the question papers to the students according to the schedule published.
b. Be available in the examination center during examination of their subject to clarify any query and to collect answer books after the examination. In case of multiple examination centers, they must remain available near the centers.
c. Report any incidence of unfair means or disobedience or hooliganism detected in the examination center to the Controller of Examinations for processing under rules governing use of unfair means during examinations. The report must include collected evidence (if any), written and signed statement by the invigilator detecting the incidence and of the candidate(s) found involved.

3.0 Disposal of Answer Scripts

Answer sheets of midterm and final examinations will be stored in the respective department for one semester after declaration of result of a semester. The sheets would be subsequently disposed off in a suitable manner as decided by the concerned Chairperson.

4.0 Migration into Postgraduate Programs

No migration is permitted into any of the postgraduate programs. Candidates are required to apply afresh, fulfilling all the requirements laid down by the University in this regard, into the program they are aspiring to undertake. Admission shall be based on merit as per the admission policy.

5.0 Transfer of Subjects

Subjects may be transferred on the recommendations of the Postgraduate Research Committee and Dean of the concerned department/faculty to students admitted in the postgraduate program, subject to the following conditions:

a. That the subject has been studied at HEC recognized institution within last five years from the date of admission.
b. The subject under consideration has not been given credit towards award of a degree.
c. The subject must correspond to a subject currently offered by the concerned department or be deemed equivalent in depth and intensity to a current subject.
d. The student must have earned at least “60%” marks in case of term/annual system or a minimum of CGPA 3.0 out of 4.0 in a semester system similar to the one in this University, in the subject, for determining transfer of M.Sc./ MPhil subjects.
e. The student must have earned at least “70%” marks in case of term/annual system or a minimum of CGPA 3.3 out of 4.0 in a semester system similar to the one in this University, in the subject, for determining transfer of Ph.D. subjects.
f. The credits transferred shall be counted towards the degree requirements of the student. However, GPA of transferred credits shall not be counted towards the calculation of CGPA, and that only “Transferred” shall be written against those subject(s) in which transfer of credits was allowed.
g. A maximum of nine credit hours of course work can only be transferred in case of M.Sc./ M.Phil. and Ph.D. students.

6.0 Final Transcript Issued by Examination Branch

Examination Branch will issue a final transcript after the student completes all the degree requirements. The recording of result on final transcript will be according to the following:

a. The transcript will be chronological showing all subjects registered in each semester and corresponding grades earned.
b. All "I" grades would be replaced by the grade earned or "F" grade if requirements have not been completed.
c. "IP" grade in a subject or sequel of subjects would be shown in the semester(s) in which it has been awarded. It will not be counted towards computation of GPA or CGPA in these semesters.
d. The semester grade awarded in a subject, which is a follow up of a subject or subjects in which "IP" has been awarded in previous semesters, would be counted towards computation of semester GPA and CGPA by considering the total credit hours assigned to the subject or a sequel of subjects.
e. Elective subjects in which the student has earned "F" grades may not be counted towards computation of CGPA if alternate elective subjects have been studied in their place. This will not be automatic. The student must apply to the Controller Examination to avail this facility.

7.0 Results Declaration by Examination Branch

The student would be able to see his subject grades on the Examination portal as soon as those have been submitted by the teachers to the Controller Examinations. The status of these results would be "Provisional". When all results have been received by the Branch, official results would be declared within one week following due process of scrutiny and verification. The status of these results would change to "Confirmed" after declaration.

