Postgraduate
PROSPECTUS
2021 Onwards

UNIVERSITY OF ENGINEERING AND TECHNOLOGY, TAXILA

UNIVERSITY OF ENGINEERING AND TECHNOLOGY

• TAXILA •

Postgraduate
Prospectus
2021 Onwards
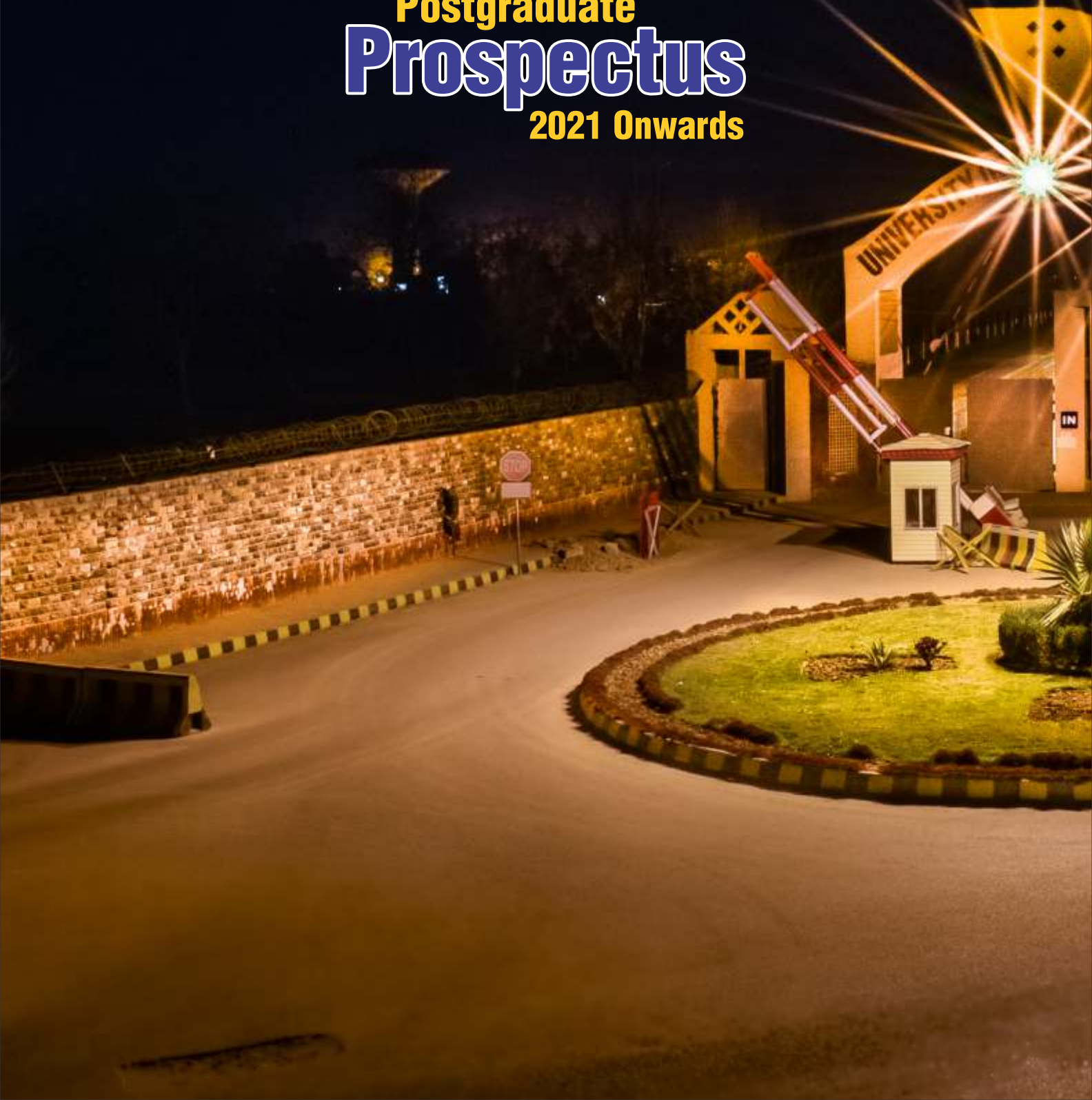
Disclaimer

This prospectus is informational and should not be taken as binding on the University. Each aspect of the educational setup, from the admission procedure or criteria to the examination regulations or discipline, requires continuing review by the competent authorities. The university therefore reserves the right to change any rules and regulations applicable to students whenever it is deemed appropriate or necessary.

Welcome

Vice Chancellor's
M e s s a g e

Welcome to University of Engineering & Technology, Taxila. On behalf of faculty, officers and staff of the University, I thank you for having chosen University of Engineering & Technology, Taxila as your next home. You will be a part of a dynamic, innovative and diverse community, brought together by the shared pursuit of excellence in the fields of Engineering, Science and Technology.

The University since its inception has continued to provide quality training in various fields of Engineering, Science & Technology to all students. We are widening our global and national reach to provide more opportunities for collaboration as part of initiative related to Academic-Industry linkages. To equip our graduates with required skills with specific reference to the required defined graduate attributes as part of required assessment in line with Washington Accord, additional training modules, related to skill development, are being incorporated in the curriculum. As part of the Vision of the University, we continue to strive for excellence in three key domains namely research, learning and teaching and community service for socioeconomic development of the country and to ensure that core values of merit, honesty, fair play, teamwork, transparency and implementation of rule of law remain our hallmark.

As the impact of the COVID-19 pandemic continues to be felt around the country, the importance of community cannot be over-emphasized. In these unprecedented times, we continue to provide regular updates including information for students and their families via official website on the University's response to this rapidly evolving situation.

At UET Taxila, we have zero-tolerance policy for politics on campus. Please understand that any violation in this respect will automatically lead to initiation of disciplinary action as per university rules. I invite you to explore outstanding opportunities related to various academic domains including teaching, research, health based facilities, financial aid services, campus environment, student societies and clubs for extra-curricular activities.

I hope that you will embrace the new learning experiences and challenges that await you as part of an exciting new phase in your life. I wish you all the best for your academic endeavors. Stay safe, stay healthy, stay strong.
ALLAH bless you all.

Prof. Dr. Muhammad Inayatullah Khan

About the University

INTRODUCTION

THE CITY OF TAXILA

The antique name 'Takshasila' means the city of cut stones. Taxila has gained worldwide eminence for its archaeological sites. Once a province of the powerful Achaemenian empire, Taxila was conquered by Alexander in 327 BC. It later came under the Mauryan dynasty and attained a remarkably mature level of development under the great Ashoka. Then appeared the Indo- Greek descendants of Alexander's warriors and finally came the most creative period of Gandhara. The great Kushan dynasty was established some where near 50 AD. During the next 200 years Taxila became a renowned centre of learning, philosophy, art and religion, Jaulian being a centre of excellence or a university of that age. Pilgrims and travelers were attracted to it from as far away as China and Greece.

History took a new turn around 1950 when Ordnance Factories were founded at Wah, adjacent to Taxila. The country's largest Mechanical Complex and Foundry were established at Taxila in mid sixties. In early seventies, the industrial progress attained a new dimension when Taxila was chosen to have Heavy Industries Taxila near its world famous museum. At the same time Pakistan's largest Aeronautical Complex was established at Kamra which is about 45 km from Taxila. In mid seventies, government of the Punjab found the city ideally suitable for establishing the constituent college of University of Engineering and Technology, Lahore Industrial progress in and around Taxila is gaining a newer pace. The neighboring industrial organizations are in the process of rapid expansion. A new industrial zone has emerged in Hattar area, which is about 20 km away from Taxila. Taxila is emerging as a leading industrial region at the national level. The strategic location is paving way for the city to act as a gateway to historical "Silk Route".

THE UNIVERSITY

With phenomenal increase in students' enrollment in 1970's, a plan to establish additional campuses of the University of Engineering and Technology Lahore was conceived. As a result of that, the University College of Engineering Taxila was established in 1975. For three years it functioned at Sahiwal. In 1978 it was shifted to its permanent location at Taxila. The College continued its working under the administrative control of the University of Engineering and Technology, Lahore till October 1993. During this month it received its charter as an independent university under the University of Engineering and Technology Taxila Ordinance 1993. At present total enrollment of undergraduate and postgraduate students is above 32000.

ADMINISTRATION

The Governor of Punjab is the Chancellor and the Education Minister of Punjab is the Pro-Chancellor of the University. The Syndicate is the governing/legislative body and the Academic Council is the highest academic body of the University. The Vice-Chancellor is the Chief Executive and Academic Officer of the University. He is assisted by Deans of Faculties, Chairmen of Departments, Directors and Principal Officers of the University – the Registrar, the Treasurer, the Controller of Examinations and the Project Director, to ensure that the provisions of the University Act, the Statutes and the Regulations are faithfully observed and implemented.

LOCATION

The University campus is located on the outskirts of Taxila at a distance of 5 km from the city. It is situated near railway station Mohra Shah Wali Shah on Taxila-Havelian branch line. The city of Taxila is 35 km from the twin cities of Islamabad and Rawalpindi on the main Rawalpindi-Peshawar highway. The University buses commute daily between the campus and the cities of Islamabad, Rawalpindi and Wah Cantt. The campus covers an area of 163 acres. All the teaching departments, residential colony for teachers/ employees, student hostels, guesthouse, post office and bank are housed on campus.

PAKISTAN

The land of antiquity and diversity

Pakistan is a land of antiquity and diversity. It has been a melting pot for races and cultural traditions from times immemorial. Therefore, it has a rich tapestry of cultural patterns and colorful customs and traditions. It is a treasure trove for archeologist and historians, as it has been home to some of the oldest and most vibrant civilizations—Soan Valley (ca 50000 to 125000 BCE), Mehrgarh (7000-5500 BCE), Kot Diji (3000 BCE), Indus Valley (3300 to 1700 BCE) and Gandhara (1st to 5th Century CE) which flourished over vast areas. Apart from the ancient heritage sites, it is a mountaineers' paradise as there are 108 peaks above 7000 meters, and out of 14 highest (eight-thousander)peaks in the world, five are located in the northern areas of Pakistan, not far from Islamabad. Apart from historical sites, there are fascinating variations in landscape, ranging from pristine shores and desolate deserts to fabulous valleys and mighty mountains.

Islamabad

Nathiagali, KPK

Banjosa, Poonch, AJK

Altit Fort, Gilgit Baltistan

Shandour Upper Chitral, KPK

Islamabad, Pakistan

Quaid-i-Azam
Mausoleum, Karachi

Abbasi Mosque Cholistan
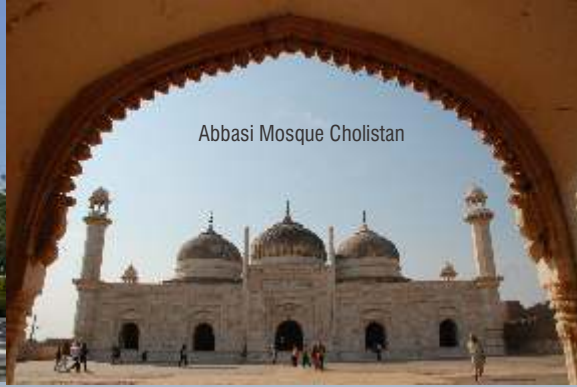
Faisal Mosque, Islamabad

Minar-e-Pakistan

Hiran Minar Shiekhupura

Bonni Upper Chitral, KPK

Kot Diji, Khairpur, Sindh

Drawar Fort, Cholistan

Supreme Court of Pakistan

CONTENTS

CONTENTS

ORGANIZATIONAL SETUP

Chancellor
Governor of the Punjab

Pro-Chancellor
Minister for Education, Punjab

Vice Chancellor
Prof. Dr. Muhammad Inayatullah Khan

Registrar
Engr. Dr. Mansoor A. Baluch

Additional Registrar
Mr. Khalid Mahmood

Director ASR&TD
Prof. Dr. Muhammad Yaqub

Controller of Examinations
Mr. Muhammad Azhar Naeem Kamboh

Treasurer
Mr. Muhammad Nawaz

Security Officer
Mr. Riffat Iqbal

Director Academics
Prof. Dr. Muhammad Iram Baig

Senior Librarian
Mr. Muhammad Safdar

Deans of Faculties

Faculty of Civil and Environmental Engineering
Faculty of Electronics and Electrical Engineering
Faculty of Mechanical and Aeronautical Engineering
Faculty of Telecommunication and Information Engineering
Faculty of Industrial Engineering
Faculty of Basic Sciences & Humanities

Chairmen of Academic Departments

Department of Civil Engineering	Prof. Dr. Qaiser-uz-Zaman Khan
Department of Environmental Engineering	Prof. Dr. Qaiser-uz-Zaman Khan
Department of Electrical Engineering	Prof. Dr. Muhammad Iram Baig
Department of Electronics Engineering	Prof. Dr. Yaseer Arafat Durrani
Department of Mechanical Engineering	Prof. Dr. Riffat Asim Pasha
Department of Metallurgy & Materials	Prof. Dr. Riffat Asim Pasha
Department of Energy Engineering	Prof. Dr. Muzaffar Ali
Department of Computer Engineering	Prof. Dr. Hafiz Adnan Habib
Department of Software Engineering	Prof. Dr. Tabassam Nawaz
Department of Telecommunication Engineering	Prof. Dr. Yasar Amin
Department of Computer Science	Dr. Syed Aun Irtaza
Department of Industrial Engineering & Engg. Management	Prof. Dr. Mirza Jahanzaib
Department of Basic Sciences	Dr. Muhammad Mudassar

Directors of Postgraduate Studies

Department of Civil Engineering	Prof. Dr. Faisal Shabbir
Department of Mechanical Engineering	Prof. Dr. Muhammad Ali Nasir
Department of Metallurgy & Materials Engineering	Dr. Aneela Wakeel
Department of Energy Engineering	Dr. Nasir Shah
Department of Electrical Engineering	Prof. Dr. Ubaid Ullah
Department of Electronics Engineering	Dr. Syed Azhar Ali Zaidi
Department of Computer Engineering	Dr. Fawad Hussain
Department of Software Engineering	Dr. Huma Ayub
Department of Telecommunication Engineering	Dr. Muhammad Jamil
Department of Industrial Engineering & Engg. Management	Dr. Salman Hussain
Department of Basic Sciences	Dr. Malik Sajjad Mehmood
Department of Computer Science	Dr. Javed Iqbal

SERVICES AND COMMON FACILITIES

Chairmen of Committees

Health
Prof. Dr. Riffat Asim Pasha

Library
Prof. Dr. Tahir Mehmood

Transport
Engr. Dr. Mansoor A. Baluch

Sports
Prof. Dr. Adeel Akram

Masajid
Prof. Dr. Muhammad Iram Baig

Discipline
Prof. Dr. Yasir Ameen

Affiliation Committee
Prof. Dr. Adeel Akram

House Allotment Committee
Prof. Dr. Aftab Ahmad

General Administration

Audit
Resident Auditor
Mr. Sher Ali

Accounts
Deputy Registrar
Mr. Shahid Saleem
Mr. Abid Mehmood Qureshi

Dues/Scholarship Section
Deputy Registrar
Muhammad Asif Ali

Examinations Branch
Controller
Mr. Muhammad Azhar Naeem Kamboh
Deputy Controllers
Engr. Zakaullah
Mr. Ahmad Noor

Establishment
Additional Registrar
Mr. Khalid Mahmood
Deputy Registrar
Mr. Ehsan Ahmad

Procurement
Assistant Registrar
Mr. Muhammad Usama Khalid

Academic & Regulation
Additional Registrar
Mr. Khalid Mahmood

Health Clinic

Senior Medical Officer	Dr. Muhammad Arif Nadeem
Senior Medical Officer	Dr. Sabahat Quddus
Dental Surgeon	Dr. Uzma Ashraf

Library

Senior Librarian	Mr. Muhammad Safdar

Sports

Director Physical Education (Male)	Mr. Muhammad Akmal Hussain

Transport

Deputy Registrar	Mr. Khalid Mehmood

Estate Office

Director Arboriculture & Land Management	
Resident Officer	Engr. Tahir Ali
Estate Officer	Zaheer-ul-Hassan Shah

Hostels

Senior Warden	Prof. Dr. Adnan Habeeb
Foreign Faculty Hostel	Engr. Dr. Mansoor A. Baluch

Legal Cell

Legal Advisor	Ch. Farhat Abbas

Network Administration and Research Center

Director Networks	Mr. Khurram Mehmood
System Administrator	Mr. Muhammad Umar
Web Manager	Mr. Ulfat Hussain
Manager Software Development	Mr. Muhammad Huzaifa

Vice-Chancellor's Office

Secretary to Vice Chancellor	Syed Basharat Abbas Shah

Directors

Advanced Studies, Research & Technological Development	Prof. Dr. Muhammad Yaqoob
Director QEC/ Director Acadamics	Dr. Humyun Shahid
Director ORIC	Prof. Dr. M. Haroon Yousaf
Student Affairs	Prof. Dr. Yasir Ameen
Information Technology Centre	Prof. Dr. Adeel Akram
Project Director (B&W)	Engr. Tahir Ali
Telephone Exchange	Engr. Dr. Muhammad Jamil Khan
Planning & Development	Prof. Dr. Imran Hafeez
Admin Officer Directorate of ASR&TD	Mr. Muhammad Hussain

IMPORTANT TELEPHONE NUMBERS

The Intercom extensions (ddd) are configured as Rawalpindi/Islamabad local numbers with prefix 051-9047 ddd, Fax No: 051-9047420

Description	Intercom Ext. (ddd)	Description	Intercom Ext. (ddd)
Vice-Chancellor	401	Dy. Treasurer (Audit)	425
Secretary to the Vice-Chancellor	403, 404	Accounts Branch	417
Deans of Faculties		Dues & Scholarship Section	421, 422
Electrical & Electronics Engineering	533	Resident Auditor	423
Civil & Environmental Engineering	633	Controller of Examinations	428
Mechanical & Aeronautical Engineering	666	Examination Branch	432, 433
Telecom. & Information Engineering	566	Project Director (Building & Works)	434
Industrial Engineering	825	Director QEC	492
Chairmen of Academic Departments		Deputy Director QEC	493
Electrical Engineering	535	Director Physical Education	473
Electronics Engineering	720	Director P&D	442
Civil Engineering	635	Deputy Director Placement	444
Environmental Engineering	795	Legal Advisor	445
Mechanical Engineering	668	Library	455
Computer Engineering	568	Health Clinic	461
Software Engineering	735	Network Centre	468
Telecommunication Engineering	918	Transport Office	470
Computer Science	845	Directorate of Students Affairs	472
Industrial Engineering	827	Post Office	474
Basic Sciences	870	Habib Bank Ltd.	475
Other Establishments		Senior Warden	568
Registrar	405	Quaid-e-Azam Hall	264,269
Additional Registrar (Establishment)	407	Iqbal Hall	266,271
Assistant Registrar (Establishment)	408-409	Ali Hall	267,272
Establishment Branch	426	Abubakar Hall	265,270
Additional Reg. Academic & Regulation	410	Usman Hall	273,277
Academic & Regulation Branch	411	Bilal Hall	275, 276
Admissions Office (Undergraduate)	412, 427	Ayesha Hall	268,274
Treasurer	413	Telephone Exchange (Operator)	400, 500
Dy. Treasurer (Accounts)	418	Security Control Room	803

CODE OF ETHICS

- You shall be honest, faithful and just, and shall not act in any manner derogatory to the honor, integrity and dignity of the engineering profession.
- You shall not injure, malici-ously, directly or indirectly, the reputation or employment of another engineer, nor shall you fail to act equitably while performing professional duty.
- You shall use your knowledge and skill of engineering for human welfare, and render professional service and advance, which reflects your best professional service and advance, which reflects your best professional judgment.
- You shall not abuse your position or power, nor accept illegal gratification of any sort.
- You shall faithfully observe and fulfill all your obligations.
- You shall express your opinion on engineering or other matters in a frank, open and straight-forward manner.
- You shall not criticize another engineer's work without his knowledge nor malign, or injure his professional reputation.
- You shall not ridicule fellow engineers nor let one discipline of engineering derides other disciplines or professions.
- You shall not directly or indirectly discredit other engi-neers nor assign (derogatory) epithets to their persons or work.
- 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 or in any manner derogatory to the dignity of the profession.
- You shall ascertain facts before accepting them and shall not encourage or cause others to carry tales. Credulity is no credit.
- You shall help one another in upholding and doing that is right, and shall not associate with those who transgress and those who indulge in unethical practices.
- You shall be kind and considerate to others and shall not fail to be cooperative and accommodating.
- You shall decide matters of common professional interest by mutual consultation.

PROFILE OF THE UNIVERSITY POSTGRADUATE FACULTIES

Faculty of Civil and Environmental Engineering
Department of Civil Engineering
Department of Environmental Engineering

Faculty of Electronics and Electrical Engineering
Department of Electrical Engineering
Department of Electronic Engineering

Faculty of Mechanical and Aeronautical Engineering
Department of Mechanical Engineering
Department of Metallurgy & Materials Engineering
Department of Energy Engineering

Faculty of Telecommunication & Information Engineering
Department of Computer Engineering
Department of Software Engineering
Department of Telecommunication Engineering
Department of Computer Sciences

Faculty of Industrial Engineering & Management Sciences
Department of Industrial Engg. & Engineering Management

Faculty of Basic Sciences & Humanities
Department of Basic Sciences

UNIVERSITY DEPARTMENTS

1.1 | FACULTY OF CIVIL AND ENVIRONMENTAL ENGINEERING

Dean
Dean of Faculties
Prof. Dr. Aftab Ahmad

DEPARTMENT OF CIVIL ENGINEERING

Chairman
Dr. Qaiser uz Zaman Khan
BSc Engg. (Hons) (Gold Medalist) (UET Lahore)
MSc Engg.(University of Leeds, UK)
PhD (Saitama University, Japan)

Professors
Dr. Qaiser uz Zaman Khan
BSc Engg. (Hons) (Gold Medalist) (UET Lahore)
MSc Engg.(University of Leeds, UK)
PhD (Saitama University, Japan)

Bridge Engg. Dynamics of Structures Earthquake Engg. Structure Engg., Concrete Materials, Computer Aided Structural Modeling

Dr. Muhammad Yaqub
BSc Engg (Hons)(UET Taxila)
MSc Engg (UET Taxila)
PhD (University of Manchester, UK)

Strengthening & Repairing of Structures Damaged by extreme Loading (Fire & Earthquake) using Advanced Smart Materials

Dr. Ayub Elahi
BSc Engg. (UET Taxila)
MSc Engg. (UET Taxila)
PhD (UET Taxila)
Post Doc. (Queen's Univ. UK)

Structural Materials, Structural Engineering, Self-Compacting Concrete, Concrete Deterioration

Dr. Imran Hafeez
BSc Engg. (UET Lahore)
MSc Engg. (UET Taxila)
PhD (UET Taxila)
Post Doc. (Univ. of Illinois at Urbana-Champaign, USA)

Transportation Engineering, Pavement Design and Evaluation, Material Characterization and Performance Evaluations

Dr. Usman Ghani
BSc Engg. (UET Taxila)(Gold Medalist)
MSc Engg. (UET Taxila)
PhD (UET Taxila)
Post Doc. (Univ. of Birmingham, UK)

Vegetated Open Channel Flow, Bridge Pier Scouring, Meandering Compound Channels, Hydraulic Str.