VISITING STUDENTS POLICY

1. Visiting students are classified as students currently admitted into a B.Sc. (4 years), M.Sc./ M.Phil. (18 years) or Ph.D. program of any University within or outside Pakistan and enrolled for one semester only to study selected subjects at UET Lahore. Registration in a maximum of five courses by any individual student at undergraduate level and two courses at postgraduate level is permissible.
2. The candidates desiring to study one or more subjects in any department of UET shall apply directly to the Chairperson concerned at least 15 days before commencement of a Semester. The Chairperson, after discussion with the concerned teacher, may approve or reject the request. In case the request is accepted by the Chairperson, it will be forwarded to the respective Dean. The Dean after due deliberation may accept or reject the request. In case of acceptance by the Dean, the request will be forwarded to Convener Admission Committee for further action.
3. CAC shall issue a registration number to the student after submission of: (a) total dues, (b) matriculation or equivalent certificate and (c) a No Objection Certificate from the parent university of the applicant. A folder shall be maintained in the Students Section and a notification shall be issued with copies to Controller, Treasurer, concerned Dean and Chairperson of the department, and to the Security Office.
4. The registration number shall be of the following nomenclature:
   YYYY-PP-DD-V-XX
   where:
   - YYYY: Year of application like 2021, 2022, etc.
   - PP: Program like B.Sc., M.S., M.Phil. or Ph.D.
   - DD: Department like EE, Civil, ME, etc.
   - V: Shall be written as such indicating Visiting Status
   - XX: Two-digit Integer number starting from 10.
5. The visiting student shall be issued the temporary University ID card but he shall not be eligible for any benefit admissible to regular students of the University like hostels, library, sports facility, etc. He shall have to pay all the dues in advance and shall not be eligible for financial assistance or instalments facility. Any dues once paid shall be non-refundable.
6. The student shall be governed by all rules regarding academics and discipline.
7. Studentship of a visiting student shall end on completion of the Semester in which he is registered in a course. Second time registration as a visiting student is not permissible.
8. Examination Branch shall include his name in the student record of the concerned department facilitating his registration and issuance of DMC or Transcript on completion of the said subject. Examination record shall be maintained for any future reference.
9. Fee structure is given below:
   - Registration Fee: Rs 5,000/-
   - Fee per course including any laboratory, if applicable: Rs 20,000/- (UG)/Rs 25,000/- (PG)

CODE OF HONOUR

Every student must observe the following Code of Honour

1. He must be loyal, faithful in his religious duties and respect the conviction of others in matters of religion.
2. He must be loyal to his country and refrain from doing anything, which might lower its honour and prestige.
3. He must be truthful and honest in dealings with all people.
4. He must respect the elders and be polite to all, especially women, children, old people, the weak and helpless.
5. He must respect his teachers and others of authority in the University.
6. He must keep clean in body and mind, standing for clean speech, sport and habits.
7. He must help his fellow beings especially those in distress.
8. He must devote himself faithfully to his studies.
9. He must observe thrift and protect property.

PROHIBITION OF SMOKING AND PROTECTION OF NON-SMOKERS HEALTH ORDINANCE 2002

The University requires adherence to the Prohibition of Smoking and Protection of Non-smokers Health Ordinance 2002. As such, smoking is strictly prohibited at all open and closed places within university premises and in university's transport.

ACTS OF INDISCIPLINE PUNISHABLE UNDER UNIVERSITY RULES

1. No Student shall

i. Smoke in the classroom, laboratory, workshop, library, examination hall, convocation hall and during studio work or academic functions.
ii. Consume alcoholic liquor or other intoxicating drugs within the University Campus or a hall of residence or during the instructional, sports or cultural tours, or survey camps, or enter any such place or attend any such tour or camp, while under the influence of such intoxicants.
iii. Organize or take part in any function within the University campus or a hall of residence, organize any club or society of students except in accordance with the prescribed rules and regulations.
iv. Collect any money or receive donations or pecuniary assistance for or on behalf of the University or any University organization except with the written permission of the Vice Chancellor.
v. Stage, incite or participate in any walkout, strike or other form of agitation against the University or its teachers and officers.

2. A Student Who

a. Commits a breach of any of the rules of conduct specified in these regulations, Or
b. Disobeys the lawful order of a teacher or other person of authority in the University, Or
c. Habitually neglects his work or habitually absents himself from his classes without reasonable cause, Or
d. Wilfully damages University property or the property of a fellow student or any teacher or employee of the University; Or
e. Does not pay the fees, fines or other dues levied under the University ordinances rules and regulations, Or
f. Does not comply with the rules relating to residence in the hostels or halls of residence or the rules relating to the wearing of uniform or academic dress, Or
g. Uses indecent language, wears immodest dress, makes indecent remarks or gestures or behaves in a disorderly manner, Or
h. Commits any criminal, immoral, or dishonourable act whether within the University campus or otherwise, which is prejudicial to the interest of the University.

Shall be guilty of an act of indiscipline and shall be liable for each such act to one or more of the penalties under the General Discipline Rules.

AUTHORITIES TO CHECK INDISCIPLINE

1. **Every Member of the Teaching Staff Shall**
   Have the powers and it shall be his duty to check disorderly or improper conduct or any breach of the rules by students occurring in any part of the precincts of the University. Should such misconduct occur in a room when the student is under the charge of a demonstrator, the latter shall report the matter without delay to the Chairperson of the Department.