Dr. Naeem Ejaz
BSc Engg. (UET Taxila)
MSc Engg. (UET Lahore)
PhD. (UET Taxila)

Water Quality Modeling, Air Pollution Assessment and Control, Environmental Impact Assessment, Solid Waste Management

Dr. Naveed Ahmad
BSc Engg (Hons)(UET Taxila)
MSc Engg (UET Taxila)
PhD (Univ. of Nottingham, UK)
Post Doc (Univ. of Nottingham, UK)

Transportation Engineering, Pavement Engineering, Traffic Engineering

Dr. Faisal shabbir
BSc Engg (Hons)(UET Taxila)
MSc Engg (UET Taxila)
PhD (Univ. of Auckland, New Zealand)

Design Optimization, Structural Dynamics, Structral Health Monitoring

Dr. Muhammad Fiaz Tahir
BSc Engg (UET Taxila)
MSc Engg (UET Lahore)
PhD (UET Taxila)
Post Doc (Uni. of Sheffield UK)

Structural Engineering, Earthquake Engineering, Retrofitting of Structures, Advance Structural Materials

Associate Professors

Dr. Usman Ali Naeem
BSc Engg. (UET Taxila)
MSc Engg. (UET Taxila)
PhD (UET Taxila)

Climate Change & Water Resources, Flood and its Mitigation, Hydrologic Modeling & Applications

Dr. Jawad Hussain
BSc Engg. (UET Taxila)
MSc Engg. (UET Taxila)
PhD (Univ. of Auckland, New Zealand)

Accelerated Pavement Testing, Asset Management, Road & Traffic Safety

Dr. Afaq Ahmad
BSc Engg (UET Taxila)
MSc Engg (UET Taxila)
PhD (Heriot-Watt University, UK)

Structural Engineering Retrofitting of structure composite structure, Artificial Neural Networks

Dr. Bilal Ahmed Zaidi
BSc Engg (UET Taxila)
MSc Engg (UET Taxila)
PhD (Univ. of Nottingham)

Transportation Engineering

Assistant Professors

Engr. Muhammad Salman
BSc Engg (UET Taxila)
MSc Engg (NUST)

Transportation Engineering

Dr. Faheem Butt
BSc Engg (UET Lahore)
MSc Engg (UET Taxila)
PhD (Univ. of Auckland, New Zealand)

Structural Dynamics, Earthquake Engineering, Structural Health Monitoring, Soil-Structure Interaction

Dr. Shahzad Saleem
BSc Engg (UET Taxila)
MSc Engg (UET Taxila)
PhD (Thammasat University, Thailand)

Structural Engineering Design of Steel Structures Strengthening Retrofitting and Repairing of Structures

Engr. Mehwish Asad
BSc Engg (UET Taxila)
MSc Engg (UET Taxila)

Structural Engineering

Dr. Muhammad Usman Arshid
BSc Engg (UET Taxila)
MSc Engg (UET Taxila)
PhD (UET Taxila)

Geotechnical Engineering Remote Sensing and GIS in Geotech, Ground Improvement, Forensic Geotechnical Engg.

Engr. Saqib Mehboob
BSc Engg (UET Taxila)
MSc Engg (UET Taxila)

Structural Engineering

Engr. Muhammad Saad
BSc Engg (UET Taxila)
MSc Engg (UET Taxila)

Structural Engineering

Dr. Naveed Ahmed
BSc Engg (UET Taxila)
MSc Engg (UET Taxila)
PhD (Univ. of Tokyo, Japan)

Soil Liquefaction, Ground Response Analysis under Dynamic Loading, Performance of Lifelines During Earthquakes

Dr. Muhammad Irshad Qureshi
BSc Engg (UET Taxila)
MSc Engg (UET Taxila)
MSc Engg (Asian Inst. of Tech., Bangkok)
PhD (Asian Inst. of Tech., Thailand)

Design & Seismic Evaluation of High-rise Buildings, Performance Based Design, Seismic Risk Analysis

Dr. Ghufran Ahmad Pasha
BSc Engg (UET Taxila)
MSc Engg (UET Taxila)
PhD (Saitama University, Japan)

Flood Mitigation, Flow Vegetation Interaction, Debris Flow, Scour and Erosion

Dr. Zia-ur-Rehman
BSc Engg (BZU Multan)
MSc Engg (UET Lahore)
PhD (Tsinghua University, China)

Geotechnical Engineering

Lecturers

Engr. Muhammad Rameez Sohail
B.Sc. Engg. (MCE Risalpur, NUST)
M.Sc. Engg. (NUST)

Structural Engineering

Dr. Afzal Ahmed
B.Sc. Engg. (UET Taxila)
M.Sc. Engg. (UET Taxila)
PhD. (UET Taxila)

Water Resources & Irrigation Engineering

Engr. Zulfiqar Ali
B.Sc. Engg. (UET Taxila)
M.Sc. Engg. (UET Taxila)

Structural Engineering

Engr. Kashif Riaz
B.Sc. Engg. (UET Taxila)
M.Sc. Engg. (UET Taxila)

Transportation Engineering

Engr. Rana Muhammad Waqas
B.Sc. Engg. (UET Taxila)
M.Sc. Engg. (UET Taxila)

Structural Engineering

Engr. Jamal Ahmed Khan
B.Sc. Engg. (CECOS Univ. Peshawar)
M.Sc. Engg. (NUST), Islamabad

Transportation Engineering

Engr. Hammad Raza
B.Sc. Engg. (UET Taxila)
M.Sc. Engg. (UET Taxila)

Geotech Engineering

Engr. Muhammad Usman Rashid
B.Sc. Engg. (UET Taxila)
M.Sc. Engg. (UET Taxila)

Structural Engineering

Engr. Ali Raza
B.Sc. Engg. (BZU Multan)
M.Sc. Engg. (UET Taxila)

Structural Engineering

Engr. Mujahid Iqbal
B.Sc. Engg. (UET Taxila)
M.Sc. Engg. (UET Taxila)

Water Resources & Irrigation Engg.

THE DEPARTMENT

Department of Civil Engineering is actively engaged in disseminating civil engineering education for the last Forty Five years, whereas Department of Environmental Engineering has been established/started recently.

The Department of Civil Engineering has an academic staff of 33, nearly 90% of whom contribute to postgraduate teaching and are involved in PhD research work. Approximately 650 undergraduate and 210 postgraduate students are registered in the department. Civil engineers from UET Taxila not only cater to the national needs for buildings, highways, dams, bridges, irrigation network and water supply systems but also contribute in the overseas Gulf & Canadian markets and are the world's largest users of building materials.

COURSES OF STUDY

The Department of Civil Engineering offers full-time course of four years duration leading to the degree of BSc in Civil Engineering. The department also organizes a course of 18 months duration (Minimum) leading to MSc in Civil Engineering.

In the bachelor's course, emphasis is laid on the fundamental concepts and principles, which constitute the basis of civil engineering practice. To foster their creative abilities, the students are assigned projects on design, construction or laboratory investigation for self directed execution. The classroom and laboratory work is supplemented by the instructional tours to acquaint students with civil engineering projects of national importance. Survey camp is held to impart intensive field training where the students plan and execute survey of large areas independently.

LABORATORIES

The department has the following well-equipped laboratories to meet the requirements of researchers as well as the professional needs of the government and private organizations. Following is the list of Laboratories actively engaged in research activities:

a. Concrete Technology
b. Strength of Materials
c. Geotechnical Engineering
d. Transportation Engineering
e. Hydraulics/Fluid Mechanics
f. Theory of Structures
g. Surveying
h. Environmental Engineering
i. Computer Aided Design laboratory

Most of the Laboratories have been upgraded through funds provided by Higher Education Commission. The department is actively engaged in providing consultancy services and testing facilities to national construction projects, and industry.

POSTGRADUATE STUDIES & RESEARCH

In order to satisfy the increasing demand for relevant advanced technological education, the department offers MSc degree courses in Structural Engineering, Water Resources & Hydraulics Engineering, Transportation Engineering and Geotechnical Engineering, covering the most recent developments. The courses contain a balance of analytical and professional aspects and are designed to suit the needs of fresh graduates and those with professional experience. The tremendous potential for the development of water resources requires the services of engineers trained to plan, design, construct, operate and maintain engineering works for the control and utilization of these resources. Most of the postgraduate students belong to the construction industry and act as a bridge for university industry linkage that makes research in the department to be practical and useful for the country. The growth of PhD program has further enriched the research activities in the department.

PhD IN CIVIL ENGINEERING

The department has initiated PhD program in Civil Engineering from 2001 session. One hundred and forty nine (149) PhD scholars have been registered in the department. Out of which 34 scholars have completed their PhD degrees. The PhD Program is offered in the following specializations:-

a. Structural Engineering
b. Geotechnical Engineering
c. Transportation Engineering
d. Water Resources & Irrigation Engineering

LIST OF COURSES
Course Outline: MSc and PhD Civil Engineering

Core Courses-M.Sc. Structural Engineering

Course No.	Course Title
CE-5103	Structural Design Practice
CE-5105	Pre-stressed Concrete Theory & Practice
CE-5108	Properties of Concrete and its Constituents
CE-5112	Dynamics of Structures
CE-5113	Earthquake Engineering

Elective Courses MSc Structural Engineering

Course No.	Course Title
CE-5101	Structural Mechanics
CE-5102	Matrix Analysis of Structural
CE-5104	Instability of Structures
CE-5106	Construction Management
CE-5107	Data Analysis and Quality Control
CE-5109	Computer Aided Design and Analysis of Structures
CE-5110	Bridge Engineering
CE-5111	Domes, Shells, and Space Structures
CE-5114	Finite Element methods for Structural Analysis
CE-5115	Application of Information Technology in Civil Engineering
CE-5116	Durability of Concrete
CE-5117	Strengthening, Retrofitting and Repairing of Structures
CE-5118	Performance based Seismic Design of Structures
CE-5119	Optimization for Engineering Design
CE-5100	Postgraduate Research Thesis

Core Courses - PhD Structural Engineering

Course No.	Course Title
CE-6104	Displacement Based Seismic Design
CE-6106	Deterioration Mechanism in Concrete
CE-6107	Innovative Concrete Material
CE-6100	Ph.D Thesis

Elective Courses - PhD Structural Engineering

Course No.	Course Title
CE-6101	Rehabilitation Techniques
CE-6102	Shear Behavior of RC Structural Elements
CE-6103	Blast Loading Parameters and Effects
CE-6105	Advance Structural Dynamics
CE-6108	Advances in Cement Technology
CE-6109	Numerical Methods in Concrete
CE-6110	Structural Health Monitoring
CE-6111	Tall Building Structures
CE-6112	Structural Identification of Constructed System

Core Courses-M.Sc. Geotechnical Engineering

Course No.	Course Title
CE-5201	Advanced Soil Mechanics
CE-5202	Foundation Engineering
CE-5203	Hydraulic Structures
CE-5204	Ground Improvement
CE-5205	Soil Dynamics

Elective Courses-M.Sc. Geotechnical Engineering

Course No.	Course Title
CE-5206	Rock Mechanics
CE-5207	Engineering Geology
CE-5208	Geo-Environment
CE-5209	Numerical Modeling
CE-5210	C.A.D (Computer Aided Design)
CE-5211	Advance Numerical Analysis
CE-5212	Excavation Engineering
CE-5213	Earth Pressure and Retaining Structures
CE-5214	Instrumentation in Geotechnical Engineering
CE-5215	Pavement Material Structure and Design
CE-5216	Soil Structure Interaction

Core Courses-PhD Geotechnical Engineering

Course No.	Course Title
CE-6201	Research Topics in Geotechnical Engineering
CE-6202	Geo-Hazards
CE-6203	Mechanics of Unsaturated Soil

Elective Courses-PhD Geotechnical Engineering

Course No.	Course Title
CE-6204	Soil Dynamics
CE-6205	Dams and Embankments
CE-6206	Limitation and Failures in Geotechnical Engineering
CE-6207	Analysis of Deep Foundation
CE-6208	Earthquake Disaster Assessment and Mitigation
CE-6209	Tunneling and Underground excavations

Post Graduate Research Theses

Course No.	Course Title
CE-5200	Post Graduate Research Thesis
CE-6200	Ph.D Thesis

Core Courses-M.Sc. Water Resources & Irrigation Engineering

Course No.	Course Title
CE-5301	Advanced Open Channel Hydraulics
CE-5302	Applied Hydrology
CE-5303	Drainage and Irrigation Engineering
CE-5304	Dam Engineering
CE-5305	Design of Hydraulic Structures

Elective Courses-M.Sc. Water Resources & Irrigation Engineering

Course No.	Course Title
CE-5306	Applications of Modern Tools in Water Resources Engineering
CE-5307	Ground Water Hydrology
CE-5308	Ground Water Development
CE-5309	River Engineering
CE-5310	Computational Hydraulics
CE-5311	Application of GIS and Remote Sensing in Water Resources Engineering
CE-5312	Advanced Irrigation Engineering
CE-5300	Postgraduate Research Thesis

Core Courses-PhD Water Resources & Irrigation Engineering

Course No.	Course Title
CE-6301	Applied Hydraulics
CE-6402	Advanced Hydrology
CE-7301	Advanced Statistical Hydrology
CE-6300	Postgraduate Research Thesis

Elective Courses-PhD Water Resources & Irrigation Engineering

Course No.	Course Title
CE-6303	Statistical Hydrology
CE-6304	Sediment Transport
CE-6305	Hydro Power Development
CE-6306	Environmental Hydrology
CE-6307	Flood Risk Management
CE-6308	Water Resources System Analysis
CE-6309	Advanced Dam Engineering
CE-6310	Advanced Irrigation and Drainage Engineering

Core Courses-M.Sc. Transportation Engineering

Course No.	Course Title
CE-5401	Highway Planning & Design
CE-5402	Transportation Engineering
CE-5403	Pavement Evaluation & Rehabilitation
CE-5404	Pavement Structures, Materials and Design
CE-5405	Principles of Pavement Engineering

Elective Courses in M.Sc. Transportation Engineering

Course No.	Course Title
CE-5406	Characteristics of Passenger Transport Systems
CE-5407	Pavement Evaluation Based on NDT
CE-5408	Traffic Safety
CE-5409	C.A.D. (Computer Aided Design)
CE-5410	Railway Engineering
CE-5411	Emergencies and Transportation Engineering
CE-5412	Road Works: Practical Applications
CE-5413	Numerical Methods in Engineering
CE-5414	Geology for Engineers
CE-5415	Foundations and Earth works
CE-5416	Logistics Management
CE-5417	International and Cross Border Transport Systems
CE-5419	Intelligent Transportation System
CE-5420	Management and Prediction of Travel Demand
CE-5400	Postgraduate Research Thesis

Core Courses-PhD Transportation Engineering

Course No.	Course Title
CE-6401	Asphalt Mix Design and Construction
CE-6402	Advanced Pavement Materials
CE-6403	Advanced Pavement Engineering

Elective Courses-PhD Transportation Engineering

Course No.	Course Title
CE-6404	Applications of Finite Element Method in Transportation Engineering
CE-6405	Advanced Statistical Analysis
CE-6406	Design of Transport Infrastructure
CE-6407	Characteristic of Traffic Flow
CE-6408	Traffic Management Techniques
CE-6409	Application of Information Technology in Transportation Engineering

1.2 | FACULTY OF ELECTRONICS & ELECTRICAL ENGINEERING
1.2.1 Department of Electrical Engineering

Dean
Prof. Dr. Aftab Ahmad

Chairman
Prof. Dr. Iram Baig

Professors

	Areas of Interest
Dr. Aftab Ahmad BSc Engg (UET Lahore) MSc Engg (UET Lahore) PhD (UET Taxila) (HEC approved PhD Supervisor)	Power System Operation, Power Distribution System Engineering, AI Techniques in Power System, Operations Research, Engineering Optimization, Research Methodology
Dr. Muhammad Iram Baig BSc Engg (UET Lahore) MSc Engg (UET Lahore) PhD (UET Taxila)	Digital Design, Embedded System, VLSI Testing & Verification
Dr. Gulistan Raja BSc Engg (UET Taxila) M.S. Engg (Osaka Univ, Japan) PhD (UET Taxila) (HEC approved PhD Supervisor)	Digital Image/Video Processing, Image & Video Compression, Medical Image Processing, ASIC Design
Dr. Tahir Mahmood BSc Engg (Hons) (UET Lahore) MSc Engg (UET Lahore) PhD (UET Taxila) (HEC approved PhD Supervisor)	Electrical Power Distribution System, Energy Systems, Power Quality, Control and Automation
Dr. Shabbir Majeed Chaudhry BSc Engg (UET Taxila) MSc Engg (UET Taxila) PhD (UET Taxila)	Analogue/Digital/Mixed Signal Integrated Circuits, RF Microelectronics,

Dr. Muhammad Obaid Ullah BSc Engg (Hons) (UET Taxila) MSc Engg (UET Taxila) PhD (Uni of Manchester, UK) (HEC Approved Ph.D. Supervisor)	Applied Signal Processing, Communication Systems, Computer Vision, Machine Learning
Dr. Salman Amin BSc Engg (Hons) (UET Taxila) MSc Engg (UET Taxila) PhD (UET Taxila)	High Voltage Engineering, Dielectric Materials, Energy Systems

Associate Professors

Dr. Sh. Saaqib Haroon BSc Engg (UET Lahore) MSc Engg (UET Taxila) PhD (UET Taxila) (HEC Approved Ph.D. Supervisor)	Power System Operation & Control, Power System Analysis, Optimization Methods, Energy Systems
Dr. Ahsan Ali BSc Engg (UET Taxila) MSc Engg (UET Taxila) PhD (TUH, Germany)	Theory & Control of Systems
Dr. Faisal Nadeem Khan BSc Engg (Air Univ, Islamabad) MSc Engg (UET Taxila) PhD (UET Taxila) (HEC Approved Ph.D. Supervisor)	Power System Operation & Planning, Smart Grids, Renewable Energy Resources
Dr. Intisar Ali Sajjad BSc Engg (Hons) (UET Lahore) Gold Medalist MSc Engg (UET Taxila) PhD (POLITO, Italy) (HEC Approved Ph.D. Supervisor)	Smart Grid Applications, Smart buildings, Demand Side Management

Dr. Furqan Shaukat
BSc Engg (UET Lahore)
MSc Engg (UET Taxila)
PhD (UET Taxila)
(HEC Approved Ph.D. Supervisor)

Image Processing & Analysis

Assistant Professors

Engr. Ilyas Ahmad
BSc Engg (UET Peshawar)
MSc Engg (UET Taxila)

Power System Protection, Power Systems Operation and Control, Hydrothermal Coordination, Electricity Tariff Rationalization

Dr. Inam ul Hassan Shaikh
BSc Engg (Hons) (UET Lahore)
MSc Engg (UET Taxila)
PhD (Uni of Manchester, UK)

Control System, Learning Control, Intelligent Control, Robotics

Dr. Hafiz M. Irfan Arshad
Bsc Engg (UET Taxila)
MSc Engg (UET Taxila)
PhD (UET Taxila)

Digital Image Processing, Wireless Communication

Dr. Junaid Mir
BSc (UET Taxila)
MSc (UET Taxila)
PhD (Uni of Surrey, UK)
(HEC Approved Ph.D. Supervisor)

Signal, Image & Video Processing, Medical Image Processing

Engr. Ghulam Ali
Bsc Engg (UET Taxila)
MSc Engg (NUST, Islamabad)
PhD (In Progress)

Microelectronics & Microwave Communication

Dr. Qamas Gul Khan Safi
BS CS (AIOU Islamabad)
MSc Eng. (UET Taxila)
PhD (BIT, China)
(HEC Approved Ph.D. Supervisor)

Information security, Information dissemination in Vehicular Ad-hoc Networks, Mobile and Cloud computing

Dr. Muhammad Rafiq
BSc Engg (UET Taxila)
MSc Engg (Chalmers Univ., Sweden)
PhD (NECEPU China)
(HEC Approved Ph.D. Supervisor)

High Voltage Engineering, Nanodielectrics, Condition Monitoring and Insulation Analysis of Electrical Equipment, Partial Discharge Detection, Discharge Characteristics, Insulation Breakdown, Dielectric Failure Mechanism

Dr. Munira Batool
BSc Engg (BZU, Multan)
MSc Engg (UET Taxila)
PhD (Curtin University, Australia)

Power System Operation, Planning and Optimization

Lecturers

Engr. Hammad Shaukat
BSc Engg (UET Taxila)
MSc Engg (UET Taxila)

Electrical Instrumentation, Electronic Devices and Power electronics.