2. **The Librarian shall**
   Be responsible for maintenance of order in the Library. In case of disorderly conduct or any breach of rules, he may require the student to withdraw from the library for the remainder of the day and shall immediately report the offence to the Chairperson of the Library Committee.

3. **The Senior Warden/Warden and the Resident Tutor shall**
   Be responsible for maintenance of order among the students in halls of residence or hostels.

4. **The Director of Physical Education shall**
   Be responsible for the maintenance of order among the students on or near the play grounds or while otherwise under his charge.

5. **Committee of Discipline**
   There is a Committee of Discipline to deal with serious cases of indiscipline. It consists of the following members as per University of Engineering and Technology, Punjab Act V of 1974:
   a. Chairperson to be nominated by the Vice-Chancellor
   b. Two Professors to be nominated by the Academic Council;
   c. One member to be nominated by the Syndicate;
   d. Director Students Affairs (Member/Secretary)
   e. Senior Tutor of the University; and
   f. Senior Warden of the University Hostels.

The term of office of members of the Committee, excluding ex-officio members, shall be two years.
The quorum for a meeting of the Committee of Discipline shall be four members.

The functions of this Committee are:

- to propose Regulations to the Academic Council for the conduct of University Students, Maintenance of Discipline and breach of discipline and
- to perform such other functions as may be prescribed by Regulations

PENALTIES FOR ACTS OF INDISCIPLINE

The penalty or penalties imposed shall be appropriate and proportioned to the nature and gravity of the Act. The penalties which may be imposed and the authority or authorities competent to impose each kind of penalty are specified below:

	PENALTY	AUTHORITY COMPETENT TO IMPOSE THE PENALTY
a.	Exclusion for class room, Laboratory, Workshop or field work for the periods concerned, for not more than four such consecutive periods.	Teacher Incharge
b.	Exclusion from the game or the Field for not more than one week.	Incharge of the Game
c.	Exclusion from Instructional or Sports Tour or Survey Camp.	Teacher Incharge or Head of Department / Chairperson
d.	Exclusion from the Department for a period not exceeding two weeks.	Head of Department / Chairperson
e.	Exclusion from the Library for not more than two weeks.	Chairperson, Library Committee
f.	Exclusion from all classes or any Class in any Faculty for a period not exceeding two weeks.	Dean of the Faculty
g.	Exclusion from the Hall of residence for a period not exceeding six months.	Resident Tutor
h.	Exclusion form the Hall of residence for a period not exceeding one year	Senior Warden / Warden / Director Students Affairs
i.	Suspension or removal from a position of authority in a Hall of Residence	Resident Tutor / Warden / Senior Warden
j.	Suspension or removal from a position of authority in the Students Union	Director, Students Affairs
k.	Suspension or removal from a position of authority in the University Sports.	President Sports Committee
l.	Cancellation or Remission of fee or University Scholarship	Dean of the Faculty
m.	Fine up to Rs. 1,000/-	Lecturer / Resident Tutor
n.	Fine up to Rs. 2,000/-	Assistant Professor / Warden
o.	Fine up to Rs. 3,000/-	Associate Professor
p.	Fine up to Rs. 5,000/-	Chairperson of Teaching Department/ Professor / Senior Warden / Director Students Affairs.
q.	Fine without limit	Dean of the Faculty
r.	Rustication from the University for a period not exceeding six months	Associate Professor
s.	Rustication from the University for a period not exceeding one year.	Chairperson of a Teaching Department / Professor / Committee of Discipline
t.	Rustication for any period	Dean of Faculty
u.	Expulsion from the University	Committee of Discipline

GENERAL DISCIPLINE RULES RELATING TO STUDENTS

1. When a case against a student is referred to the Committee of Discipline, the Committee may, if it deems fit, suspend the student from University Rolls and / or direct him to vacate the Hall of Residence till it has taken a decision in the case.

2. The Vice-Chancellor shall have the power to impose any of the penalties mentioned in "Penalties for Acts of Indiscipline" or to refer any case to the Committee of Discipline.