Dr. Mamoona Khalid
Bsc Engg (UET Taxila)
MSc Engg (UET Taxila)

Optical Communication

Dr. M. Mansoor Ashraf
BSc Engg (UET Taxila)
MSc Engg (UET Taxila)
PhD (UET Taxila)

Generation Expansion Planning, Electrical Machine Design

Engr. Mehroze Iqbal
BSc Engg (UET Taxila)
MSc Engg (UET Taxila)
PhD (In Progress)
(on higher studies Abroad)

Power System Operation, Renewable Energies, Power Converters

Engr. Abu Bakar Waqas
BSc Engg (UET Taxila)
MSc Engg (UET Taxila)
(on higher studies Abroad)

Speech/Audio Signal Processing, Energy Management and Power Quality

Engr. Faisal Siddiq
BSc Engg (UET Taxila)
MSc Engg (UET Taxila)
PhD (In Progress)

Digital Signal Processing, Digital Design, System on Chip

Engr. Nouman Qamar
BSc Engg (UET Taxila)
MSc Engg (UET Taxila)
PhD (In Progress)

Power System Operation & Control, Smart Grid

Engr. Tanveer Khursheed
BSc Engg (PU Lahore)
MSc Engg (UET Taxila)

Battery System design, Power Systems

Engr. Usama Ashfaq
BSc Engg (UET Taxila)
MSc Engg (UET Taxila)
PhD (in progress)

Power Electronics, High Voltage Engineering, Renewable Energy Resources, Power System Optimization

Engr. Hafiz Hammad Haider
BSc Engg (PIEAS, Islamabad)
MSc Engg (UPB, Germany)

Control Systems

Lab Engineers

Dr. Habib-ur-Rahman Habib
Bsc Engg (UET Taxila)
MSc Engg (UET Taxila)
PhD (HUST China)

Energy Resources, Modeling and Simulation Smart Grid

Engr. Aleem Zahid
(on higher studies Abroad)
BSc Engg (UET Taxila)
MSc Engg (UET Taxila)

Renewable Energy, Power Electronics

Engr. Farzana Kausar
BSc Engg (UET Taxila)
MSc Engg (In Progress)

Electronic Devices, VLSI Design

Engr. Komal Munir
BSc Engg (UET Taxila)
MSc Engg (UET Taxila)
PhD (In Progress)

Electronic Devices, Embedded Systems

Engr. Muhammad Waseem (on higher studies Abroad) BSc Engg (UET Taxila) MSc Engg (UET Taxila) PhD (In Progress)	Power System Analysis, Demand Side Management
Engr. Hafiz Mehboob Riaz BSc Engg (UET Lahore) MSc Engg (NUST Islamabad) PhD (In Progress)	Power Electronics Converters, Control Systems, Instrumentation & Measurements
Engr. Zainab Shahid BSc Engg (NUST, Islamabad) MSc Engg (CIIT, Islamabad)	Control Systems, Robotics, FPGA System Design
Engr. Shuja Irfan BSc Engg (UET Taxila) MSc Engg (In Progress)	Power System Operations, Electronics Circuit Design, Digital Control Systems

THE DEPARTMENT

MISSION

Learning and research with values to address the socio-economic challenges

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

The graduates will:

PEO-1: Possess knowledge and skills to address complex engineering problems in an optimized manner.

PEO-2: Serve as a valuable member in industry and research organization for socio-economic uplift while ensuring high moral values.

PEO-3: Demonstrate quest for continuous professional development through effective communication, teamwork, lifelong learning and sharing.

The mission and PEO statements were approved in Academic Council in its meeting 39/2019 held on 16.05.2019.

The Department of Electrical Engineering was established in 1975 with creation of University College of Engineering & Technology, Taxila at Sahiwal. After three years in 1978, the college was shifted to its permanent location at Taxila. In the present day world, the electrical infrastructure is critical in the sense that it mobilizes all other infrastructures. The department aims to develop abilities in the students for the application of the knowledge of Electrical Engineering. The students are provided with an educational foundation that prepares them for leadership roles along diverse career paths in the fields concerned with Electronics, Communications, Energy & Power Systems, and Industrial IT: Control & Automation.

ENROLMENT

PhD Engg :   17
M.Sc. Engg :   151

Building Covered Area

An independent and spacious building with a covered area of 70,600 sq. ft. is available for the department. The department has two blocks namely: Main Block and Extension Block with covered areas as under:

Main Block (Ground Floor)	27,000 sq. ft.
Main Block (1st Floor)	23,600 sq. ft.
Extension Block	20,000 sq. ft.
Total	70,600 sq. ft.

The department also has a separate building for Industrial IT: Control and AutomationCenter in addition to above-mentioned area.

LABORATORIES

The Electrical Engineering Department has following well equipped laboratories. The detail of laboratories are asfollows:

a. Basic Electrical Engineering Lab	b. Computer Lab	c. Computer Simulation Lab
d. Digital Systems Lab	e. Electrical Machines Lab	f. Electronics Lab

g. Industrial IT: Control and Automation
  i) Basic Control Lab
  ii) Advance Control Lab		

h. High Voltage Lab	i. Instrumentation and Process Control Lab	j. Microwave & Communication Lab
k. Power Systems Lab	l. Power Electronics Lab	
m. Power Systems Simulation Lab	n. Workshop & Projects Lab	

The laboratories are regularly upgraded as and when required. The department also shares the resources of Industrial IT: Control and Automation Lab with other departments.

MSC ELECTRICAL ENGINEERING PROGRAM

The Department of Electrical Engineering was established in 1975 offering only Bachelor degree in Electrical Engineering. The graduate program of department of Electrical engineering was commenced in 1984 when it started to offer MSc in Electrical Engineering with "Specialization in Electronics and Communication" and "Specialization in Power."In 2004, the graduate program also started to offer MSc in Electrical Engineering with "Specialization in Control Engineering".

Currently the department is offering following specialization for MSc in Electrical Engineering;

- Control
- Digital Techniques
- Electronics
- Power

The master degree courses are aimed at bringing the students abreast with the most recent developments in their fields of specialization. Most of these students are working with major engineering organizations of the country. So far more than 450 students have successfully completed their Master Degrees in Electrical Engineering.

PHD ELECTRICAL ENGINEERING PROGRAM

The Department has well-established PhD program in Electrical Engineering. The program was started in 2001 and 102 students have been registered so far. The PhD Degree is awarded after compliance of all requirements of Higher Education Commission. So far 39 students have successfully completed their Doctorate Degrees. The department has 21 PhD supervisors conducting research in various areas of Electrical Engineering. Ten PhD faculty members of the department are included in the list of PhD supervisors approved by Higher Education Commission. Almost all labs have necessary facilities for postgraduate research and are used for PhD research.

TESTING FACILITIES

The department also offers consultancy services and testing facilities to local manufacturers of electrical and electronics equipment.

POSTGRADUATE STUDIES & RESEARCH

Research work being carried out at the department has direct bearing on the needs of national industry. This research is partially funded by the Directorate of Advance Studies, Research, and Technological Development ofthe University and Higher Education Commission.

Projects, to meet the requirements of the neighboring industries, are also conducted in thedepartment. The faculty members and postgraduate students have published a significant numbersof research papers in different fields of Electrical Engineering. The department also arrangesconferences, seminars and workshops in various areas of Electrical Engineering. The facultymembers, postgraduate students and prominent researchers from home and abroad participate inthese seminars.

LIST OF COURSES:

1. The revised framework for the curriculum of the MSc program is as under:
    i) The students need to take, at least, 9 courses and a Research Thesis.
    ii) All the courses carry 3 credit hours and the Research Thesis carries 6 credit hours.
    iii) There are 4 Core Courses for each specialization.
    iv) Apart from the Specialization Core Courses, the course of Research Methodology is a compulsory course for all the specializations and treated as a pre-requisite for Research Thesis.
    v) The students need to take 4 Elective Courses. The courses selection criteria is as under:
        a. Student can take maximum of 02 courses from Mathematics Based Elective Courses Common to all Specializations.
        b. Student will take rest of the elective courses from his/her Specialization Elective Courses.
        c. If a student wants to take the elective course(s) other than his/her Specialization Elective Courses, a permission from the Chairman will be required to opt that/those course(s).
    vi) The list of core and elective courses is given below.
2. The revised framework for the curriculum of the PhD program in Electrical Engineering is as under:
    i) The students need to pass, at least, 6 courses and a Research Thesis to complete the degree requirements.
    ii) All the courses carry 3 credit hours.
    iii) There is 01 Core Course Common to All Specializations.
    iv) Student need to pass at least 5 elective courses from:
        a. Mathematics Based Elective Courses Common to all Specializations
        b. Specialization Elective Courses
    v) If a student wants to take the elective course(s) other than his/her Specialization Elective Courses, a permission from the Chairman will be required to opt that/those course(s).
    vi) List of courses for core and elective courses is given below.

Specialization in POWER
Core Courses

Course No.	Course Title
EE-5101	Power System Engineering
EE-5102	Electrical Machine Modeling
EE-5103	Power Distribution Engineering
EE-5104	Renewable Energy Systems

Elective Courses

Course No.	Course Title
EE-5105	Power System Operation
EE-5106	Power System Planning and Economics
EE-5107	Power System Stability and Control
EE-5108	Power System Reliability and Security
EE-5109	Power System Protection
EE-5110	Smart Grid
EE-5111	Modeling and Simulation of Power System Components
EE-5112	High Voltage Engineering
EE-5113	Power System Transients
EE-5114	Distribution System Economics
EE-5115	Distribution System Reliability
EE-5116	High Power Electronics
EE-5117	Artificial Intelligence Tools for Power System
EE-5118	Operational Research
EE-5119	Energy Conversion Systems
EE-5120	Special Topics in Power

Research Thesis

EE-5001	Research Methodology*
EE-5100	Research Thesis

Specialization in ELECTRONICS
Core Courses

Course No.	Course Title
EE-5201	Semiconductor Materials and Technology
EE-5202	Integrated Circuit Design
EE-5203	Embedded Systems
EE-5204	VLSI Design

Elective Courses

Course No.	Course Title
EE-5205	Optical Communication
EE-5206	Photonic Networks
EE-5207	Advanced Digital Design
EE-5208	FPGA based System Design
EE-5209	VLSI Testing and Verification
EE-5210	Advanced Circuit Analysis and Filter Design
EE-5211	Micro-Electro-Mechanical Systems
EE-5212	Converter Design
EE-5213	Electro-Optics: Theory and Applications
EE-5214	Antenna Design
EE-5215	Microwave Circuit Design
EE-5216	Special Topics in Electronics

Research Thesis

EE-5001	Research Methodology*
EE-5200	Research Thesis

Specialization in DIGITAL TECHNIQUES
Core Courses

Course No.	Course Title
EE-5301	Digital Signal Processing
EE-5302	Digital Communication
EE-5303	Computer Networks
EE-5304	Embedded Systems

Elective Courses

Course No.	Course Title
EE-5305	Computer Vision
EE-5306	Biometric Technologies
EE-5307	Biomedical Image Processing
EE-5308	Satellite Communications
EE-5309	Wireless Communications
EE-5310	Optical Communications
EE-5311	Information Theory and Source Coding
EE-5312	Error Control Coding
EE-5313	Antenna and Propagation
EE-5314	Machine Learning
EE-5315	Special Topics in Digital Techniques

Research Thesis

EE-5001	Research Methodology*
EE-5300	Research Thesis

Specialization in CONTROL
Core Courses

Course No.	Course Title
EE-5401	Control System Design
EE-5402	State Space Control
EE-5403	Linear Multivariable Control
EE-5404	Optimal Control

Elective Courses

Course No.	Course Title
EE-5405	Robust Control
EE-5406	System Modeling and Identification
EE-5407	Stochastic Control
EE-5408	Adaptive Control Systems
EE-5409	Robot Motion Planning and Control
EE-5410	Systems Biology
EE-5411	Special Topics in Control

Research Thesis

EE-5001	Research Methodology*
EE-5400	Research Thesis

Mathematics based Elective Courses (Common to all Specializations)

Student can take max. 2 Courses

Course No.	Course Title
EE-5002	Advanced Engineering Mathematics
EE-5003	Random Variables and Stochastic Processes
EE-5004	Numerical Techniques
EE-5005	Engineering Optimization

*Research Methodology is a compulsory course for all the specializations and treated as a pre-requisite for Research Thesis.

LIST OF COURSES
Course Outline: PhD in Electrical Engg (4 Specializations)

Core Courses (Common to all Specializations)

Course No.	Course Title
EE-6001	Statistics in Research

Specialization in POWER
Elective Courses

Course No.	Course Title
EE-6101	Power Systems Operation and Control
EE-6102	Power System Planning and Reliability
EE-6103	Power Distribution Control and Automation
EE-6104	Energy Systems Modeling
EE-6105	Electric Power Quality
EE-6106	Smart Grid Design and Applications
EE-6107	Power Delivery Systems
EE-6108	Advanced Energy Systems
EE-6109	Power System Management and Electricity Markets
EE-6110	Small Scale Multi-generation Systems
EE-6111	Electrical Load Management, Forecasting & Control
EE-6112	Modeling and Control of Distributed Generation
EE-6113	Dynamics and Control of Electrical Machine Drives
EE-6114	Power System Protection
EE-6115	Evolutionary Computation
EE-6116	Advanced Engineering Mathematics
EE-6117	Modeling and Simulation
EE-6118	Advanced Topics in Power

Research Thesis

Course No.	Course Title
EE-6100	Research Thesis

Specialization in ELECTRONICS
Elective Courses

Course No.	Course Title
EE-6201	Optoelectronics Devices
EE-6202	Semiconductor Device Fabrication
EE-6203	Electronic Device Modeling & Simulation
EE-6204	System on Chip (SoC) Design
EE-6205	Advanced VLSI Design
EE-6206	Advanced Power Electronics
EE-6207	Advanced Analogue IC Design
EE-6208	RF Integrated Circuits
EE-6209	Mixed Signal Circuit Design
EE-6210	Advanced Microwave and Millimeter-Wave Ics
EE-6211	NEMS and MEMS Design
EE-6212	Advanced Topics in Electronics

Research Thesis

Course No.	Course Title
EE-6200	Research Thesis

Specialization in DIGITAL TECHNIQUES
Elective Courses

Course No.	Course Title
EE-6301	Information Theory and Source Coding
EE-6302	Random Signals
EE-6303	Advanced Digital Speech Processing
EE-6304	Digital Image and Video Processing
EE-6305	Advanced Computer Architecture
EE-6306	Wireless and Personal Communications
EE-6307	Multimedia Systems and Communication
EE-6308	Multirate Signal Processing
EE-6309	Advanced Topics in Digital Techniques

Research Thesis

Course No.	Course Title
EE-6300	Research Thesis

Specialization in CONTROL
Elective Courses

Course No.	Course Title
EE-6401	Hybrid Control Systems
EE-6402	Multi-agent Systems and Cooperative Control
EE-6403	Network Control Systems
EE-6404	Algebraic Graph Theory
EE-6405	Functional Analysis
EE-6406	Linear Systems Theory
EE-6407	Control of Distributed parameter Systems
EE-6408	Nonlinear Control Systems
EE-6409	Theory of Automation
EE-6410	Convex Optimization
EE-6411	Geometric Control
EE-6412	Recursive Estimation
EE-6413	Advanced Topics in Control

Research Thesis

Course No.	Course Title
EE-6400	Research Thesis

Other Elective Courses (Common to all Specialization)

Course No.	Course Title
EE-6002	Special Topics in Engineering Mathematics
EE-6003	Research Methodology
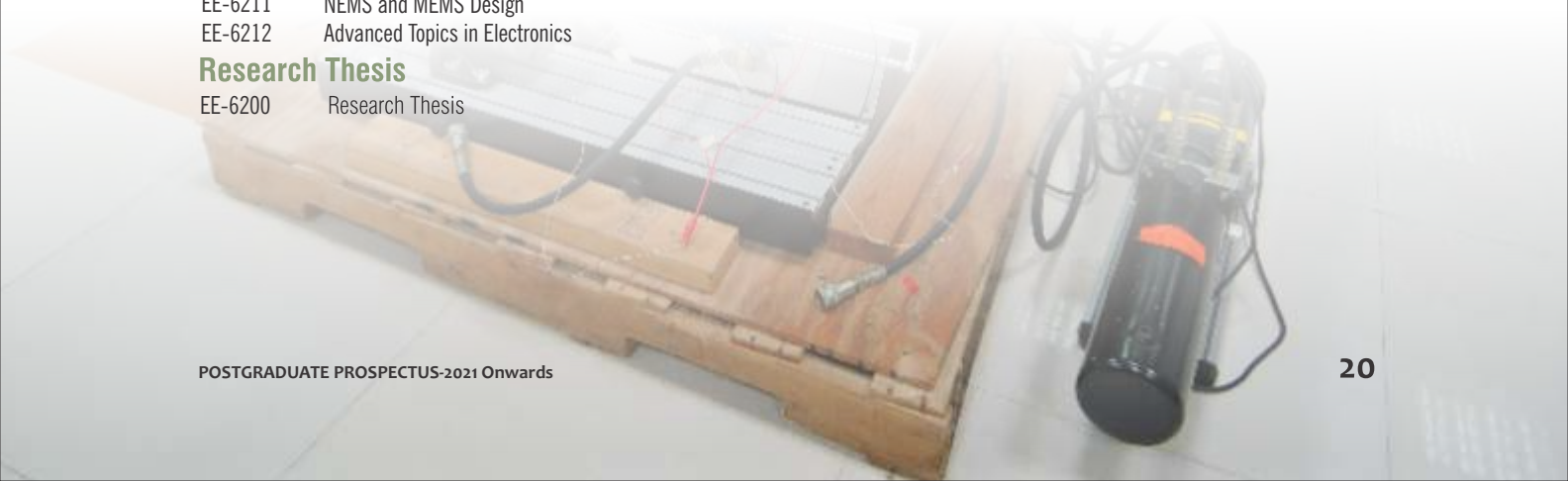
1.2 | FACULTY OF ELECTRONICS & ELECTRICAL ENGINEERING

1.2.2 Department of Electronics Engineering

Dean
Prof. Dr. Aftab Ahmad

Areas of Interest
Power System Operation, Power Distribution System Engineering, AI Techniques in Power System, Operations Research,Engineering Optimization, Research Methodology

Chairman
Prof. Dr. Yaseer Arafat Durrani

System-on-Chip Design

Professors

Prof. Dr. Yaseer Arafat Durrani
BSc. (Univ. of Peshawar)
BSc. Engg. (EMU, Turkey)
MSc. Engg. (KTH, Sweden)
PhD. Engg. (UPM, Spain)

System-on-Chip Design,
Semiconductor Devices & Tech.
Embedded Systems, Computer Architecture

Assistant Professors

Dr. Syed Azhar Ali Zaidi
BSc. Engg. (UET, Taxila)
MSc. Engg. (UET, Taxila)
PhD. Engg. (PDT, Italy)

Communication Systems,
FPGA-based System,
DSP Architecture

Dr. Aamir Rashid
BSc. Engg. (UET, Lahore)
MSc. Engg. (UNS, France)
PhD. Engg. (INPT, France)

Antenna Design,
Microwave & RF Electronics,
Numerical Methods, Computational Electromagnetics

Dr. Khawaja Shafiq Haider
BSc. Engg. (DCET, Karachi)
MSc. Engg. (NUST, Islamabad)
PhD. Engg. (NUST, Islamabad)

Control Systems,
Embedded Systems,

Dr. Bilal Aslam
BSc. Engg. (UET Taxila)
MSc. Engg. (NUST, Islamabad)
PhD. Engg. (UET Taxila)

Antenna Desing,
Microwave Engineering

Dr. Usman Masud
BSc. Engg. (UET, Taxila)
MSc. Engg. (UNI, Germany)
PhD. Engg. (UNI, Germany)

Optics, Semiconductors,
Laser, Optoelectronics,
Bio Medical applications,
Sensors

Lecturers

Adil Usman
BSc. Engg. (AU, Islamabad)
MSc. Engg. (AU, Islamabad)
PhD. (In Progress)

Power Electronics,
Automation & Control

Syed Zohaib Hassan Naqvi
BSc. Engg. (IIU, Islamabad)
MSc. Engg. (IIU, Islamabad)
PhD. (In Progress)

Intelligent Control,
Evolutionary Computation

Muhammad Atif Imitiaz
BSc. Engg. (MAJU, Islamabad)
MSc. Engg. (UET, Taxila)

Control Systems,
Signal Processing

Muhammad Faraz
BSc. Engg. (IIU, Islamabad)
MSc. Engg. (UET, Taxila)
PhD. (In Progress)

Fiber Optic Communication
System, Computer Networks,
Solid State Electronic Devices

Qummar Zaman (on study leave)
BSc. Engg. (IIU, Islamabad)
MSc. Engg. (UET, Taxila)
PhD. (In Progress)

Digital System Design, ASIC
Design, Power Electronics,
Data Acquisition Systems

THE DEPARTMENT

The Department of Electronics Engineering was established in 2010 to fulfill the needs of the country by producing responsible graduates equipped with sound knowledge and skills along with highest moral values through conducive, learning environment. The Department offer four years degree program leading to BSc. in Electronics Engineering. The Department is situated in 2nd Floor of Ibn e Sina Combined Academic Block.

Postgraduate Studies

The department has been mandated by the university to start its postgraduate program since 2014. It has an academic staff of 17, among those 10 faculty members are involved in postgraduate teaching and are involved in PhD. research work. The department offers both MSc. and PhD. postgraduate programs recognized by the HEC with the following specializations:

- Electronics System Design
- Microelectronic Materials & Devices
- Biomedical Electronics

The courses contain a balance of professional and analytical aspects and are designed to suit the needs of fresh graduates and those with professional career development. The faculty of Electronics Engineering Department is highly qualified and holds diverse research interests in the above mentioned areas. In addition to their academic responsibilities, the faculty is involved in conducting quality research in their respective fields of investigation.

Current Enrollment

PhD. Engg.   13
M.Sc. Engg.   65
B.Sc. Engg.   180

Laboratories

Lab is an integrated part of most of the theory courses. The laboratories in the Department have state-of-the-art equipment to fulfill the needs of the modern engineering education. The lab sessions are designed to enhance the concepts studied in the theoretical courses, to gain hands-on experience in design and debugging and to explore various practical engineering applications. The Electronics Engineering Department has following state-of-the-art laboratories:

I.   Basic Electronics Lab
II.   Digital Electronics Lab
III.   VLSI Design Lab
IV.   Embedded Systems Lab
V.   Instrumentation Lab
VI.   Control Systems Lab
VII.   Digital Signal & Communication Lab
VIII.   Biomedical Signal Processing Lab
IX.   Computer Simulation Lab
X.   Workshop/Project Lab

Research Facilities and Groups:

Research training is core part of our graduate program. All Postgraduate students are required to complete research thesis culminating in research publication in high-impact factor journals.To facilitate in their research activities, all Postgraduate students are provided with dedicated state-of-the-art computers, high-speed internet access, subscriptions to many quality journal publications as well as full-time access to research labs. At present the department has three main research groups active in the following key areas:

1. **Electronics System Design Research Group:**
    This group is working in areas such as VLSI Design, FPGA-based Design and Mixed signal Design. The following faculty members are part of this research group:
    - Prof. Dr. Yaseer Arafat Durrani
    - Dr. Azhar Ali Zaidi
    - Engr. Qummar Zaman

2. **Electromagnetics and Optics Research Group:**
    This group is working primarily in areas such as Electromagnetic Field Theory, Laser and Fiber Optics Design and Metamaterials. The following faculty members are part of this research group:
    - Dr. Aamir Rashid
    - Dr. Bilal Aslam
    - Dr. Usman Masud
    - Engr. Muhammad Faraz
    - Engr. Syed Zohaib Hassan Naqvi

3. **Control & Automation Research Group:**
    This group is working on analysis and design of Control &Automation related research activities. The following faculty members are part of this research group:
    - Dr. Khawaja Shafiq Haider
    - Engr. Adil Usman
    - Engr. Muhammad Atif Imtiaz

LIST OF COURSES
Course Outline: PhD. in Electronics Engg.

Core Courses

(All courses carry 3-Credit Hours except Research Thesis)

Course No.	Course Title
EN-7001	Advanced Engineering Mathematics
EN-7002	Random Processes & Statistics
EN-7003	Advanced Linear System Theory
EN-7004	Physics of Microelectronic Devices

Elective Courses
Electronics System Design

Course No.	Course Title
EN-7101	Advanced VLSI System Design
EN-7102	Mixed Signal System Design
EN-7103	Advanced System-on-Chip Design
EN-7104	VLSI Testing and Verification
EN-7105	IC Communication Architectures
EN-7106	Advanced FPGA-based System Design
EN-7107	Advanced Integrated Circuit Design
EN-7108	Advanced Digital System Design
EN-7109	Advanced Microprocessor Architectures
EN-7110	Advanced Computer Architecture
EN-7111	Advanced Embedded System Design
EN-7112	High-Frequency System Design
EN-7113	Advanced Power Electronic Systems
EN-7114	IC Low-Power and Thermal Methodologies
EN-7115	Advanced Optimization Theory
EN-7116	Special Topics in Electronics System Design
EN-7100	Research Thesis

Microelectronic Materials and Devices

Course No.	Course Title
EN-7201	IC Fabrication Process Technology
EN-7202	Compound Microelectronic Devices
EN-7203	Photonic and Optoelectronic Devices
EN-7204	Modelling and Simulation of Microelectronic Devices
EN-7205	Microelectronic Material Characterizations
EN-7206	MEMS System Design and Micro-Machining
EN-7207	Nanoelectronics and Nanotechnology
EN-7208	Nano-Fabrication and Characterizations
EN-7209	Organic Microelectronic Devices
EN-7210	Microelectronic Sensors and Actuators
EN-7211	Advanced Quantum Electronics
EN-7212	Advanced Theory of Solid Materials
EN-7213	Advanced Electromagnetic Field Theory
EN-7214	Computational Methods in Microelectronics
EN-7215	Special Topics in Microelectronic Materials and Devices
EN-7200	Research Thesis

Biomedical Electronics

Course No.	Course Title
EN-7301	Biomedical Microsystem Design
EN-7302	Pattern Recognition using Machine Learning
EN-7303	Advanced Biomedical Electronics
EN-7304	Materials and Sensors for Biomedical Applications
EN-7305	Advanced Organic Bioelectronics
EN-7306	Advanced Signal Processing
EN-7307	Biomedical Diagnostic Imaging
EN-7308	Advanced Biomimetic Materials
EN-7309	Robotics for Biomedical Applications
EN-7310	Advanced Biomedical Instrumentation
EN-7311	Special Topics in Biomedical Electronics
EN-7300	Research Thesis

Note: All PhD students are required to take 3 core courses and 3 elective courses (including 0 to 1 course from other specialization).
Course EN-7001 is compulsory.

Course Outline:
MSc. in Electronics Engg

(All courses carry 3-Credic Hours and Research Thesis carries 6-Credit Hours)

Core Courses

Course No.	Course Title
EN-6001	Mathematical Methods for Engineers & Scientists
EN-6002	Stochastic Processes
EN-6003	Linear System Theory
EN-6004	Solid-State Electronic Devices

Elective Courses
ELECTRONICS SYSTEM DESIGN

Course No.	Course Title
EN-6101	Advanced VLSI Design
EN-6102	Mixed Signal Design
EN-6103	System-on-Chip Design
EN-6104	System-on-Chip Testing and Verification
EN-6105	Network-on-Chip Design
EN-6106	FPGA-based System Design
EN-6107	Integrated Circuit Design
EN-6108	Digital System Design
EN-6109	Microprocessor-based System Design
EN-6110	Computer Architecture
EN-6111	Embedded System Design
EN-6112	RF and Microwave System Design
EN-6113	Power Electronic Systems
EN-6114	Optimization Theory
EN-6115	Special Topics in Electronics System Design
EN-6100	Research Thesis

Microelectronic Materials and Devices

Course No.	Course Title
EN-6201	Microelectronic Process Technology
EN-6202	Compound Electronic Devices
EN-6203	Optoelectronic Devices
EN-6204	Modelling and Simulation of Semiconductor Devices
EN-6205	Semiconductor Material Characterizations
EN-6206	MEMS Designing and Micro-Machining
EN-6207	Nanotechnology
EN-6208	Nano-Fabrication and Characterizations
EN-6209	Organic Electronic Devices
EN-6210	Electronic Sensors & Actuators
EN-6211	Quantum Electronics
EN-6212	Theory of Solid Materials
EN-6213	Electromagnetics Field Theory
EN-6214	Computational Methods in Electronics
EN-6215	Special Topics in Microelectronic Materials and Devices
EN-6200	Research Thesis

Biomedical Electronics

Course No.	Course Title
EN-6301	Biomedical Microsystems
EN-6302	Pattern Matching and Recognition
EN-6303	Biomedical Electronics
EN-6304	Biomedical Materials and Sensors
EN-6305	Organic Bioelectronics
EN-6306	Bio-Signal Processing
EN-6307	Biomedical Image Processing
EN-6308	Biomimetic Materials
EN-6309	Robotics for Medical Applications
EN-6310	Biomedical Instrumentation
EN-6311	Special Topics in Biomedical Electronics
EN-6300	Research Thesis

MSc. Degree Requirements

1. Students are required to take 3 core courses and 4 to 6 area of specialization courses and 0 to 2 courses from other specializations to fulfill the course work requirement. Course EN-6001 is compulsory.

2. Students are required to take 06 credit hours of research thesis to fulfill degree requirement.

3. The minimum duration for MSc Degree would be 2 years.

1.3 FACULTY OF MECHANICAL AND AERONAUTICAL ENGINEERING

1.3.1 Department of Mechanical Engineering

Dean

Prof. Dr. Aftab Ahmad
Dean of Faculties

Chairman

Prof. Dr. Riffat Asim Pasha

Professors

Prof. Dr. Riffat Asim Pasha
BSc Engg (UET Lahore)
Msc Engg (UET Taxila)
PhD (UET Taxila)

Prof. Dr. Amir Sultan
B.Sc. Engg. (UET Lahore)
M.Sc. Engg. (Sheffield, UK)
PhD (UET Taxila)

Prof. Dr. Muzaffar Ali
BSc Engg. (UET Taxila)
MSc Engg. (UET Taxila)
PhD (UET Taxila)

Prof. Dr. Muhammad Ali Nasir
BSc Engg. (UET Taxila)
MSc Engg. (UET Taxila)
PhD (UET Taxila)

Areas of Interest

Fatigue and Fracture of Materials, Material Characterization, Micro Electro-Mechanical Systems

Fatigue and Fracture of Materials, Material Characterization, Micro Electro-Mechanical Systems

Fatigue and Fracture Mechanics

HVAC, Renewable Energy Systems

Nano Composites, Nano-technology, Online Structural Health Monitoring of Composite Materials using Smart Sensors, Fiber Metal Laminates, Materials Characterization

Associate Professors

Dr. Muhammad Shehryar
BSc Engg. (NUST)
MSc Engg. (France)
PhD (France)

Fluid Mechanics ,
Fluid Structure Interaction,
Aero Elasticity

Dr. Hafiz Muhammad Ali
BSc Engg. (UET Taxila)
PhD Engg. (UK)
(on leave abroad)

Heat Transfer, Condensation, Enhanced Surfaces,
Thermo-Fluids, Thermodynamics

Dr. Mubashir Gulzar
B.Sc. Engg. (NUST)
M.Sc. Engg. (NUST)
PhD (Malaysia)

Tribology, IC Engines

Dr. Shahid Mehmood (on study leave abroad)
B.Sc. Engg. (UET Taxila)
M.Sc. Engg. (UET Taxila)
PhD (UET Taxila)

Fatigue & Fracture, Surface Characterization, EDM, Mechanical Testing, Metallography

Assistant Professors

Engr. Zahid Suleman Butt
BSc Engg. (Hons) (UET Lahore)
MSc Engg. (UET Taxila)

Design of Hydraulic System, Renewable Energy

Dr. Tanzeel-ul- Rashid
BSc Engg. (UET Taxila)
MSc Engg. (UET Lahore)
PhD (UET Taxila)

Industrial and Manufacturing Engineering, Energy Systems Design

Engr. Abdul Mobeen
BSc Engg. (UET Lahore)
Msc Engg. (Germany)

Energy Systems

Dr. Waqar Ahmad Qureshi
MSc Engg. (UET Taxila)
BSc Engg. (NUST)
PhD (Italy)

Thermo-Fluids, Automatic
Control, **Tribology**

Dr. Waqas Asghar
B.Sc. Engg. (UET Taxila)
M.Sc. Engg. (UET Taxila)
PhD (China)

Design against Fatigue

Engr. Rana Atta-ur-Rahman,
BSc Engg. (UET Taxila), MSc
Engg. (UET Taxila)

Applied Mechanics and Design,
Fracture and Fatigue of Materials

Engr. Najam Ul Hassan Shah
B.Sc. Engg. (UET Taxila)
M.Sc. Engg. (UET Taxila)
(on higher studies abroad)

Mechanics of Materials,
Mechanical Vibrations, Heat
Transfer, Thermal Power Engg.

Dr. Abid Hussain
BSc Engg. (UET Taxila)
MSc Engg. (UET Taxila)
PhD (HKUST, HK)

Thermo-Fluids, Energy System
Thermal Management

Engr. Ebrahim Khalid
B.Sc. Engg. (Air Univ.)
M.Sc. Engg. (UET Taxila)

Thermo Fluid

Engr. Tayyaba Bano
BSc Engg. (Hons) (UET Taxila)
Msc Engg. (UET Taxila)
(on higher studies abroad)

Thermo-Fluids

Engr. Amir Sohail
B.Sc. Engg. (UET Taxila)
M.Sc. Engg. (PIEAS)

Computational Mechanics

Lecturers

Dr. M. Sajjad Sabir Malik
BSc Engg. (NUST)
Msc Engg. (NUST)
PhD (Queen Marry Univ., U.K)

Control Systems, Modelling
and Simulation, Hydrofarming

Engr. M. Noman Khan
B.Sc. Engg. (PU)
M.Sc. Engg. (UET Taxila)

Industrial Engineering &
Manufacturing

Industrial Professors
Prof. Dr. Zafar M. Khan
Dr. Asif Hussain Malik
Dr. Ajaz Bashir Janjua
Dr. Azhar Munir

Engr. Aneela Anum
BSc Engg. (UET Taxila)
MSc Engg. (UET Taxila)

Thermo-Fluids

THE DEPARTMENT

Mechanical Engineering is a highly versatile and diversified engineering discipline. On one hand it deals with the design of machines and equipment that use energy and convert it into useful work. On the other hand it deals with the design and development of those machines that are used for manufacturing pro-duction equipment.

The department offers four years degree program leading to BSc in Mechanical Engineering. At present, around 705 students in BSc, 165 students in MSc and 44 students in PhD are enrolled in the program. So far 33 students have successfully completed their Doctorate Degrees.

COURSES OF STUDY

The Mechanical Engineering courses are built on a strong foundation of mathematical, physical and computing sciences. Emphasis is laid on the fundamental concepts and principles, which constitute the basis of Mechanical Engineering practice. The curriculum is designed to cover a broad range of areas. In particular the department offers a series of courses in the following areas:

• Applied Mechanics and Design   • Thermal System Engineering

The courses in Thermal Engineering include applied Thermodynamics, Refrigeration and Air conditioning, Heat Transfer and Power Plant. The department offers a wide range of courses in Applied Mechanics and Design area. Starting from a basic course in Engineering Mechanics, a series of courses is offered in Mechanics of Materials, Mechanics of Machines, Mechanical Vibration and Finite Element Methods. These theoretical concepts are fostered in a series of Machine Design courses enabling the students to try their skills and design small mechanical equip-ment. Product design is of no use without product development studies. The University has a rich industrial neighbor-hood. The students have the opportunity to make maximum use of this industrial environment by engaging themselves in short term as well as long term training. These industries include HIT, HMC, POF, PAF Complex at Kamra, HEC, KSB, TIP, CTI, AWC, Railway Carriage Factory, ARL, OGTI, Research Establishments of PAEC and a large number of units in the Hattar area. The students pick real world problems either for their term papers or as final year project from these organizations and brush their skills.

LABORATORIES & OTHER FACILITIES

The department has the following well-equipped laboratories to meet the academic requirements of students and teachers as well as the professional needs of the government and private organizations:

a. Applied Thermodynamics   b. Mechanics of Materials   c. Fluid Structural Interaction   d. Refrigeration & Air-Conditioning
e. Fluid Mechanics   f. Heat Transfer   g. Mechanics of Machines   h. Engineering Mechanics
i. Computer Aided Design   j. Fracture Mechanics & Fatigue   k. Modeling and Simulation   l. Composite Materials and Smart Structures
m. Renewable Energy Research & Development Center   n. Advanced Microscopy & Imaging   o. I. C. Engine   p. Power Plant
q. Machine Tool   r. Workshop (Shared)   s. Advanced Manufacturing System (Shared)

POSTGRADUATE STUDIES

The department offers postgraduate courses leading to the degree of Master of Science (MSc) and PhD in Mechanical Engineering. The postgraduate degree program was started on part time basis in 1983 and since then MSc degree has been awarded to more than 600 students. During 2007-2021, 33 PhD degrees have also been awarded.

The postgraduate degree program envisages equipping students with skills to make analysis and design such that they can be employed as professional engineers in virtually any sector of the Mechanical Engineering industry. The objective is to provide specialist in-depth education in a specific field of engineering through taught course modules, applications course work, design exercises in some cases and an individual research thesis. The course material is taught in a way that makes students immediately productive within an industrial environment in the field of study that they have chosen.

The research activity within the Department has been developed around a series of research themes, several of which are closely related to topics on which MSc and PhD courses are run. The department has earned a stature of eminence and respect among academicians as well as practitioners due to continued research excellence.

LIST OF COURSES
Course Outline: MSc Mechanical Engineering (Specializations)

Specialization in Thermal System Engg Core Courses Total 15 credit hours, each course is of 3 credit hours

Course No.	Course Title
ME-5101	Engineering Analysis and Statistics
ME-5102	Research Methodologies and Design of Experiments
ME-5103	Convection Heat Transfer
ME-5104	Advanced Thermodynamics
ME-6101	Computational Fluid Dynamics
ME-5122	Thermal Power Plants
ME-5124	Engineering Simulation, Computation and Optimization Techniques for Power Plants
ME-5125	Project Management
ME-5126	Feedback Control and Instrument
ME-5130	Advanced Reservoir Analysis and Simulation
ME-5131	Advanced Production Engineering and Optimization
ME-5132	Well Planning Engineering and Construction
ME-5133	Process Instrumentation and Control

Elective Courses Total 9 credit hours, each course is of 3 credit hours

Course No.	Course Title
ME-5105	Conduction Heat Transfer
ME-5106	Radiation Heat Transfer
ME-5107	Automatic Control
ME-5108	Instrumentation
ME-5109	Gas Dynamics (Compressible Flow)
ME-5110	Industrial Furnaces and Boilers
ME-5111	Energy Conversion and Prime Movers
ME-5112	Nuclear Engineering
ME-5113	Magneto Hydrodynamics
ME-5114	Electromechanical Systems
ME-5115	Flow Induced Vibration
ME-5116	Theory of Thermal Stresses
ME-5117	Vacuum Science and Technology
ME-5118	Propulsion Theory and Engineering for Aeronautics and Astronautics
ME-5119	Corrosion Engineering
ME-5120	Reservoir Engineering
ME-5121	Control Engineerin
ME-5127	Boiler Design and Development
ME-5128	Gas, Steam Turbines and Generators
ME-5129	Fuel and Combustion
ME-5134	Drilling Fluids Hydraulics
ME-5135	Petroleum Refinery and Natural Gas Processing
ME-5136	Petroleum Geology and Geophysics

Compulsory Thesis
ME-5100   Postgraduate Research Thesis

Specialization in Applied Mechanics and Design Core Courses Total 15 credit hours, each course is of 3 credit hours

Course No.	Course Title
ME-5101	Engineering Analysis and Statistics
ME-5102	Research Methodologies and Design of Experiments
ME-5201	Experimental Mechanics
ME-5202	Dynamics of Machinery
ME-6202	Finite Element Analysis

Elective Courses Total 9 credit hours, each course is of 3 credit hours

Course No.	Course Title
ME-5115	Flow Induced Vibrations
ME-5121	Control Engineering
ME-5203	Analytical Stress Determination
ME-5204	Experimental Stress Analysis
ME-5205	Theory of Plasticity
ME-5206	Fatigue of Metals and Structures
ME-5207	Theory of Elastic Stability
ME-5208	Theory of Plates and Shells
ME-5209	Computer Aided Design
ME-5210	Composite Materials
ME-5211	Micro Processors in Mechanical Engineering Design
ME-5212	Advanced Design of Machine Elements
ME-5213	Synthesis of Mechanisms
ME-5214	Fracture Mechanics
ME-5215	Design Against Fatigue
ME-5216	Computer Simulation of Mechanical Systems
ME-5217	Tribology
ME-5218	Theory and Design of Micro-Electromechanical System
ME-5219	Structural Dynamics and Aero-Elasticity
ME-5220	Pipeline Design Engineering
ME-5221	Cathodic Protection System
ME-5222	Mechanics of Composite Material
ME-5223	Nanotechnology Applications in Engineering
ME-5224	Stress Analysis and Design Aspects of Rotationg Machinery
ME-6201	Advanced Mechanical Vibration

Compulsory Thesis
ME-5200   Postgraduate Research Thesis

Specialization in Thermal System Engg

Course No.	Course Title
ME-6101	Computational Fluid Dynamics
ME-6102	Advanced Fluid Mechanics
ME-6103	Advanced Heat Transfer
ME-6104	Advanced Topics in Thermal System Engineering

Specialization in Applied Mechanics and Design

Course No.	Course Title
ME-6201	Advanced Mechanical Vibration
ME-6202	Finite Element Analysis
ME-6203	Advanced Computer Aided Design
ME-6204	Advanced Topics in Applied Mechanics and Design

Course Outline: PhD Mechanical Engineering Core Courses

Course No.	Course Title
ME-6001	Advanced Engineering Mathematics
ME-6002	Simulation and Modeling
ME-6003	Advanced Statistics and Data Mining

*Common to all Mechanical, Industrial Engineering and Engineering Management students.

1.3 | FACULTY OF MECHANICAL AND AERONAUTICAL ENGINEERING

1.3.2 Department of Metallurgy & Materials Engineering

Dean
Dean of Faculties
Prof. Dr. Aftab Ahmad

Chairman
Prof. Dr. Riffat Asim Pasha

Professors

Prof. Dr. Riffat Asim Pasha
BSc Engg (UET Lahore)
Msc Engg (UET Taxila)
PhD (UET Taxila)

Assistant Professors

Dr. Aneela Wakeel
B.SEd. (Univ. of Punjab, Lhr.)
M.Sc. (Univ. of Punjab, Lhr.)
PhD Engg. (Chongqing Univ. China)

Dr. Azhar Hussain
Bsc (UET Lahore)
MSc (UET Lahore-Hanyang University Korea)
PhD (Politechnico di torino, Italy)

Dr. Rizwan Ahmed Malik
B.Sc (MME) PU, Lahore
M.Sc. (MME)
Univ. of Ulsan (South Korea)
PhD Engg. (Korea)

Lab Engineers

Engr. Zaheer Abbas
B.Sc. Engg. (BZU Multan)
M.Sc. Engg. (Univ. of Punjab)
(on higher studies Abroad)

Areas of Interest

Fatigue and Fracture of Materials, Materials Characterization, Micro electromechanical Systems

Mechanical Behavior, Nano Metals, Material Characterization, Microstructural and Texture Analysis, Metal Casting and Defects. Surface Treatment

Innovative ceramics & process for aeronautics application

Dielectric, Ferro electric & Piezoelectric Materials for Sensors and Actuators Applications, Nano Materials

Characterization Techniques, Light Alloys, Functional Materials

THE DEPARTMENT

Department of Metallurgy and Materials Engineering is established under the faculty of Mechanical and Aeronautical Engineering, University of Engineering and Technology, Taxila.

Metallurgy is the area of materials science that focuses on metals, compounds formed from metals, and the mixtures of metals which are known as alloys. The goal of metallurgy engineering is to find the right balance of properties such as weight, strength, hardness, toughness, and resistance to rust, fatigue, and extreme temperatures.

Materials engineering is a discipline which deals with production, processing, characterization, selection and design of a range of materials including metals and alloys, ceramics, semiconductors, polymers, glasses, composites, biomaterials and recently developed nano-materials.

Metallurgy and materials engineering is a key aspect of most companies the world over. It needs to make things stronger, cheaper, lighter, more functional and more sustainable. The graduates in this area can work, or do research in most countries of the world.

Pakistan has entered into specialized high technology era of materials after surpassing over the classical "steel mill metallurgy" and has started to produce various types of luxury cars, buses, heavy duty trucks, split air-conditioners, power plants, ships and oil-rigs, missiles, sub marines, fighter planes, tanks etc. all of which demand for specialized materials in addition to the conventional materials. There is an emerging national demand of new advanced materials that can only be fulfilled by producing materials engineers.

Mission:
The Department mission continues the visionary and broad mission.
· To provide a well-rounded education in metallurgy and materials engineering to meet the needs of industry, academia, and social sector.
· To conduct research of international standard in the field.
· To provide technical personal in the cross-disciplinary materials community.

MSc in Metallergy and Materials Engineering

Eligibility Criteria for MSc Metallergy and Materials Engineering

Bsc /BE Engineering in the relevant field like, Metallurgy and Materials Engineering, Metallurgy Engineering, Materials Engineering, Metallurgical Engineering, Mechanical Engineering, Chemical Engineering, Bio materials Engineering, Polymer Engineering etc.