3. A Teacher or officer mentioned in "Penalties for Acts of Indiscipline" in whose presence or in relation to whom an act of indiscipline is committed or who obtains knowledge of such act on a report or otherwise, may deal with the case himself or if in his view:

   a) the case is one which can be more appropriately dealt with by another authority; or
   b) a penalty or penalties severer than those which he is competent to impose are called for in the case; he shall follow the procedure specified below:
      i. If he is not the Dean of the faculty he shall refer the case to the Dean who may deal with it himself or refer it to the appropriate authority.
      ii. If he is the Dean of the Faculty, he shall refer it to the appropriate authority or the Committee of Discipline.

4. No Student shall be rusticated or expelled from the University, unless he has been allowed reasonable chance of replying to the accusation against him.

5. When in the opinion of the Committee of Discipline, the penalty of rustication or expulsion is not called for in a case referred to it, it may impose any other penalties mentioned in "Penalties for Acts of Indiscipline".

6. When a Teacher or an Officer has imposed penalty/penalties on a student under "Penalties for Acts of Indiscipline", the latter shall not be liable to a higher or an additional penalty unless the offending student has been given a reasonable opportunity of showing cause against the proposed action.

7. An appeal against the imposition of penalty may be made within a week's time to the teacher who imposed the penalty. In case the student is not satisfied with his decision he may appeal to the Chairperson, Discipline Committee who shall place it before the Discipline Committee for its consideration and decision within a maximum of six weeks to dispose of the case. A final appeal against the imposition of penalty may then be made to the Committee as provided in Rule 11(i) of the General Discipline rules relating to students.

8. An appeal against a decision imposing a penalty mentioned in clauses (r) and (s) of "Penalties for Acts of Indiscipline" shall lie with a Committee consisting of the Vice-Chancellor and the Deans of Faculties. No appeal shall lie against a decision of an authority imposing a penalty other than that mentioned in sub-rule (i) of this rule except on the ground that such authority has imposed a penalty which it was not competent to impose.

9. An appeal on the ground that an authority has imposed a penalty which it was not competent to impose shall lie to the Vice-Chancellor. No appeal by a student shall be entertained, unless it is presented within fifteen days from the date on which the decision is communicated to him provided that the Vice-Chancellor may for valid reason extent this period.

10. The Vice-Chancellor or any teacher or officer to whom the Vice-Chancellor may delegate his powers may direct a student to pay compensation for any loss of or damage to property belonging to the University or fellow student or to an employee of the University, caused by a wilful act or gross negligence of the student and if the student does not pay such compensation within a reasonable time, the Vice-Chancellor may expel him from the University.

11. The Syndicate may for special reason re-admit a student rusticated or expelled from the university under these rules, if otherwise eligible.

FEE REGULATIONS

1. Periods of fees and Other Charges

a The fees and other charges are categorized as:
- One-time payments at the time of admission.
- Semester recurring fees.

b During each year of a student's stay at the University, all recurring fees are charged in two instalments payable at beginning of fall and spring semesters.

c Additional registration fee at the rate of Rs 3,360/- per credit hour will be charged for subjects registered during the summer semester.

d A minimum of 4 semesters recurring fees are admissible to students enrolled in MSc/ M.Phil./ MS programs. However, students completing their degree requirements in contiguous three semesters will not be charged for the fourth semester. This is possible only if the student enrolls in four courses in the first semester, gets his/her topic approved at the start of the second semester and enrolls in the remaining four courses in the semester. The student needs to work for at least six months, after the approval of his/her topic by ORIC, on his/her thesis. The final viva cannot be scheduled unless all the eight courses have been passed by the student with a CGPA of at least 2.5 out of 4.0 and should be held a couple of weeks before the end of the third semester. All those students who will not timely complete their degree requirements and stretch it unnecessarily in the fourth semester, will have to pay the fee for the fourth semester.

e A minimum of 6 semesters recurring fees are admissible to students enrolled in the Ph.D. program after 16 years BS/ B.Sc. degree. Relaxation in two semester dues will be given to students who have been allowed transfer of courses in lieu of their completed MSc/ M.Phil./ MS degree. Semester recurring fees will not be charged from students enrolled full-time in the Ph.D. program. In lieu of the fee waiver the students will be required to work for at least six hours per week and in this context may be offered Teaching Fellowship on the recommendation of the respective department after approval of their Ph.D. research proposal. To qualify for this stipend the CGPA, in graduate course work, should at least be 3.50 on a scale of 4.0 and this scholarship will be awarded for at most two years.

f Students will be charged full fees for semesters in which they register in subject(s) other than the thesis.

g Students who do not register in subjects or have deferred their studies or have registered in the Thesis during a semester will only be charged retention fee of Rs 15,000/- during that semester. This fee will be over and above the minimum admissible recurring fees.

h The hostel charges are payable for the period of allotment, a part of semester being counted as full semester. Rent and electricity charges for fans are payable for six months. Electricity charges for room heaters are payable for the winter season for four months.