Core Courses - Core Courses are mandatory for MSc degree in Materials Engineering Minimum 3 Core Courses are Requirement:

Course No.	Course Title
MME-5701	Materials Thermodynamics
MME-5702	Mechanical Behavior of Materials
MME-5703	Phase Transformations
MME-5704	Advanced Topics in Materials Engineering (depending on the choice of the Department)

Compulsory Thesis

Course No.	Course Title
ME-5750	Post Graduate Thesis

Elective Courses - Minimum 4 Courses to be selected from the list below:

Course No.	Course Title
MME-5705	Theory of Dislocations
MME-5706	Fracture Mechanics and Failure Analysis
MME-5707	Metal Forming
MME-5708	Thermo-mechanical Processing
MME-5709	Micro structural Control
MME-5710	Advanced Manufacturing Systems
MME-5711	Advanced Joining Technology
MME-5712	Nanomaterials
MME-5713	Advanced Coating technology
MME-5714	Surface analysis and characterization
MME-5715	Tribology Engineering
MME-5716	Thin Film Technology
MME-5717	Carbon Materials
MME-5718	Polymer Science and Engineering
MME-5719	Advance Ceramics Engineering
MME-5720	Electronic Materials
MME-5721	Smart Materials
MME-5722	Nanotechnology
MME-5723	Synthesis and Design of Nano Structures and Devices
MME-5724	Advances in Extractive Metallurgy
MME-5725	Solidification
MME-5726	Advance Characterization Techniques
MME-5727	Modern Steels and Processes
MME-5728	Biomaterials
MME-5729	Corrosion monitoring and prevention
MME-5730	Surface Science and Engineering
MME-5731	Magnetic Materials
MME-5732	Optical Materials
MME-5733	Advance Composite Materials
MME-5734	Nano materials and Computer Aided Nano-design
MME-5735	Electron Microscopy
MME-5736	X-Ray Diffraction and Texture Studies/ Modeling of Materials Processing
MME-5737	Powder Metallurgy
MME-5738	Computational Materials Engineering
MME-5739	Mathematical Methods in Engineering/ Computational Methods for Engineers
MME-5740	Industrial Management

1.3 | FACULTY OF MECHANICAL AND AERONAUTICAL ENGINEERING
1.3.3 Department Of Energy Engineering

Dean
Dean of Faculties
Prof. Dr. Aftab Ahmad

Chairman
Prof. Dr. Riffat Asim Pasha

Assistant Professors
Dr. Muddassir Ali
BSc Engg. (BZU Multan)
MSc Engg. (UoP Lahore)
PhD (Laurentian Canada)

Dr. Syed Nasir Shah
BSc Engg. (UET Peshawar)
MSc Engg. (PIEAS, Islamabad)
PhD (Universiti Teknologi
Petronas Malaysia)
Post Doctorate (Queens University
Belfast, United Kingdom)

Shared Faculty
Prof. Dr. Muzaffar Ali
BSc Engg. (Hons) (UET Taxila)
MSc Engg. (UET Taxila)
PhD (UET Taxila)

Dr. Tanzeel-ul- Rashid (A.P.)
BSc Engg. (UET Taxila)
MSc Engg. (UET Lahore)
PhD (UET Taxila)

Areas of Interest

Fatigue and Fracture of Materials, Material Characterization, Micro Electro-Mechanical Systems

Materials for Sustainable Energy Applications, Computational Fluid Dynamics (CFD) Analysis, Mathematical Modeling of Energy Systems

Energy application of Ionic Liquids, Industrial wastewater treatment, Separation of harmful pollutants from air, De-acidification of Crude oil, De-sulphurisation of Crude Oil, Liquid-Liquid Extraction

Energy System Modeling, Simluation and Optimization Solar Thermal and PV Systems Heating, Ventilation, and Air Conditioning (HVAC) Energy Efficient Buildings

Energy Systems Design, Energy Systems Modeling, Energy Economics

THE DEPARTMENT

Department of Energy Engineering is established under the Faculty of Mechanical and Aeronautical Engineering, University of Engineering and Technology Taxila. Energy Engineering is a multi-disciplinary field of engineering that deals with energy services, energy efficiency, energy economy, environmentalcompliance, and alternative technologies. It is one of the most emerging engineering disciplines. It will help the graduates to find the ways to increase energy systems efficiency and to further develop sustainable alternative/renewable energy solutions at international and national levels.It will also serve as a catalyst at the University to expand opportunities in a broad spectrum of innovative energy options such as Solar, Wind, Biomass, Wave-Energy etc., improved energy efficiency, the production of new materials that find applications in developing clean energy technologies and other evolving energy science areas. Additionally, the department is also focusing on conventional-energy systems for their efficiency, economy and environmental enhancement research strategies.

Laboratories and other Facilities

Department has the following well equipped laboratories to fulfil the research requirements of the students.
a. Solar Thermal and PV Energy Lab
b. Fuel Characterization Lab
c. Hydro-Power Lab
d. Energy Modeling and Optimization Lab
e. Energy Audit Lab
f. Energy Design and Development Lab
g. Steam Power Plant

MSc in Energy Engineering Eligibility Criteria
i.   BSc/BE Engineering in the relevant fields including Energy, Mechanical, Environmental, Industrial, Petroleum, Chemical, Electrical, and Metallurgy & Materials Engineering recognized by PEC/HEC.
ii.   Other eligibility criteria points as per University rules and regulations.

List of courses:

Curriculum: Total 30 credit hours (8 courses plus 6 credit hours thesis)

Core Courses

Core courses are mandatory for MSc degree in Energy Engineering
Minimum four (4) core courses are requirement; each course is of
3 credit hours:

Course No.	Course Title
EnE-5101	Experimental Methods of Energy Systems
EnE-5102	Energy Economics and Management
EnE-5103	Energy Resources and Technologies
EnE-5104	Sustainable Energy and Environment

Elective Courses:

Elective requirement for minimum four(4) courses can be selected from
the listed given below, each course is of 3 credit hours.

Course No.	Course Title
ENE-5105	Solar Thermal Engineering
ENE-5106	Solar Photovoltaic Systems
ENE-5107	Wind Energy Technology
ENE-5108	Biomass and Bioenergy
ENE-5109	Hydro Power Plants
ENE-5110	Fuel Cells Technology
ENE-5111	Combustion and Emission Control
ENE-5112	Petroleum and Natural Gas Processing
ENE-5113	Nuclear Energy Technology
ENE-5114	Power Plant Technologies
ENE-5115	Instrumentation and Process Control
ENE-5116	Industrial Energy Management
ENE-5117	Energy Statistics and Energy Demand Forecasting
ENE-5118	Energy Systems Modeling and Analysis
ENE-5119	Energy Supply Chain
ENE-5120	Energy in Buildings
ENE-5121	Materials for Energy Applications
ENE-5122	Energy Storage Systems
ENE-5123	Energy Conservation and Audit
ENE-5124	Power Generation, Transmission and Distribution
ENE-5125	Advanced Automotive Technology
ENE-5126	Advanced Topics in Energy Conversion

Compulsory Thesis   (06 Credit Hours)

Course No.	Course Title
EnE-5100	Post Graduate Thesis

1.4 | FACULTY OF TELECOMMUNICATION & INFORMATION ENGINEERING
1.4.1 Department of Computer Engineering

Dean
Dean of Faculties
Prof. Dr. Aftab Ahmad

Chairman
Prof. Dr. Hafiz Adnan Habib

Professor
Dr. Hafiz Adnan Habib
B.Sc. Engg. (UET Taxila)
M.Sc. Engg. (UET Taxila)
PhD (UET Taxila)

Dr. Muhammad Haroon Yousaf
B.Sc Engg. (UET Taxila)
M.Sc Engg. (UET Taxila)
PhD (UET Taxila)

Associate Professor
Dr. Muhammad Majid
BSc Engg. (UET Taxila)
M.Sc. Engg. (Sheffield UK)
PhD Engg. (Sheffield UK)

Engr. Dr. Farhan Qamar
B.Sc. Engg (UET, Taxila)
M.Sc. Engg. (UET, Taxila)
PhD. (UET Taxila)

Assistant Professors
Dr. Muhammad Rizwan
B.Sc Engg. (UET Taxila)
M.Sc Engg. (UET Taxila)
PhD (UET Taxila)

Areas of Interest

Artificial Intelligence

Image Processing, Computer Vision, Video Processing, Gesture Recognition

Image and Video Coding, Multimedia Signal Processing, Visual Content Analysis, Multimedia Streaming

Optical Fiber Communication, Wireless Communications

Computer Vision, Digital Image Processing

Engr. Malik Muhammad Asim
B.Sc Engg. (UET Taxila)
M.Sc Engg. (UET Taxila)

Computer Networks, Wireless Communication

Dr. Fawad Hussain
BSc Engg. (UET Taxila)
M.Sc. Engg. (UET Taxila)
PhD (UET Taxila)

Audio & Speech Processsig, Computer Vision, Digital Image Processing, Network on Chip

Engr. Sana Ziafat
BSc Engg. (UET Taxila)
M.Sc. Engg. (UET Taxila)

Wireless Communication, Computer Networks

Dr. Naveed Khan Baloach
BSc Engg. (UET Taxila)
M.Sc. Engg. (UET Taxila)
PhD (UET Taxila)

Digital Design, Embedded Systems

Dr. Waqar Ahmad
BSc Engg. (Comsats)
M.Sc. Engg. (UET Taxila)
PhD (Italy)

VLSI Architecture for Video Coding

Dr. Afshan Jamil
BSc Engg. (UET Taxila)
M.Sc. Engg. (UET Taxila)
PhD (UET Taxila)

Computer Vision, Digital Image Processing, Video Content Analysis

Engr. Abdul Rehman Aslam
BSc Engg. (UET Taxila)
M.Sc. Engg. (LUMS, Lahore)

Digital Design, Embeded Systems

Dr. Romana Shahzadi
B.Sc Engg. (UET Taxila)
M.Sc. Engg.(UET Taxila)
Ph.D. (UET Taxila)

Networks Security

FACULTY OF TELECOMMUNICATION & INFORMATION ENGINEERING

Dr. M Asif Khan
B.Sc Engg. (UET Taxila)
M.Sc. Engg.(Malaysia)
Ph.D. (Malaysia)

Communication, Cryptography,
Wireless Networks

Engr. Asim Raza
BSc Engg. (Comsats)
M.Sc. Engg. (UET Taxila)

Digital Image Processing

Lecturers

Engr. Noshina Ishaaq
BSc Engg. (UET Taxila)
M.Sc. Engg. (UET Taxila)

Network Security

Dr. Sanay M. Umar Saeed
BSc Engg. (UET Taxila)
M.Sc. Engg. (UET Taxila)
PhD (UET Taxila)

Brain Computer Interface
Artificial Intelligence

Engr. Mona Waseem
BSc Engg. (UET Taxila)
M.Sc. Engg. (UET Taxila)

Brain Computer Interface
Artificial Intelligence

Engr. Sharoon Saleem
BSc Engg. (UET Taxila)
M.Sc. Engg. (UET Taxila)

Digital Design

Dr. Aasim Raheel
BSc Engg. (UET Taxila)
M.Sc. Engg. (UET Taxila)
PhD (UET Taxila)

Bio Medical Signal
Processing

Engr. Muhammad Tariq Javed
BSc Engg. (Comsats)
M.Sc. Engg. (UET Taxila)

Wireless Sensor Networks

Dr. Zahid Mehmood
BSc Engg. (COMSATS)
M.Sc. Enggr. (IIU, Isb)
PhD (UET Taxila)

Machine Learning
Internet of Things
Medical Imaging
Computer Vision

THE DEPARTMENT

Computer Engineering degree program was started in 2001 with intake of fifty students at undergraduate level. Initially, It was setup in the building of Electrical Engineering Department and Classes were conducted in evening session only. In the mean time, construction of the separate Building of Department of Computer and Software Engineering worth Rs. 40 million with funding from HEC (Higher Education Commission) was stared, which completed in year 2006. Building comprised of eight class rooms, twelve labs one girls common room, two examination halls, nearly twenty five offices and some other rooms and halls. Department has laboratories with sufficient hardware and computing facilities. Each computing lab is equipped with at least Forty(40) Pcs and each hardware lab is equipped with twenty(20) workstation. All Computing labs are also networked and department has wireless network coverage as well. Department has the postgraduate research lab having capacity to accommodate 40 students

POST GRADUATE STUDIES

Graduate (M.Sc and PhD.) Programs in Computer Engineering at UET, Taxila were started in 2005. Graduate program is driven by the desire to create a state-of-the-art teaching & research department in Pakistan. It is believe that only through a high quality graduate education a university can survive in the modern world. The goal of our graduate programs is to train high qualified personnel to fulfill the needs of industry and academia. The M.Sc Engineering program is geared towards practicing engineers who wish to augment their knowledge, use their experience, and enhance their design and technical skills. The M.Sc. and PhD. programs aim at developing research skills by combining course work and original research work carried out under the supervision of one or more faculty members.

LIST OF COURSES
PhD in Computer Engineering

PhD in Computer Engineering: two core courses (6 credit hours), four elective courses (12 credit hours) and a research thesis. Courses for remaining twelve credit hours can be selected from the list of elective courses, course code starting with 6 only, with the consent of their supervisor, provided that the course instructor is a PhD.

CORE COURSES

Course No.	Course Title
MA-6001	Advanced Engineering Mathematics
EM-6002	Research Methodologies

ELECTIVE COURSES

Course No.	Course Title
CP-6003	Network Security and Performance Analysis
CP-6004	Stochastic Processes
CP-6005	Ubiquitious Computing and Intelligent Systems
CP-6101	Multimedia Communication Systems
CP-6102	Computer Vision
CP-6103	Wireless Communication and Networks
CP-6104	Information and Coding Theory
CP-6105	Multi-rate Signal Processing
CP-6106	Medical Imaging
CP-6107	Machine Learning
CP-6108	Pattern Recognition
CP-6201	Digital Design: Testing and Verification
CP-6202	Encryption Techniques
	Any other course within the university recomended by the supervisor/chairman

MSc in Computer Engineering

The Department of Computer Engineering is offering M.Sc. in Computer Engineering. A total of eight courses (24 Credit Hours) and a Research Thesis (6 Credit Hours) are must to complete M.Sc. degree program. Out of eight courses four are core courses and remaining four courses can be selected from the list of elective courses. or from the core courses of other specialization, with the recommendation of respective academic advisor.

CORE COURSES

Course No.	Course Title
CP-6107	Machine Learning
CP-5001	Embedded Systems & Application Design
CP-5002	Internet of Things
CP-5003	Artificial Neural Networks & Deep Learning

ELECTIVE COURSES

Course No.	Course Title
CP-5004	Data Structure & Algorithms
CP-5005	Digital Image Processing Techniques
CP-5006	Speech & Audio Processing
CP-5007	Natural Language Processing
CP-5008	Robotics
CP-5009	Advanced Digital Design
CP-5010	Cloud Computing
CP-5011	Advanced Digital Signal Processing
CP-5012	Computer Architecture
CP-5013	Advanced Topics in Computer Engineering
CP-5014	Optimization Techniques
CP-5015	Human Computer Interaction
CP-5016	Advanced Operating Systems
CP-5017	Advanced VLSI System Design
CP-5018	RISC Processor Design
CP-5019	Data Science
CP-5020	Big Data
CP-6101	Multimedia Communication System
CP-6102	Computer Vision
CP-6201	Digital Design; Testing & Verification
CP-6003	Network Security & Performance Analysis
CP-6004	Stochastic Processes
CP-6005	Ubiquitous Computing & Intelligent Systems
CP-6103	Wireless Communication & Networks
CP-6106	Medical Imaging
CP-6202	Encryption Techniques

1.4 | FACULTY OF TELECOMMUNICATION & INFORMATION ENGINEERING
1.4.2 Department of Software Engineering

Dean
Dean of Faculties
Prof. Dr. Aftab Ahmad

Chairman
Prof. Dr. Tabassam Nawaz

Areas of Interest

Professor

Prof. Dr. Tabassam Nawaz
B.Sc. Engg. (UET Taxila)
MS (BIIT) M.Sc. Engg (UET Taxila)
PhD (UET Taxila)

Advance Database, Object
Oriented Design and Analysis

Associate Professor

Dr. Syed Muhammad Anwar
B.Sc. Engg. (UET Taxila)
M.Sc. Engg. (Sheffielf UK)
PhD (UET Taxila)
Post Doc

Medical Image Analysis, Neuro
Imaging, Deep Learning, Brain
Computer Interface,
Electrophysiological Signal
Processing

Assistant Professors

Dr. Huma Ayub
MCS (QAU Islamabad)
MS (NUST)
PhD (UET Taxila)

Personalize Video Summariza-
tion, EGG Signal Processing,
Agile Development

Dr. Madiha Liaqat
B.Sc Engg. (UET Taxila)
M.Sc Engg. (UET Taxila)
Ph.D (NUST)

Artificial Intelligence,
Information Retrieval

Dr. Hassan Dawood
B.Sc. Engg. (CIIT, Wah)
ME (BNU, China)
PhD (BNU, China)

Computer Vision, Image
Processing, Pattern Recognition

Dr. Saima Zareen
B.Sc. Engg. (UET Taxila)
M.Sc. Engg. (NUST)
PhD (UET Taxila)

Software Requirements,
Multimedia Wireless
Networks, System

Dr. Raja Mubashir Ayub Minhas
B.Sc. Engg. (UET Taxila)
M.Sc. Engg. (UET Taxila)
PhD   (UET Taxila)

Web 3.0 Advance Computing,
Recommender Systems

Engr. Muhammad Asjad Saleem Raja
B.Sc. Engg. (UET Taxila)
M.Sc. Engg. (Taxila)

Software Specification and
Design, Information Systems.

Engr. Wajahat Abbas
B.Sc. Engg. (UET Taxila)
M.Sc. Engg. (Taxila)

Multimedia Transmission
on Wireless Networks

Engr. Fawad Riasat Raja
B.Sc. Engg. (UET Taxila)
M.Sc. Engg. (UET Taxila)

Peer-to- Peer Networks,
Software Engineering

Engr. Wajeeha Yasser
B.Sc. Engg. (UET Taxila)
M.Sc Engg. (UET Taxila)

Image Processing

Lecturers

Engr. Tasawer Khan B.Sc. Engg. (Hons) (UET Taxila) M.Sc. Engg. (UK)	Data Science, Software Engineering
Engr. Sahar Javaid B.Sc. Engg. (Hons) (UET Taxila) M.Sc. Engg. (NUST)	Machine Learning
Engr. Arta Iftikhar B.Sc. Engg. (Hons) (UET Taxila) M.Sc. Engg.(UET Taxila)	Image Processing, Machine Learning, Prediction & Recommender Systems

Engr. Kanwal Yousaf B.Sc. Engg. (Hons) (UET Taxila) M.Sc. Engg.(UET Taxila)	Deep Learning, Internet Application Development, Mobile Application Development
Engr. Maria Andleeb B.Sc. Engg. (UET Taxila) M.Sc. Engg. (UET Taxila)	Wireless Networks, Cognitive Radio Networks
Engr. Tehmina Kalsoom B.Sc. Engg. (UET Taxila) M.Sc. Engg. (UET Taxila)	Digital Image Processing, Computer Vision, Android Application Development, Artificial Intelligence, Machine Learning

THE DEPARTMENT

Software Engineering degree Program was started in 2002. Initially, it was setup in Electrical Engineering Department and classes were conducted for evening session only. In the mean time, the construction of separate building for department worth Rs. 40 million with funding from HEC (Higher Education Commission) was completed in year 2006. Building comprises seven class rooms, nine labs, one girl's common room, two examination halls and twenty offices. Department has laboratories with sufficient hardware and software facilities. Each lab is equipped with thirty PCs. The labs are networked and the department has wireless network coverage as well.

POST GRADUATE STUDIES

Graduate program (M.Sc.) in Software Engineering at UET Taxila was started in 2008 and PhD program in Software Engineering was started in 2013. The goal of our graduate programs is to train highly qualified personnel to fulfill the needs of industry and academia. The M.Sc. Engineering program is geared towards practicing engineers who wish to augment their knowledge with proven professional practices, use their experience, and enhance their design and technical skills. The M.Sc. and PhD. programs aim at developing research skills by combining course work and original research work carried out under the supervision of one or more faculty members.

PhD in software Engineering: two core courses (6 credit hours), four elevtive courses (12 credit hours) and a research thesis. Courses for remaining 12 Credit Hours can be selected from the list of elective courses, course code starting with 6 only, with the consent of their supervisor, provided that the course instructor is a PhD.

M.Sc in Software Engineering

The Department of Sofrware Engineering is offerring MSc in Software Engineering. A total of eight courses siurses (24 credit hours) and a Research Thesis (6 Credit Hours) are must to complete M.Sc. degree program. Out of eight courses five are core courses and remainig three courses can be selected from the list of elective courses with the recommendation of respective academic advisor.