2. Refund on Admission Cancellation

2.1 Admission Cancellation by Freshly Admitted Students

All dues paid by the student are refundable excluding the Admission Fee as per the following schedule:

a) Full (100%) fee refund if admission is cancelled up to 7th day.
b) Half (50%) fee refund if admission is cancelled from 8th to 15th day.
c) No fee refund if admission is cancelled from 16th day onward.

The count of days mentioned in the schedule for determining refund amount, would start from the date falling last from either (i) the date of convening of classes; or (ii) the date of initiation of registration by the university; or (iii) the date of payment of admission dues by the student in the bank.

2.2 Admission Cancellation by Other Students

The University security, library security, hostel security and mess securities are refunded when a student cancels his admission before completion of his degree.

3. Fee Waiver for Disabled Students and Baluchistan Domiciled Students

All charges categorized as fees chargeable by the University are waived for disabled and Baluchistan domiciled students if they apply for the same to the office of FA&CS or In-charge Students' Section. This facility is not available to students who are enrolled in the weekend programs.

4. Revision of Tuition Fees Rates

a. The fee and other charges schedule published in the prospectus each year will be applicable to the entry session of that year.
b. To account for inflation, up to 12% increase in tuition fee and other charges will be incorporated each year.

5. Recovery from Ph.D. External Scholarship Holders

Ph.D. students awarded scholarship by an external agency will be charged full fee beyond the minimum admissible period of six semesters until they graduate. This fee will be recovered from the amount received from the external agency for disbursement. In case, this scholarship is discontinued after the minimum admissible period, then only retention fee of Rs 15,000/- per semester will be charged from the students.

FEE AND EXPENSES
Morning/Evening Programs

NON-RECURRING FEES (Payable at the time of admission)		
1.	Admission Fee	11,976
2.	University Registration Fee	4,790
3.	University Security (Non-Refundable)	1,120
4.	Library Security (Non-Refundable)	1,120
5.	Verification Fee	2,395
6.	Email Registration Fee	240
7.	University Student Identity Card	599
8.	Laboratory Experimentation and Testing (LET) Fee	3,000
SEMESTER RECURRING FEES		
1.	Inter-University Tournament Fee	112
2.	Magazine Fee	168
3.	Medical Fee	560
4.	Tuition Fee	67,200
5.	Examination Charges	1,344
6.	Recreation / Sports Fee	672
7.	Tennis/ Squash Club Fees for Student Members only	2,240
8.	Facilities Charges	4,000 for day scholars / 2,000 for hostel residents No bus facility is available in the evenings or weekends
9.	Internet Charges	2,016
10.	Summer Semester Subject Registration Fee	3,360 per credit hour

Weekend Programs

NON-RECURRING FEES (Payable at the time of admission)		
1.	Admission Fee	13,369
2.	University Registration Fee	8,022
3.	University Security (Non-Refundable)	1,120
4.	Library Security (Non-Refundable)	1,120
5.	Verification Fee	2,674
6.	Email Registration Fee	267
7.	University Student Identity Card	668
SEMESTER RECURRING FEES		
1.	Tuition Fee	100,800
2.	Other Charges	6,888
3.	Tuition Fee beyond 3rd Semester	50,400

Hostel Fees Per Semester

Rs. 2,240/- charged as non-refundable Hostel Security at the time of allotment.

Cubicle (Fall/Spring)	10,843 / 12,868
Dormitory (Fall/Spring)	7,603 / 9,223
Summer Semester* (July & August)	10,000

* - Allocation only for research work

IMPORTANT CONTACT INFORMATION

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Chairman Transport Committee	042-99029266	
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DISCLAIMER

The contents of this prospectus are for information and shall not be TAKEN AS BINDING on the University. Each aspect of the education set up, like the admission procedure or criteria, the academic rules and regulations, discipline regulations, admissible fees, etc. requires continuous review by the competent authorities. The University, therefore, reserves the right to change rules, regulations, fees applicable to students whenever it is deemed appropriate or necessary. Inquiries concerning admission should be addressed to:

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POSTGRADUATE PROSPECTUS

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