CORE COURSES

Course No.	Course Title
SE-5101	Software Sytem Quality
SE-5102	Software System Requirements
SE-5103	Software System Architecture
SE-5104	Algorithem Design and Analysis
SE-5105	Advance Software Technologies
SE-5100	Postgraduate Research Thesis

ELECTIVE COURSES

Course No.	Course Title
SE-5106	Software Project Management
SE-5107	Information Systems: Analysis and Design
SE-5108	Web Application Engineering
SE-5109	Digital Image Processing
SE-5110	Human Computer Interaction
SE-5111	Advanced Database Systems
SE-5112	Management of QA & Software Testing
SE-5113	Mobile Application Development
SE-6101	Computer Vision
SE-6102	Artificial Intelligence and Software Agents
SE-6103	Advance Programming Techniques
SE-6104	Data Mining and Analytics
SE-6105	ERP System
SE-6106	Advance Operating System
SE-6107	Advanced Visul Programming
SE-6108	Image and Video Processing
SE-6109	Advance Machine Learning
	Any other courses within the university recommended by academic advisor / supervisor/ chairman

CORE COURSES

Course No.	Course Title
MA-6001	Advanced Engineering Mathematics
EM-6002	Research Methodologies

ELECTIVE COURSES

Course No.	Course Title
SE-6101	Computer Vision
SE-6102	Artificial Intelligence and Software Agents
SE-6103	Advance Programming Techniques
SE-6104	Data Mining and Analytics
SE-6105	ERP Systems
SE-6106	Advance Operating System
SE-6107	Advance Visual Programming
SE-6108	Image and Video Processing
SE-6109	Advance Machine Learning
	Any other course within the university recommended by supervisor/chairman

1.4 FACULTY OF TELECOMMUNICATION & INFORMATION ENGINEERING
1.4.3 Department of Telecommunication Engineering

Dean
Dean of Faculties
Prof. Engr. Dr. Aftab Ahmad

Chairman
Engr. Prof. Dr. Yasar Amin

Professors
Engr. Prof. Dr. Adeel Akram
B.Sc Engg (UET Lahore)
M.Sc Engg (NUST)
PhD (UET Taxila

Engr. Dr. Yasar Amin
BSc Engg (UET Taxila)
MSc Engg (KTH Sweden)
MBA (UTU, Finland)
PhD (KTH Sweden)

Associate Professor
Engr. Dr. Rashid Saleem
B.Sc Engg (GIKI)
M.S. Engg (CASE Islamabad)
PhD (Manchester, UK)

Engr. Dr. Humayun Shahid
BSc Engg (IST, Islamabad)
MSc (NTU, Singapore)
PhD (UET Taxila)

Engr. Dr. Muhammad Abdul Basit
PhD. (UESTC China)

Areas of Interest

Wireless Sensor Networks,
Intelligent Networks, Ad-hoc
Networks, Pervasive Computing

RFID and Microwave Engineering

Antenna Design and Modelling

RFID Tag Design, Smart Cities
and Connected Homes

Antenna Design, RF Circuits

Assistant Professors
Engr. Dr. Muhammad Jamil Khan
BSc Engg (UET Taxila)
MSc Engg (UET Taxila)
PhD (UET Taxila)

Digital Signal & Image Processing,
Artificial Intelligence,

Engr. Dr. Syeda Iffat Naqvi
B.Sc Engg (UET Taxila)
M.Sc. Engg. (UET Taxila)
PhD (UET Taxila)

RF & Microwave Antenna Design

Engr. Dr. Farzana Kulsoom
B.Sc. Engg. (UET Taxila)
M.Sc. Engg. (UET Taxila)
PhD (Universita di PAVIA, Italy)

Digital Design

Engr. Farzana Arshad
B.Sc. Engg (UET Taxila)
M.Sc. Engg.(UET, Taxila.

Wave Propagation & Antennas

Engr. Dr. Mudassar Ali
B.Sc. Engg (UET, Taxila)
M.Sc. Engg. (UET, Taxila)
PhD. (NUST Islamabad)

Wireless Communication

Engr. Dr. Muhammad Ali Riaz
B.S. Engg (IOWA State University, USA)
M.S. Engg. (IOWA State University, USA)
PhD. (UET Taxila)

Chipless RFID, Microwave
and millimeter wave circuits

Engr. Mohsan Niaz
B.Sc. Engg. (UET Taxila)
M.Sc. Engg. (CUT Sweden)

Optical Fiber Communication,
Wireless Communication

Engr. Dr. Ali Waqar Azim
PhD. (UGA France)

Visible Light Communication,
Wireless Communication

Lecturers

Engr. Zeeshan Sarwar *
B.Sc Engg (COMSATS Islamabad)
M.Sc Engg (COMSATS Islamabad)
(On higher Studies abroad)

Telecommunication
networks

Engr. Lubna Nadeem
B.Sc Engg (UET, Taxila.)
M.Sc Engg (UET, Taxila.)

Optical Fiber Communication,
5G Wireless Communication
(D2D Comm)

Engr. Rizwana Shahzadi
B.Sc. Engg. (UET Taxila)
M.Sc. Engg. (UET Taxila)

Telecommunication Networks,
Wireless Networks

Engr. Asma Ejaz
B.Sc. Engg. (UET Taxila)
M.Sc. Engg. (UET Taxila)

Wave Propagation & Antennas

Engr. Iqra Jabeen
B.Sc. Engg. (UET Taxila)
M.Sc. Engg. (UET Taxila)

RFID Systems & Design

Engr. Muhammad Zahid
M.Sc. Engg. (Hitec Taxila)

Massive MIMO, mm-Wave
Antenna

Lab Engineers

Engr. Aasma Shafi
M.Sc. Engg. (UET Taxila)

Communication Systems

Engr. M. Faisal Shahzad
M.Sc. Engg. (UET Taxila)

Electronics

Engr. Sadaf Talha
M.Sc. Engg.

Telecom & Networks

THE DEPARTMENT

Established in 2007, Department of Telecommunication is concerned with the theory, development and application of telecommunication systems, their design and integration. The objective of the program is to provide students with a strong theoretical and practical background in the field of telecommunication, along with the engineering analysis, design and implementation skills necessary to work between the two. The program involves study of complete telecommunication systems, technologies running and how these technologies can be developed. After successful completion of the Telecommunication Engineering degree, the graduates will gain a broad range of skills in the area of telecommunication with strong analytical and critical abilities. These graduates are ready to embark upon an exciting career in a diverse range of telecommunication technology-rich companies and industries.

POST GRADUATE STUDIES

The degree program of telecommunication engineering has been created to produce professionals with a thorough understanding of the theoretical principles of the new communication technologies. The course provides a firm foundation of these theoretical principles and is reinforced by practical work involving the design, testing and implementation of systems. The course aims to produce engineers who are versatile, adaptable and possess technical knowledge and analytical capability together with some of the practical design skills relevant to the modern telecommunications industry. Electronics is essential to the modern world of instant global communication. The subject has a history going back 60 years or more, but it is only in the last 30 years that electronics has become indispensable in the form of powerful and low-cost computers accessible to all. Applications include: digital media for audio and video storage and reproduction; satellite navigation systems which can pinpoint a location anywhere on earth to within a meter; digital cameras and camcorders at affordable price; and automated manufacturing that makes many products reliable and inexpensive. Telecommunications has been revolutionized by modern electronics, making possible worldwide instant telephony with automated international dialing and, of course, the internet is possible only because of advanced optical communication which links the continents with sufficient capacity to carry all the intercontinental internet and telephony traffic over submarine cables. None of this would be possible without the technology, bul il is also the design and development engineers and graduate in electronic engineering and telecommunications engineering that make possible the products that we all use, directly or indirectly, in our daily lives. Demand for telecommunications engineers is high throughout the world. The profession offers a range of careers from design and development to marketing, management, production engineering and applications engineering. Graduates also find employment in other disciplines because of the highly numerate nature of the subject.

PhD in Telecommunication Engineering: two core courses (6 credit hours), four elective courses (12 credit hours) and a research thesis. Courses for remaining 12 Credit Hours can be selected from the list of elective courses, course code starting with 6 only, with the consent of their supervisor, provided that the course instructor is a PhD.

CORE COURSES

Course No.	Course Title
TE-6001	Mobile Communication and Internet Technologies
TE-6002	Smart Sensors and Systems
TE-6003	Research Methodology

ELECTIVE COURSES

Course No.	Course Title
TE-6004	Advanced Mobile Radio Techniques
TE-6005	Mobile and Adhoc Networking
TE-6006	Advanced Electromagnetic Engineering
TE-6007	RF Circuit Design
TE-6008	Computational Electromagnetics
TE-6009	Satellite Networking
TE-6010	RF Subsystems and Satellite Communications
TE-6011	Optical Networks
TE-6012	Non-Linear Optics and Applications
TE-6013	Mobile and Pervasive Computing
TE-6014	Information Theory and Coding
TE-6015	Grid and Cloud Computing
TE-6016	Advanced Topics in Communication Systems
TE-6017	Advanced Wireless Communications
TE-6018	Multimedia Communications
TE-6019	Printable Antennas for Embedded Sensors
TE-6000	Research Thesis

Any other course within the university recommended by academic Advisor/Supervisor/Chairman

M.Sc in TELECOMMUNICATION ENGINEERING

The Department of Telecommunication Engineering is offering MSc in Telecommunication Engineering with two specializations:
1. RF Engineering & Signal Processing
2. Communication Systems and Telecommunication Networks

A total of 8 courses (24 credit Hours) and a Research Thesis (6 Credit Hours) are required to complete M.Sc degree program. Out of 8 courses 5 are core courses and remaining 3 courses can be selected from the list of elective courses with the recommendation of respective academic advisor.

Specialization in RF Engineering and Signal Processing

CORE COURSES

Course No.	Course Title
TE-5101	Advanced Engineering Electromagnetics
TE-5102	Microwave Active Devices
TE-5103	Advanced Digital Signal Processing
TE-5104	Stochastic Processes
TE-5105	Advanced Topics in RF Engineering

ELECTIVE COURSES

Course No.	Course Title
TE-5106	Detection and Estimation Theory
TE-5107	Transforms in Signal Processing
TE-5108	Adaptive Filter Theory
TE-5109	Real-Time DSP
TE-5110	Digital Image Processing
TE-5111	Array Signal Processing
TE-5112	Speech Processing
TE-5113	Advanced Topics in Signal Processing
TE-5114	Microwave Filters
TE-5115	Radar Engineering
TE-5116	Free Space Communication
TE-5117	Antenna Theory and Design
TE-5118	Simulation and Modelling
TE-5119	Telecom Planning and Management
TE-5120	Telecommunication Business Continuity Management
TE-5121	Telecom Regulation and Standards
TE-6001	Mobile Communications and Internet Technologies
TE-6002	Smart Sensors and Systems
TE-6003	Research Methodology
TE-6007	RF Circuit Design
TE-6014	Information Theory and Coding
TE-6015	Cloud and Grid Computing
TE-6017	Advanced Wireless Communications
TE-6018	Multimedia Communications
TE-5100	Research Thesis

Specialization in Communication Systems & Telecommunication Networks

CORE COURSES

Course No.	Course Title
TE-5201	Optimization Techniques
TE-5202	Stochastic Processes
TE-5203	Advanced Digital Communication
TE-5204	Optical Communication and Networks
TE-5205	Advanced Topics in Telecommunication Networks

ELECTIVE COURSES

Course No.	Course Title
TE-5206	Network Planning and Management
TE-5207	Opto-electronic Devices
TE-5208	Adaptive Filter Theory
TE-5209	Optical Communication Systems
TE-5210	Advanced Computer Networks
TE-5211	Detection and Estimation Theory
TE-5212	Information Theory
TE-5213	Coding Theory
TE-5214	QOS in Telecommunication Networks
TE-5215	RF Planning and Optimization
TE-5216	Telecom Networks
TE-5217	Network Optimization
TE-5218	Telecom Management Network
TE-5219	Broadband Communication
TE-5220	Smart Grid Networks
TE-5221	Advanced Intelligent Networks
TE-5222	Secure Communication
TE-5223	Wireless Sensor Networks
TE-5224	Simulation and Modeling
TE-5225	Telecom Planning and Management
TE-5226	Telecommunication Business Continuity Management
TE-5227	Telecom Regulation and Standards
TE-6001	Mobile Communications and Internet Technologies
TE-6002	Smart Sensors and Systems
TE-6003	Research Methodologies
TE-6014	Information Theory and Coding
TE-6015	Cloud and Grid Computing
TE-6016	Advanced Topics in Communication Systems
TE-5200	Research Thesis

1.4 | FACULTY OF TELECOMMUNICATION & INFORMATION ENGINEERING
1.4.4 Department of Computer Science

Chairman
Dr. Syed Aun Irtaza

Associate Professor
Dr. Syed AunIrtaza
PhD (FAST, Islamabad),
Postdoc (University of Michigan, USA)

Dr. Ali Javed
B.Sc. Engg. (Hons) (Taxila)
M.Sc. Engg. (Taxila) (Gold Medalist)
PhD (UET Taxila)
Post Doc OU, (USA)

Assistant Professors
Dr. Muhammad Munwar Iqbal
PhD
(UET, Lahore)

Dr. Farrukh Zeeshan Khan
PhD
(Vienna Univ. of Tech., Austria)

Dr. Syed Muhammad Adnan
PhD
Comp. Engg.(UET Taxila)

Areas of Interest

Image Processing, Neural Networks, Fuzzy Logic, Evolutionary Computation, Machine Learning and Data warehousing

Video Summarization, Image Processing, Computer Vision, Software Quality, Multimedia Forensics, Machine Learning, Medical Image Processing

Database Systems, Cloud Computing, Artificial Intelligence, Human Computer Interaction, Web Semantics, Machine Learning, Data Mining

Optical packet, burst and hybrid switching, Routing path optimization for communication networks,

WEB Technologies, GIS, Content Management Systems

Dr. Zeshan Iqbal
PhD
(UET Taxila)

Dr. Muhammad Javed Iqbal
PhD
(Universiti Teknologi PETRONAS, Malaysia)

Lecturer
Dr. Abid Rauf
MS (IS)
SICHUAN University China

Dr. Rashid Amin
MS (CS), International Islamic University, Islamabad.

Muhammad Wakeel Ahmad
MS (IT)
SEECS – NUST, Islamabad

Mehmoon Anwar
MS (CS), International Islamic University, Islamabad

Ms. Rabbia Mahum
MS (CS), Gold Medallist
UET Taxila

Network Function Virtualization, Content Centric Networks, Software Defined Networking, Cloud Computing.

Artificial Intelligence, Machine Learning, Pattern Recognition, Computational Intelligence Algorithms for Biological Data Classification and Big Data Mining

Formal Methods, Information Security, Algorithm Design and Analysis

Wireless Networks, Ad hoc Network and Mobility. Peer to Peer Network

Object Oriented Software Technologies, Multi-core Programming Models

Public Key Cryptography, Cloud Computing

Computer Vision, Medical Image Processing, Text to speech Synthesis

THE DEPARTMENT

The Department of Computer Science was established with the purpose that students shall be guided in their future career to excel in research areas like Artificial Intelligence, Big Data, Cloud Infrastructure, Cyber Security, Internet of Things, Augmented and Virtual Reality, Wearable and Implantables, Shared Economy, Robotics, 3D/4D Printing, NeuroTech and Blockchain.

PhD Computer Science

PhD in Computer Science has been started with the objective that Department shall play its part in the growing research requirements of IT industry. PhD program is open to candidates who have 18 years Master's Degree in the relevant discipline in Science or Engineering.

CORE COURSES

Course No.	Course Title	Credit Hours
MA-6001	Advanced Engineering Mathematics	(3+0)
EM-6002	Research Methodology	(3+0)

ELECTIVE COURSES

Course No.	Course Title	Credit Hours
CS-6101	Data Management and Visualization	(3+0)
CS-6102	Machine Learning for Big Data	(3+0)
CS-6103	Distributed and Parallel Systems Data	(3+0)
CS-6104	Photonic Networks Communication	(3+0)
CS-6105	Cloud Computing	(3+0)
CS-6106	Advanced Wireless Networks	(3+0)
CS-6107	Digital Forensics	(3+0)
CS-6108	Software Define Networking	(3+0)
CS-6109	Network Management and Virtualization	(3+0)
CS-6110	Computer Vision	(3+0)
CS-6111	Advance Image Processing	(3+0)
CS-6112	Advance Machine Learning	(3+0)
CS-6113	Data Analysis for Life Sciences	(3+0)
CS-6114	Data mining	(3+0)
CS-6115	Big Data and Hadoop Essentials	(3+0)
CS-6116	Pattern Recognition	(3+0)
CS-6117	Artificial Neural Networks	(3+0)
CS-6118	Advance Topics in Modeling and Simulations	(3+0)
CS-6119	Distributed Databases	(3+0)
CS-6120	Distributed Data Processing	(3+0)
CS-6121	Learning from Data	(3+0)

In addition, students are allowed to take any elective course in other department of University with the permission of Chairman.

MS Computer Science

The MS (Computer Science) comprises of both course work as well as research component. There are four 'core courses' aimed at strengthening the understanding and competence of students in computer science fundamentals. The University expects its MS graduates to pursue careers either as 'Computer Science Faculty Members' or as 'Software Development Managers' in the industry.

Learning Outcomes:
1. Students will be able to possess advanced knowledge of Computer Science field
2. Students will be able to think creatively and critically, to solve non-trivialproblems
3. Students will be able to use computing knowledge to develop efficient solutions for real life problems
4. Students will be able to design solutions and can conduct research related activities

Eligibility:
The minimum requirements for admission in a Master degree program are

a) Degree in relevant subject, earned from a recognized university after 16 years of education with at least 60% marks or CGPA of at least 2.0 (on a scale of 4.0). The following core courses are recommended to be completed before entering the MS (CS) program.
1. Analysis of Algorithms
2. Assembly Lang. / Computer Architecture
3. Computer Networks
4. Computer Programming
5. Data Structures
6. Database Systems
7. Operating Systems
8. Software Engineering
9. Theory of Automata

b) A student selected for admission having deficiency in the above stated courses may be required to study a maximum of FOUR courses, which must be passed in the first two semesters. Deficiency courses shall be determined by the Board of Post Graduate Studies, before admitting the student.
3. A student cannot register in MS courses, unless all specified deficiency courses have been passed.

The program shall comprise of minimum 4 semesters spread over 2 years with two semesters a year.

Courses

CORE COURSES

Course No.	Course Title	Credit Hours
CS-5101	Advanced Operating Systems	(3+0)
CS-5102	Advanced Computer Architecture	(3+0)
CS-5103	Advanced Theory of Computation	(3+0)
CS-5104	Advanced Analysis of Algorithms	(3+0)
CS-5105	Theory of Programming Languages	(3+0)

ELECTIVE COURSES

Course No.	Course Title	Credit Hours
CS-5106	Artificial Neural Networks	(3+0)
CS-5107	Artificial Intelligence	(3+0)
CS-5108	Machine Learning	(3+0)
CS-5109	Research Methodologies	(3+0)
CS-5110	Computer Vision	(3+0)
CS-5111	Augmented Reality	(3+0)
CS-5112	Advanced Image Processing	(3+0)
CS-5113	Computational Intelligence	(3+0)
CS-5114	Distributed Database	(3+0)
CS-5115	Data Warehousing	(3+0)
CS-5116	Big Data Analytics	(3+0)
CS-5117	Data Security and Privacy	(3+0)
CS-5119	Advanced topics in Cryptology	(3+0)
CS-5120	Information Visualization	(3+0)
CS-5121	Information Retrieval	(3+0)
CS-5122	Network Programing	(3+0)
CS-5123	Internet of Things	(3+0)
CS-5128	Text Mining and Analytics	(3+0)
CS-5130	Natural Language Processing	(3+0)
CS-5131	Data Mining and Knowledge Discovery	(3+0)
CS-5133	Information Security	(3+0)

CS-5135	Cryptography and Network Security	(3+0)
CS-5136	Formal Methods	(3+0)
CS-5138	Stochastic Process and Significance in CS	(3+0)
CS-5139	Network Virtualization	(3+0)
CS-5140	Parallel and Distributed System	(3+0)
CS-5141	Cloud Computing	(3+0)
CS-5142	Software Defined Networks	(3+0)
CS-5143	Advanced Computer Networks	(3+0)
CS-5147	Performance and Evaluation of Communication Networks	(3+0)
CS-5149	Wireless Network	(3+0)
CS-5150	Digital Signal Processing	(3+0)
CS-5151	Digital Forensics	(3+0)

In addition, students are allowed to take any elective course in other department of University with the permission of Chairman.

Research Thesis		
CS-5100	Postgraduate Research Thesis	(6+0)

Degree Completion Requirements:
For completion of MS degree, a student must have:
a) Passed courses totaling at least 30 credit hours, including four core courses.
b) Obtained least 2.5 on a scale of 4.0

MS Data Science

The MS (DS) program has been designed to give students the option to be part of a data science endeavor that begins with the identification of business processes, determination of data provenance and data ownership, understanding the ecosystem of the business decisions, skill sets and tools that shape the data, making data amenable to analytics, identifying sub-problems, recognizing the technology matrix required for problem resolution, creating incrementally-complex data-driven models and then maintaining them to ultimately leverage them for business growth.

Program objectives:
• To equip students to transform data into actionable insights to make complex business decisions.
• To enable students, understand and analyze a problem and arrive at computable solutions.
• To expose students to the set of technologies that match those solutions.
• To gain hands-on experience on data-centric tools for statistical analysis, visualization and big data applications at the same rigorous scale as in a practical data science project.
• To understand the implications of handling data in terms of data security and business ethics.

Program Scope
The amount of data is growing so rapidly and their significance in the emerging societal set ups such as the pervasive Internet of Things. The way one imagines data is going to change in the coming years. Both Big Data Analytics and pervasive computing hinge on the principle axis of data analytics. MS (DS) program is going to be relevant in terms of job creation and artisanal smart business generation. Graduates from this program would definitely avail the early-bird advantage.

Eligibility criteria:
A degree of BS (CS) as per HEC curriculum. Students with 16 years of education in following domains (Information Technology, Software Engineering, Computer Engineering, Electrical Engineering, Statistics, or Mathematics) are eligible to apply provided that they have taken following deficiency courses.

Deficiency Courses:
1. Programming Fundamentals (Core Programming Course)
2. Data Structures & Algorithms OR Design & Analysis of Algorithms
3. Database Systems

A student selected for admission having deficiency in the above stated courses shall be required to study the courses, which must be passed in the first two semesters. Deficiency courses shall be determined by the Board of Post-Graduate Studies, before admitting the student.
The above courses are not offered in MS Program and therefore the students shall be allowed to enroll/study courses with BS program as

non-credit deficiency course so they can fulfil the requirements of degree as per HEC recommendation.

At least CGPA of 2.0 (on a scale of 4.0) or 60% Marks

Outline of the MS (DS) program:
The program would be spread over 4 semesters, with a 6-credit hour thesis being offered in the second year.

Course Offer Plan:

Course types	Cumulative Credits
Program Core Courses (3)	9
Specialization Core Courses (2)	6
Electives Courses (3)	9
Postgraduate Research Thesis	6

Courses
CORE COURSES

Course No.	Course Title	Credit Hours
DS-5101	Statistical and Mathematical Methods For Data Science	(3+0)
DS-5102	Tools and Techniques in Data Science	(3+0)
DS-5103	Machine Learning	(3+0)

Specialized Core Courses: (Choose any 2)

Course No.	Course Title	Credit Hours
DS-5104	Big Data Analytics	(3+0)
DS-5105	Deep Learning	(3+0)
DS-5106	Natural Language Processing	(3+0)
DS-5107	Distributed Data Processing	(3+0)

ELECTIVE COURSES

Course No.	Course Title	Credit Hours
DS-5108	Advanced Computer Vision	(3+0)
DS-5109	Algorithmic trading	(3+0)
DS-5110	Bayesian Data Analysis	(3+0)
DS-5111	Big Data Analytics	(3+0)
DS-5112	Bioinformatics	(3+0)
DS-5113	Cloud computing	(3+0)
DS-5114	Computational Genomics	(3+0)
DS-5115	Data Visualization	(3+0)
DS-5116	Deep Learning	(3+0)
DS-5117	Deep Reinforcement Learning	(3+0)
DS-5118	Distributed Data Processing and Machine Learning	(3+0)
DS-5119	Distributed Machine Learning in Apache Spark	(3+0)
DS-5120	High performance computing	(3+0)
DS-5121	Inference & Representation	(3+0)
DS-5122	Natural Language Processing	(3+0)
DS-5123	Optimization Methods for Data Science and Machine Learning	(3+0)
DS-5124	Probabilistic Graphical Models	(3+0)
DS-5125	Scientific Computing in Finance	(3+0)
DS-5126	Social network analysis	(3+0)
DS-5127	Time series Analysis and Prediction	(3+0)

- In addition, students are allowed to take any elective course in other department of University with the permission of Chairman.

Reseach Thesis		
DS-5100	Postgraduate Research Thesis	(6+0)

• Degree Completion Requirements:
For completion of MS degree, a student must have:
a)   Passed courses totaling at least 30 credit hours, including four core courses.
b)   Obtained least 2.5 on a scale of 4.0

A student can complete MS Data Science degree with non-thesis option by taking 2 extra courses to complete 30 credit hours for fulfilling the degree requirements.

1.5 | FACULTY OF INDUSTRIAL ENGINEERING

Department of Industrial Engineering
Department of Engg. Management
& Department of Product Design and Development

FACULTY OF INDUSTRIAL ENGINEERING

Dean

Dean of Faculties
Prof. Dr. Aftab Ahmad

Chairman

Prof. Dr. Mirza Jahanzaib
BSc Engg (Lahore)
MSc Engg (Taxila), PhD (Taxila)
(IRSIP, UK)

Professors

Prof. Dr. Mirza Jahanzaib
BSc Engg (Lahore)
MSc Engg (Taxila), PhD (Taxila)
(IRSIP, UK)

Prof. Dr. Wasim Ahmad
BSc Engg (Taxila)
MSc Engg (Taxila)
PhD (Cranfield, UK)

Areas of Interest

Production & Operations
Management, Quantitative
Techniques & Optimization,
Economic Justification of
Advanced Manufacturing System
(Manufacturing Processes,
Materials in Manufacturing)

Production & Operations
Management, Quantitative
Techniques & Optimization,
Economic Justification of
Advanced Manufacturing System
(Manufacturing Processes,
Materials in Manufacturing)

Cost Estimation, Lean
Product Development,
Knowledge based
Engineering

Associate Professors

Dr. Hafiz Muhammad Khurram Ali
B.Sc. Engg. (UET Taxila)
M.Sc Engg. (UET Taxila)
Ph.D (UET Taxila)

Agent based Modeling,
Renewable Energy Systems,
Decision Making

Dr. Salman Hussain
BSc Engg (Taxila)
MSc Engg (London South Bank,
UK)
PhD (London South Bank, UK)

CAD/CAM, Automation
and Robotic Control,
Computer Integrated
Manufacturing, Control
Systems, Renewable
Energy Technology

Dr. Saifullah
B.Sc Engg. (UET Taxila)
M.Sc Engg. (HUST China)
PhD (HUST China)

Robotics & Ergonomics,
Production Planning

Assistant Professors

Dr. Muhammad Sajid
B.Sc Engg. (UET Taxila)
M.Sc Engg. (UET Taxila)
PhD (UET Taxila)

Engineering Management,
Cost Engineering, Lean
Product Development

Engr. Syed Turab Haider
BSc Engg (Taxila)
MSc Engg (UK)

Advanced Manufacturing
Systems, Operations
Research, CAD/CAM

POSTGRADUATE PROSPECTUS-2021 Onwards

Lecturers

Dr. Zaheer Ahmad
B.Sc Engg. (UET Lahore)
M.Sc Engg. (UET Taxila)
PhD (UNIVAQ, Italy)

Design of Processes, Equipment & Plant, Metrology & Quality Control, Manufacturing, Research Analysis & Simulation

Abid Ali
BSc Engg (Punjab University)
MSc Engg (Taxila)

Manufacturing Simulation Operations of Manufacturing System, Advanced Manufacturing Systems

Haji Bahader
BSc Engg (Punjab University)
MSc Engg (Taxila)

Operations Research, Production Planning, Engineering Optimization

Engr. Zahid Rashid
B.Sc Engg. (PU, Lahore)
M.Sc Engg. (UET Taxila)
(On higher Studies abroad)

Erogonomics

Engr. Irshad Yehya
B.Sc Engg. (PU, Lahore)
M.Sc Engg. (UET Taxila)
(On higher Studies abroad)

Wall Climbing Robot, Microcontroller

Engr. Ayesha Tayyab
B.Sc Engg. (UET Lahore)
M.Sc Engg. (UET Taxila)

Quality Assurance & Optimization

Engr. Muhammad Awais Islam
B.Sc Engg. (PU, Lahore)
M.Sc Engg. (PU, Lahore)

Human Factor Engineering & Work Study

Adjunct Faculty

Dr. Muhammad Nawaz
Founder of world most renowned scheduling algorithm (NEH algorithm)

Scheduling, Systems Engineering

Prof. Dr. Khalid Akhtar

Short Product Life, Total Quality Management, Project Management, Engineering Economics, Manufacturing Strategy, Innovation

Dr. Nawar Khan

Quality Management, Operation Management

Dr. Ather Masood

Human Resources Management, Organizational Behavior, Reliability and Maintenance Management

Dr. Ali Imran

Project Management, Technology Management, Manufacturing Management

Dr. Matraf Rasool

Financial Management, Marketing Management,

Dr. Adnan Tariq

Cellular Manufacturing, Scheduling of Manufacturing Systems, Engineering Optimization, Genetic Algorithm

Dr. Ghulam Zakria

Manufacturing Systems, Revearse Logistics, Manufacturing Simulation

FACULTY

Keeping in mind the National and International trends, the Faculty of Industrial Engineering initiated MSc. Industrial Engineering and MSc. Engineering Management Programs in fall 2008, PhD Program in Industrial Engineering and Engineering Management started in Autumn 2013, and M.Sc. in Prduct Design & Development in Autum 2016.

DEPARTMENT OVERVIEW

Industrial Engineering is reviewed as optimization of men, machines and resources. Other engineering disciplines apply skills to very specific areas while Industrial Engineering gives engineers the flexibility to work in a variety of businesses. Industrial Engineering deals with the design, improvement and installation of integrated specialized knowledge and skills of the mathematical, physical and social science aspects of technology in conjunction with the principles and methods of engineering and design.

The program prepares participants for eventual intermediate/senior management roles in a wide range of technical organizations including, Manufacturing, Construction, Mining, Petroleum, Chemical, Architecture, Water- Resource, Software, Telecom, Energy and other Engineering organisations. This is done by ensuring that they acquire a firm understanding of the major areas of knowledge, which underpin general management, whilst stressing the integration of the different strands of management within a broad strategic overview. The research program is best suited for the type of organization as mentioned above, however any engineering degree holder whose degree is recognized by PEC can be benefit from this program.

Industrial and manufacturing engineering deals with the smart and economical product development methodologies. Students start with Workshop Technology in this area. Successive courses in Machine Tools, Engineering Materials, Production Engineering, Mechanics and Robotics provide the students further insight to this area. Additional courses like Engineering Optimization, Industrial Engineering and Advanced Manufacturing Systems introduce students to the efficient management of productive resources. Computer based Mechanical Engineering concepts have been embedded in various courses like Computer Programming, Machine Design, CAD and Industrial Engineering etc.

COURSE OBJECTIVES

- To develop a firm understanding of the concepts, processes and institutions in the production and marketing of goods and services and the financing of business enterprise or other forms of organisation.
- To understand and assess the impact of environmental forces; such as legal systems, ethical, social, economic, technological change and international events, on organisations and their strategy.
- To be able to respond to and manage change.
- To be familiar with the concepts and applications of quantitative methods of analysis to production, supply and finance and any other related areas.
- To understand the importance of organisational theory, behaviour, human resource management issues & interpersonal communications to successful business management.
- To provide an understanding of the systemic, integrated nature of organisations and their impact on the development of business policy and strategy.
- To develop participants' ability to communicate clearly in various media, to argue rationally and d r a w conclusions based on a rigorous, analytical and critical approach to data.

The courses have been critically designed in collaboration with industry and mutual consent with other departments in the university. For right decision making at right time, knowledge of quantitative tools, effective utilization of human resources, understanding of economic decision making process, total quality management and project management, is essential. The core courses foundation integrated with elective courses form a critical balance to assist strategic level decision making.

ENTRY REQUIREMENTS

1. Applicants for the MSc Engineering Management and Msc Product Design & Development program will hold a BSc. Engg./B.Engg degree (any discipline) recognized by PEC and those applying for PhD Program in Engineering Management will hold Master Degree in Industrial Engineering/industiial and Manufacturing Engineering Management/Technology Management (Including four years BSc Engineering accredited by PEC and PEC Regn. No.)
2. Applicants for M.Sc Industrial Engineering program will hold a BSc. in Industrial Engg., Mechanical Engineering, Mechatronics Engineering, Manufacturing Engineering, Aerospace Engineering, Aeronautical Engineering or Production Engineering degree (recognized by PEC with PEC Regn. No.) and those applying for PhD Program in Industrial Engineering will hold Master Degree in Industrial Engineering/Manufacturing Engineering/Aerospace Engineering/Aeronautical Engineering or Production Engineering (including four years BSc Engineering accredited by PEC).

COURSE DETAILS

This course has been designed with the industrial delegate in mind, indeed we talked with our industrial partners when developing the material. Each course consists of diversified topics and a mini project. The topics are studied in a block mode, one topic at a time. This means that you focus on one study area and complete it before moving on to the next. The MSc degree Program consists of 30 credit hours with 24 credit hours of work study and 6 credit hours of thesis. The PhD Program is designed to suit higher education requirements in Industrial Engineering and Engineering Management.

MSc Industrial Engineering

Specialization in
Industrial & Manufacturing Engineering

Course No.	Course Title (Core Courses 15 credit hours)
IME-5101	Engineering Optimization Techniques
IME-5102	Research Methodology and Design of Experiments
IME-5103	Design of Advanced Manufacturing Systems
IME-5104	Manufacturing Planning & Control
IME-5105	Simulation of Industrial Systems

Elective Courses

Course No.	Course Title (All courses are of three credit hours)
IME-5106	Design Principles of Metal Cutting Machine Tools
IME-5107	CAD/CAM
IME-5108	Dimensional Metrology
IME-5109	Work Design & Measurement
IME-5110	Mechanics of Manufacturing Processes
IME-5111	Project Management
IME-5112	Statistical Quality Control & Assurance
IME-5113	Facilities Planning & Design
IME-5114	Organizational Behavior
IME-5115	Scheduling of Industrial Systems
IME-5116	Computer Aided Process Planning (CAPP)
IME-5100	**Postgraduate Research Thesis (Compulsory)**

PhD Industrial Engineering

Course No.	Course Title (Core Courses*) (9 credit hours)
IME-6101	Advanced Engineering Mathematics
IME-6102	Simulation and Modeling
IME-6103	Advanced Statistics and Data Mining

*Courses Common to all Mechanical, Industrial Engineering and Engineering Management

Elective Courses

Course No.	Course Title (All courses are of three credit hours)
IME-6104	Engineering Software Development
IME-6105	Soft Computing Methodologies in IE
IME-6106	Industrialization and Manufacturing Entrepreneurship
IME-6107	Advanced Engineering Economics
IME-6100	**Postgraduate Research Thesis (Compulsory)**

**Policy for Registration in MSc/PhD Courses

i) MSc students may register in PhD (6000-level) courses with the written endorsement of his/her Supervisor as an optional subject.

ii) PhD student may register in MSc (5000-level) courses with written endorsement of his/her Supervisor as an optional subject with a maximum of six credit hours passing with at least B+ grade.

(All courses other than research thesis carry 3 credit hours; Research Thesis carries 6 credit hours)

MSc Engineering Management

Course No.	Course Title (Core Courses 15 credit hours)
EM-5101	Quantitative Decision Making & Problem Solving
EM-5102	Human Resource Management
EM-5103	Advanced Project Management
EM-5104	Financial Management
EM-5105	Marketing Management

Elective Courses

Course No.	Course Title (All courses are of three credit hours)
EM-5106	Research Methodology and Design of Experiments
EM-5107	Total Quality Management
EM-5108	Engineering Economic Decision Analysis
EM-5109	Energy Resources Management & Utilization
EM-5110	Production and Operation Management
EM-5111	Enterpreneurship and Innovations for Engineers
EM-5112	Reliability and Maintenance Management
EM-5113	Manufacturing Strategy
EM-5114	Telecom Business Management
EM-5115	E-Commerce Tools Productivity
EM-5116	Knowledge Management
EM-5117	System Safety Engineering
EM-5118	Environmental Engineering Management
EM-5119	Global Supply Chain Management
EM-5120	Logistics Management
EM-5121	Engineering Business Law
EM-5122	Technology Management
EM-5123	Strategic Management
EM-5100	**Postgraduate Research Thesis (Compulsory)**

PhD Engineering Management

Course No.	Course Title (Core Courses*) (9 credit hours)
EM-6101	Advanced Engineering Mathematics
EM-6102	Simulation and Modeling
EM-6103	Advanced Statistics and Data Mining

*Courses Common to all Mechanical, Industrial Engineering and Engineering Management

Elective Courses

Course No.	Course Title (All courses are of three credit hours)
EM-6104	Information Engineering & Global Perspective
EM-6105	Advanced Topics in Engineering Management
EM-6106	Simulation of Business Processes
EM-6107	Multi Criteria Decision Making
EM-6100	**Postgraduate Research Thesis (Compulsory)**

LIST OF COURSES
Course Outline: Product Design & Development

MSc Product Design & Development

Course No.	Course Title (Core Courses 15 credit hours)
PDD-5101	Product Design
PDD-5102	Advanced Prototyping
PDD-5103	Advanced Manufacturing Processes
PDD-5104	Product Quality and Assurance
PDD-5105	Research Methodology & DOE

Elective Courses

Course No.	Course Title (All courses are of three credit hours)
PDD-5106	R&D Strategy and Organization
PDD-5107	Product Development
PDD-5108	Product Standardization
PDD-5109	Marketing & Product Commercialization
PDD-5110	Engineering Optimization Techniques
PDD-5111	CAD/CAM
PDD-5100	**Postgraduate Research Thesis (Compulsory)**

1.6 | FACULTY OF BASIC SCIENCES & HUMANITIES
1.6.1 Department of Basic Sciences

Dean
Prof. Dr. Aftab Ahmad

Chairman
Dr. Muhammad Muddassar
Associate Professor
PhD (Mathematics)
UET, Lahore

Associate Professors
Dr. Muhammad Muddassar
Associate Professor
PhD (Mathematics)
UET, Lahore

Dr. Nasir Siddiqui
Program Coordinator
(MS & PhD Program)
PhD Mathematics, QAU,
Islamabad, Pakistan

Assistant Professor
Dr. Muhammad Sultan
PhD Chemistry, QAU, Islamabad,
Pakistan

Dr. Malik Sajjad Mehmood
(Director PGS)
PhD Physics, PIEAS, Islamabad,
Pakistan

Areas of Interest

Applied functional Analysis,
Mathematical Analysis,
Theory of convex functions,
Integral inequalities, Time
Scales, Fractional Calculus.

Applied functional Analysis,
Mathematical Analysis,
Theory of convex functions,
Integral inequalities, Time
Scales, Fractional Calculus.

Algebra (Group Theory),
Group Actions, Group Graphs,
Permutation Groups and
Cryptography.

Physical Chemistry

Laser Physics, Laser tissue
interactions, Biomaterials,
Radiation processing
of materials, Polymer
synthesis and
characterization, Radiation
processing of polymers,
Polymer nano composites,
Vibration Spectroscopy,
UV-Visible spectroscopy,
Electron spin resonance
spectroscopy

Dr. Zaffer Elahi
PhD Mathematics, (PU, Lahore)

Dr. Azeem Shahzad
PhD Mathematics, QAU,
Islamabad Pakistan

Dr. Muhammad Arshad Javaid
PhD Physics, The Islamia
Univ. of Bhawalpur

Dr. Muhammad Altaf
PhD Statistics, Univ. of Science
& Technology, China

Dr. Muhammad Touqeer
PhD Mathematics, Univ. of the
Punjab, Lahore, Pakistan

Dr. Muhammad Nadeem
PhD Physics, Univ. of Science
& Technology, Malaysia

Ms. Safeera Batool
M. Phil Mathematics, QAU,
Islamabad, Pakistan

Ms. Sumaira Nawaz
M. Phil. Islamic Studies, AIOU,
Islamabad, Pakistan

Dr. Naila Maqsood
PhD. Pakistan Studies NDU,
Islamabad, Pakistan

Ms. Fareeha Zaheer
MS (English) Air University Islamabad

Optimization Theory
(Nonlinear Equations/
Objective Functions)

Fluid Mechanic, Boundary
layer flows, Heat transfer

Magnetic Resonance Imaging,
Bio-Material/Polymer
Compositions, Neuro Diseases,
Material Simulation

Mathematical Statistics,
Probability Theory,
Numerical Analysis

Applications of hyper-structures
and soft sets in ideal theory
of BCK/BCI-Algebra

Synthesis of various
nanoparticles and its
Bio-Medical applications

Algebra, Semirings,
Fuzzy sets, Algebra of
Fuzzy S-acts.

Lecturers

Dr. Kulsoom Rahim
PhD. Physics, QAU, Islamabad, Pakistan

Dr. Muhammad Tariq
PhD Physics, (Germany)

Ms. Andleeb Abbasi
M. Phil Mathematics, QAU, Islamabad, Pakistan

Ms. Sumaira Rashid
M. Phil Mathematics, QAU, Islamabad, Pakistan

Mr. Syed Zulqarnain Haider
M. Phil Mathematics, QAU, Islamabad, Pakistan

Dr. Syed Sabyel Haider
PhD Mathematics, NUST, Islamabad, Pakistan

Ms. Haleema Sadia
M. Phil Mathematics, QAU, Islamabad, Pakistan

Preparation of nano materials and their characterization

Algebra and Group Theory

Dr. Jawad Ahmad
PhD. Mathematics, QAU, Islamabad, Pakistan

Dr. Syed Muhammad Abdul Rehman Shah
M.S Islamic Banking and Finance, IIU, Islamabad, Pakistan

Ms. Tehmina Farrukh
M.A English, NUML, Islamabad, Pakistan

Mr. Muhammad Irfan
M. Phil Islamic Studies, IIU, Islamabad

Dr. Sabahat Jaleel
PhD Pakistan Studies, QAU, Islamabad

Complex Analysis
(Wiener-Hopf Technique)

Islamic Law, Islamic Banking & Finance, International Economics, Iqbaliat

THE DEPARTMENT

The Department was established in 1975 as a part of the University College of Engineering, Taxila and is as old as the institution itself. With the inception as an independent University in October, 1993, the Department has been placed under the Faculty of Basic Sciences and Humanities.

The Department offers courses in Mathematics, Physics, Chemistry, Economics, Statistics, Islamic Studies, Pakistan Studies, Ethics and English at undergraduate level. The courses offered in the subjects of Applied Physics, Chemistry and Mathematics are very essential for forming the base of the engineering subjects. Also the essential practical work in relevant subjects is carried out as a support to the immense forthcoming engineering practical work. The curricula of Physics, Chemistry and Mathematics including the recent development are constituted so as to meet the pre-requisites of the engineering subjects. The contents of the courses are regularly revised so as to keep abreast of the fast progress occurring in the various engineering   faculties.   The Department of Basic Sciences is responsible for teaching and research in Physics, Mathematics, Chemistry and related domains. A growing emphasis has been developing in fields at the interface between traditional disciplines, both within and outside of our school. To carry out our mission, we possess state of the art research facilities, support services and infrastructure.

Keeping in view the importance of inter-disciplinary research, Engineers-Scientists effective collaboration, and better utilization of research potential of Basic Sciences Faculty; the Department has already started the MS program in Physics with effect from Spring 2014 and is to taken first batch of MS (Mathematics) from Autumn 2014. To facilitate the MS students in their research the department has signed research agreement with National Institute of Laser and Optronics (NILOP) on April 30, 2014.

Program Objective

The main objective of Postgraduate programs in Physics and Mathematics is to initiate the inter-disciplinary research activities among the various Departments of University for the better utilization of basic and applied research.

UET, Taxila is rich in terms of excellent faculty in all of its Engineering Departments. Each and every one of them is serving the country and University while producing competent engineers and research work of international repute in all disciplines. However, there is a perception of the lack of inter-disciplinary research activities among the various departments, more specifically Engineers-Scientists effective collaboration which may affect the overall status of the University.

The Department offers Post Graduate Degree Programs in the following disciplines:
- MS Physics (with effect from Spring 2014)
- MS Mathematics (with effect from Autumn 2014)
- PhD. Mathematics (with effect from Autumn 2019)

CORE COURSES - Course Curriculum for MS (Physics)

Course No.	Course Title
PHY-6101	Mathematical Methods of Physics
PHY-6102	Classical Mechanics
PHY-6103	Quantum Mechanics I
PHY-6104	Statistical Physics
PHY-6105	Electrodynamics I

ELECTIVE COURSES

Course No.	Course Title
PHY-6106	Quantum Mechanics II
PHY-6107	Electrodynamics II
PHY-6108	Advanced Quantum Mechanics
PHY-6109	Methods and Techniques of Experimental Physics
PHY-6110	Magnetism in Condensed Matter
PHY-6111	Quantum Optics I
PHY-6112	Condensed Matter Theory I
PHY-6113	Quantum Information Theory I
PHY-6114	Material Science
PHY-6115	Plasma Physics I
PHY-6116	Group Theory
PHY-6117	Super Conductivity
PHY-6118	Particle Physics
PHY-6119	Plasma Physics II
PHY-6120	General Relativity and Cosmology
PHY-6121	Condensed Matter Theory II
PHY-6122	Experimental Plasma Physics
PHY-6123	Quantum Optics II
PHY-6124	Atomic Physics
PHY-6125	Quantum Information Theory II
PHY-6126	Accelerator Techniques for Materials
PHY-6127	Computational Physics
PHY-6128	Physics Simulations
PHY-6129	Fourier Optics
PHY-6130	Non-linear Dynamics in Physics
PHY-6131	Fiber Optics
PHY-6132	Radiation Physics I
PHY-6133	Radiation Physics II
PHY-6134	Bio Photonics
PHY-6135	Neutron Physics
PHY-6136	Environmental Physics
PHY-6137	Non-linear Optics
PHY-6138	Atomic & Molecular Physics
PHY-6139	Laser Physics
PHY-6140	Advance Fiber Optics
PHY-6141	Simulations in Statistical Physics
PHY-6142	Photo Dynamic Therapy
PHY-6143	Polarization Imaging
PHY-6100	Research Thesis

Courses offered under the faculty of Mechanical & Aeronautical Engineering

Course No.	Course Title
ME-5104	Advanced Thermodynamics
ME-5112	Nuclear Engineering
ME-6101	Computational Fluid dynamics
ME-6301	Renewable Energy Technologi es
ME-4633	Advance Engineering Materials
ME-5210	Composite Materials

Note: Subject to the availability of instructors, the Chairman will add/change the subjects offered in the semester on the suggestion of program coordinator

* Initially Thesis research will be conducted in the following specialized fields.

Research Fields

- Renewable Energy
- Material Science & Engineering
- Laser and Optics
- Simulation and Modelling

Core Courses - Course Curriculum for MS & PhD (Mathematics)

*PhD schollar must pass atleast three core courses from the following list of cours courses.
*MSc students must pass at least four from the following list of cours courses.

Course No.	Course Title
MA-6101	Theory of Group Actions
MA-6102	Applied Linear Algebra I
MA-6103	Theory of Group Graph
MA-6104	Advanced Mathematical Modeling
MA-6105	Viscous Fluid Flow
MA-6106	Partial Differential Equations
MA-6107	Mathematical Techniques for Boundary Value Problems
MA-6108	Fuzzy Algebra
MA-6109	Applied Functional Analysis I
MA-6110	Compressible Fluid Flow
MA-6111	Integral Transforms
MA-6112	Integral Equations
MA-6144	Mathematical Statistics

ELECTIVE COURSES
Courses which can be offered and conducted by Current Mathematics Faculty members

Course No.	Course Title
MA-6113	Magnetohydrodynamics I
MA-6114	Magnetohydrodynamics II
MA-6115	Non-newtonian Fluid Mechanics
MA-6116	Numerical Solutions of Partial Differential Equations
MA-6117	Perturbation Methods in Fluid Mechanics
MA-6118	Nilpotent and Soluble Groups
MA-6119	Theory of Splines-I
MA-6120	LA Semi Groups
MA-6121	Numerical Solutions of Non Linear System of Equations and Ordinary Differential Equations
MA-6122	Numerical Solutions of Integral Equations
MA-6123	Applied Linear Algebra II
MA-6124	Applied Functional Analysis II
MA-6125	Advanced Complex Analysis
MA-6126	Advanced Operations Research I
MA-6127	Advanced Operations Research II
MA-6128	Semi Group Theory
MA-6129	Theory of Ordinary Differential Equations
MA-6130	Graph Theory
MA-6131	Probability and Random Processes
MA-6132	Time Scale Calculus
MA-6133	Measure and Integration
MA-6134	Algebraic Topology I
MA-6135	Algebraic Topology II
MA-6136	Galois Theory I
MA-6137	Galois Theory II
MA-6138	Mathematical Inequalities
MA-6139	Convex Functions
MA-6140	Topics in Variational and Quasai Variational Inequalities
MA-6141	Advanced Fuzzy Algebra
MA-6142	Approximation Theory
MA-6143	Cryptography
MA-6145	Stochastic Processes
MA-6146	Riemann Geometry
MA-6147	General Relativity I
MA-6148	General Relativity II
MA-6149	Cosmology
MA-6150	Topological Vector Spaces
MA-6000	Research Thesis for PhD
MA-6100	Research Thesis for MSc

Courses offered under the faculty of Industrial and Management Engineering

IME–5101	Engineering Optimization Techniques
IME-6102	Simulation and Modelling

Courses offered under the faculty of Civil and Transportation Engineering

CE-5211	Numerical Analysis
CE-5413	Numerical Methods in Engineering
CE-6404	Application of Finite Element method in Transportation Engineering
CE-6405	Advanced Statistical Analysis

Courses offered under the faculty of Computer Engineering

CP-7001	Advanced Mathematics for Computer Engineering

Courses offered under the faculty of Software Engineering

SE-9005	Advanced Mathematics for Software Engineering

Subject to the availability of instructors, the Chairman will add/change the subjects offered in the semester on the suggestion of program coordinator.

* Initially Thesis research will be conducted in the following specialized fields.

Research Fields

- Algebra (Group Theory)
- Fluid Mechanics
- Analytical and Numerical Techniques for Differential Equations
- Mathematical Modelling
- Nonlinear Optimization
- Linear/ Nonlinear inequalities
- Mathematical Analysis, Theory of convex function, Integral inequalities

SERVICES AND COMMON FACILITIES

2 | SERVICES AND COMMON FACILITIES
2.1 CENTRAL LIBRARY

The Central Library of the University plays a vital role in dissemination of knowledge, teaching, research, and extension services. It has a seating capacity for about 250 readers at its different halls, which provide congenial conditions for study. The library remains open in 2 shifts from 8:00 am to 9:00 pm on all working days with usual break. There is a large air-conditioned reading hall which provides congenial atmosphere for study. The Library is stocked with encyclopedias, dictionaries, handbooks, standard specifications, yearbooks, almanacs, abstracts, indexes and a big reference collection of text and general technical books.

Stocks and Services

The Library has more than 62000 volumes of books and scattered issues of scientific and technical serials on diverse fields. Besides engineering subjects considerable reading material on humanities, social sciences and Islamic Studies is available. The members can borrow books and other materials, (except serials, reference or reserved books) for specific periods. They can also reserve materials, which are out in circulation. For this, reservation cards are to be handed over at the circulation counter.

Reference and Refferal Services

At the Reference Desk professional staff is available to help you with your queries, literature seraches and to ensure that your information needs are beign adequately met. The Reference and Reserve book Collection supports your reference needs.

Circulation Section/Services

Circulation is one of the key services of our Library. It provides lending services and facilities for return of loaned items. Renewal of matterials and payment of fines are also handled at the Circulation Desk.

Book Bank

The Library houses a Book Bank, which lends books to all undergraduate students for a whole term on a nominal rent. Books are to be loaned for current semester only. Books are the property of the Library and are to be returned at the end of the semester irrespective of their date of issue.

Knowledge House

It contains fully equipped about 100 PC's with free access to internet, Digital Library and e-brary to supplement the information needs of students and research scholars of this university. Service of scanning and soft copying is also available here.

Scientific Journals

Following is the list of scientific journals being subscribed for the faculty and research scholars to cater their needs.

- ACI Structural, USA. ISSN: 8893241
- European Journal of Industrial Engineering. ISSN: 1751-5262, 1751-5254
- Advances in Software Engineering, Publisher: Hindawi Publishing Corp. ISSN: 1687-8663
- Journal of Applied Composite Materials Springer
- Journal of Heat & Mass Transfer, Elsevier
- Journal of Environmental Engineering by ASCE (American Society of Civil Engineers)
- International Journal of Environmental Engineering. ISSN: 1756-8463
- Journal of Environmental Engineering and Landscape Management. ISSN: 1648-6897 (Print), 1822-4199 (online)
- SPIE Journal of Electronic Imaging. ISSN: 1017-9909
- Optical Communication Journal of Optical Engineering
- Journal of Chinese Institute of Engineers, China. Print ISSN: 0253-3839, Online ISSN: 2158-7299
- Journal of Hydraulic Research, Neterland. Print ISSN: 0022-1686, Online ISSN: 1814-2079
- IIE (Institute of Industrial Engineering) Transactions. ISSN: 1545-8830
- International Journal of Semantic Web and Information Systems (IJSWIS), ISSN: 1552-6283, EISSN: 1552-6291
- Journal of Fluid Mechanics Cambridge University Press
- IEEE Transactions on Power Systems
- IEEE Transactions on Power Delivery
- Wireless Communications IEEE transactions on Wireless Communications A\
- Antenna IEEE transactions Antenna and propagations
- Satellite Communications IEEE Journals on Selected Areas in Communications

2 | SERVICES AND COMMON FACILITIES
2.2 DIGITAL LIBRARY

To meet the information requirements of students and researchers of UET Taxila, Pakistan with the provision of quality scholarly information based electronic delivery through Pakistan Educational Research Network (PERN), HEC has given online access of journals and research papers to UET Taxila. Access to all these resources is free of cost from within the UET Taxila intranet for students and researchers of UET Taxila.

Objectives

- To provide students/researchers in the university and eligible R&D organization with access to high quality journals, academic databases and articles across the widest range of disciplines.
- To address the specific information needs of the sector with the delivery of content relevant to national development objectives.
- o support the delivery of information and effective use of Information and Communication Technologies (ICTs) with extensive training for users with the library university and research community in Pakistan.
- To work with international organizations to enhance the scope of available content and to implement revolutionary technologies for the delivery of content.

  To provide increased dissemination opportunities and promote the use and visibility of locally produced research information.

CURRENTLY AVAILABLE RESOURCES

Institute of Electrical and Electronic Engineers
<http://www.ieee.org/ieeexplore>
American Society Of Mechanical Engineering
<http://www.asme.org/%20>
American Society Of Civil Engineering
<http://www.asce.org/>
Association Of Computing Machinery
<http://acm.org/pubs>
Palgrave Macmillan
<http://www.palgrave-journals.com/pal/>
ISIweb Of Knowledge
<http://www.isiknowledge.com>
Royal Society Of Chemistry
<http://www.rsc.org/is/journals/pri.htm>
Bentham Science
<Http://www.bentham.org>
American Chemical Society
<http://pubs.acs.org/>
American Mathematical Society
<http://www.ams.org/journals/>

American Institute Of Physics
<http://journals.aip.org/>
American Physical Society
<Http://publish.aps.org/>
American Association Of Physics Teachers
<http://www.appt.org/>
Springerlink
<http://www.springerlink.com>
Blackwellsynerg
<http://www.blackwell-synergy.com>
Ebscohost
<http://search.epnet.com>
Oxford Universities
<http://www.oupjournals.org>
JSTOR
<http://www.jstor.org/>
Science Direct
<http://www.sciencedirect.com>
Science Online
<http://www.scienceonline.com>
Nature Publication
<http://www.nature.com/nature>

Maryanannliebert
http://www.liebertonline.com
<http://www.liebertonline.com>
American Society Of Micro Biology
<http://journals.asm.org/>

LIBRARY AUTOMATION SYSTEM (LIBAS)

Library Automation System (LIBAS) is a one-stop information solution. It is managed, maintained and organized by University Library Professional and IT experts. LIBAS has improved the quality, speed and effectiveness of services like providing access to remote users and Resource-sharing among other library networks. It has also improved the management of physical and financial resources.
The important modules are:
- Acquisition
- Cataloguing
- Circulation
- Serial Control
- Administration
- OPAC (Online Public Access Catalog)

2 | SERVICES AND COMMON FACILITIES
2.3 INFORMATION TECHNOLOGY CENTRE

There has been a major interest in Educational Computing since 1985 when a DEC's VAX-11/730 was installed with six terminals, one line printer and one dot matrix printer at the Data Processing Center. Later in 1989, a Micro- VAX-3100 was procured and with its 20 interactive terminals. High pace changes and alterations in trends, hardware and software, introduction of new and user friendly operating system & environments, built-in packages and world wide communication led the centre to switch over from the outdated VAX to personal computers LAN and WAN. The centre is, thus, equipped with 50 personal computers. The IT Centre is providing services to all the departments of the university.

The main objectives of the centre are:
• To train the students at undergraduate level to develop the programming skills.
• To provide research facilities to the post-graduate students of all the departments of the university.
• To provide advisory services to the teachers and research scholars of the university.
• To computerize different procedures of the university's administrative departments.
• To provide training to the engineers/officials of the surrounding industrial organizations.
The students are given extensive "Hands on" training on the mini-computers, which enhances their experience of working in an on-line environment. Short courses in various programming languages and application packages are also offered in the evening time. The center is committed for the promotion of Information Technology and its facilities are being upgraded according to the developments in this field.

Video Conferencing Facility
Video conferencing facility in Information Technology Centre is available in accreditation with HEC. This facility is used to bring people at different sites together for a meeting. This can be as simple as a conversation between two people in private offices (point-to-point) or involve several sites (multi-point) with more than one person in Videoconferencing Hall at different sites. Besides the audio and visual transmission of meeting activities, videoconferencing can be used to share documents, computer-displayed information, and whiteboards.

2 | SERVICES AND COMMON FACILITIES
2.4 NETWORK ADMINISTRATION AND RESEARCH CENTER (NARC)

Director Networks
Mr. Khurram Mahmood
MCS (Bahria Univ.) Islamabad

System Administrator
Engr. Omer Masood
MS, Computer Engg. (UET, Taxila)

Web Manager
Engr. Ulfat Hussain
M.S Software Engg. (UET, Taxila)

Manager Software Development
Muhammad Huzaifa
MS, Computer Engg. (UET, Taxila)

Network Administrator
Mr. Muhammad Iqbal
MCS (Preston Univ.) Islamabad

Mr. Amjad Ismail
MCS (Virtual Univ.) Islamabad

Mission
Network Administration and Research Center (NARC) was founded to provide better support and services to the University. NARC is an outcome of University Computerization and Network Enhancement Program (UCNEP) project. Under UCNEP project, state of the art equipment was procured and latest technology was introduced to enhance the quality of communication infrastructure, existing Lab facilities and processes of the University.

NARC is responsible for design and development of networking infrastructure within University campus and sub campuses. It also provides 24 hour research facilities for PhD scholars and researchers, wireless hotspots are available in campus of the of the university to use internet and Intranet services for students and researchers.

NARC staff comprises of highly skilled, well qualified and technically competent workers who perform their tasks as a passion of their life.

NARC is not only limited to provide services to the University and its sub campuses, it also helps in providing technical assistance to other projects of national interest. NARC staff is actively involved in providing consultancy services to other universities and educational institutes, thus contributing towards the development of IT infrastructure of Pakistan.

NARC Research Facilities
NARC provides 24 hours research facilities to PhD scholars and researchers. All facilities provided by NARC are available round the clock. This includes Digital Library which provides free access to research papers and technical material from leading international forums and organizations around the world. It also provides High Performance Computing (HPC) facilities for students and researchers.

Necessary equipment required to complete the students in their semester and final year projects is provided free of cost to the students. Moreover technical guidance is also provided to them. NARC hosted the 17th International Conference on Microelectronics (ICM'05) held in December 2005 and ICOCN-07(International Conference on Optical Communication and Networks)

NARC is currently providing support in the following areas:
- Adhoc Networks
- Network Routing
- Network Simulation
- Stateful Inspection Firewalls
- Optical Fiber
- Secure VoIP communication
- Clusters and Grid Computing
- GPS and GIS
- Advanced Operating Systems
- GSM, GPRS and other Mobile technologies
- PHS and CDMA WLL

NARC is working in collaboration with national and international technological leaders to provide state of the art equipment and cutting edge technology to the University.

NARC is also working as Cisco Local academy for CCNA & IT Essential certification courses. NARC is also authorized local Academy of NOVEL for the Training and Certification of SUSE Linux.

Electrical, Electronic, Mechanical, Metallurgy, Energy, Industrial/Management, Civil, Environmental, Telecom, Computer, Software Engineering Departments and Computer Science, Basic Sciences research centers for PhD students are established with the help of HEC grant. The facilities comprising of latest computers, printers, internet and multimedia are available round the clock.

2.6 DIRECTORATE OF ADVANCED STUDIES, RESEARCH AND TECHNOLOGICAL DEVELOPMENT (ASR & TD)

The Directorate of ASR&TD, which functions under the supervision of the Director, which is the secretariat of the Board of Advanced Studies, Research and Technological Development. The Board comprises the Vice-Chancellor (Chairman), all the Pro-Vice-Chancellors, all the Deans, one University Professor from each faculty, one technologist, five members from the Industries and the Director of ASR&TD.

The Directorate performs a variety of functions to promote research, extension and advisory services in the

University. The purpose of these functions is to:

a. Regulate MSc and PhD programs.
b. Provide funds and monitor faculty research.
c. Provide funds for M.Sc. Engg. and PhD research.
d. Approve thesis titles, supervisors and examiners.
e. Co-ordinate the Split PhD program with foreign Universities, Government of Pakistan.

f. Arrange visits of Pakistani Experts to give Workshops/Seminars in their field of expertise under TOKTEN program.
g. Arrange visits of foreign Professors to the University and vice-versa.
h. Award of Research Assistant-ships.
i. Sponsor collaborative research work in engineering and allied disciplines at the University and promote the research work.
j. Assist the Departments in organizing Post-graduate Programs, extension lectures and seminars.
k. Coordinate advisory services of the University for the benefit of the Government departments and industries.
l. Arrange evaluation of Research publications of faculty members and publishing of Research Journal of the University.
m. Make arrangements for Extension Lectures of Senior Professors from foreign countries, under the proposed British Council Specialists visits to Pakistan and TOKTEN Schemes.
n. Arrange for PhD Programs in the University.
o. Regulate an endowment fund for Higher Education and R&D in IT & Telecom Division at University of Engineering & Technology, Taxila, created for an amount of Rs. 100 million. The main objective for the establishment of endowment fund is to provide a continuous service of funding the University for producing around four PhD and six MSc in the field of Signal

Processing every year. Fund would be available for man power development in the following fields:

(1) Computer/Data communication
(2) Image Processing
(3) Simulation and Modelling
(4) Wireless communication

2.7 DIRECTORATE OF STUDENTS AFFAIRS

The primary function of the directorate is to organize extra-curricular activities of the students and to foster their intellectual, literary, and artistic potentialities, which remain untapped in the classroom. It functions normally through a large number of clubs and societies; each devoted to some sport or cultural and artistic activity. The students join these clubs and societies according to their inclinations and aptitudes. Another function of the directorate is to maintain liaison with a wide cross-section of students and to be responsive to their needs and problems. The directorate also works to promote, amongst students, respect for the dignified and disciplined behaviors befitting a university student and prospective member of the honored community of engineers of Pakistan.

2.8 ADJUNCT FACULTY

Keeping in view the international practice, the University is introducing Adjunct Faculty. The main purpose of the Adjunct Faculty shall be research supervision and teaching as required by the concerned department. This faculty will be paid remuneration as per university rules applicable for the normal/visiting faculty for the work done. Each department shall prepare a list of eminent scholars working in the industry or other universities. The list shall be approved by the Syndicate on the recommendation of the selection board. An adjunct faculty must hold a PhD degree in Engineering and a strong research background as a minimum eligibility requirement. He shall produce an NOC allowing him to accept the assignment from his employer. This appointment may be terminated at any time from either side without assigning reason.

2.9 ESTATE OFFICE

The University Campus spreads over 163 acres of land, and requires considerable efforts to keep the gardens, lawns, roadside rows of trees and flower beds in good trim. The efforts of this office give the Campus a pleasant look which attracts a large number of visitors in the mornings and evenings.

For the convenience of the students, a shopping centre is located near the University hostels. This centre has a laundry, a general store, stationery and fruit shop. The office looks after security, sanitation, maintenance of lawns and gardens, and shopping facilities at the campus. It has a large squad of uniformed watchmen who guard the University buildings and property. Its sanitation staff keeps the buildings, roads, lawns, and other spaces clean and tidy.

2.10 HEALTH FACILITIES

The University provides medical facilities to its employees and students. Salient features of the existing health policy for students are listed hereunder:

1. Students will be provided free consultation by the Medical Officer.
2. Available medicines will be issued to students through authorized prescription only.
3. Night dispensary service will be available in emergency only.
4. In acute emergency, where a student cannot move, immediate report be made to RT who will make arrangements for further treatment under rules (i.e. ambulance, consultation, admission etc.). The expenditure shall be borne by the student.
5. Boarders will be required to fill in the proforma of previous medical history mentioning the disease he carries.
6. Indoor treatment from unauthorized medical attendants is not allowed.

2.11 TRANSPORT

Adequate transport facility is provided for students and the busses are plying between Rawalpindi, Islamabad, Hassanabdal, Wah Cantt. and the campus. this facility is, however, not obligation of the University and it can be reduced or terminated if the policy and /or the financial conditions so demand.

2.12 DUES /SCHOLARSHIP SECTION

The Section deals with all kinds of Fee/dues, scholarship, stipends, loans and fee concession under the charge of Treasurer.

3 | ENDOWMENT FUND FOR HIGHER EDUCATION AND R& D IN IT & TELECOM DIVISION

3.1. An Endowment fund for Higher Education and R&D in IT & Telecom Division at University of Engineering & Technology, Taxila, created for an amount of Rs. 110 million. The main objective for the establishment of endowment fund is to provide a continuous service of funding the University for producing around four PhD and six MSc in the every year. Fund would be available for manpower development in the following fields:

- Computer/Data Communication
- Image Processing
- Simulation and Modelling
- Wireless Communication
- Digital Signal Processing
- Mixed Signal/Conventional ASIC Design

A student admitted as full time for PhD/MSc in the above fields is eligible for scholarships and other permissible benefits from this fund. The request grant from this Endowment fund is based on the research proposals that shall be peer reviewed externally. The Board of Trustees makes the decision of the grant.

3.2. COST OF MAINTENANCE / FEE / ACADEMIC SUPPORT

The following Fee and Allowances are paid by the University out of Endowment Fund where applicable:

Maintenance Allowance (Full time PhD)	Rs. 60000 PM
Maintenance Allowance (MSc)	Rs. 15000 PM
Fee (PhD)	Actual University Fee
Fee (MSc)	Actual University Fee

4.1. Industry MSc and PhD

4.1.1 Qualified Industry Employees in Full Time MSc and PhD programs of University of Engineering and Technology, Taxila may be admitted free of cost, provided that the employer agrees to approve study leave for accepted employees for 18 and 36 months respectively for MSc and PhD.

4.1.2 Full Time UET MSc and PhD Scholars may be placed on Industrial Research Projects at Industrial Sites/Research Labs/Facilities for 12 and 36 months respectively.

4.1.3 For Industrial PhD funded by industry and other research grants, the scholars will be identified and recruited through a competitive process for 36 months duration after advertisement in the national press. The purpose of the Industrial PhD initiative is:

a. To train individuals as researchers who have insight into the commercial aspects of research and development.

b. To build up personal network for the exchange of knowledge between companies and University and foreign research institutions.

c. To promote the Pakistan's business community's opportunities for development.

4.2. Industry Professorship

4.2.1 The UET will be eager to consider and involve Engineers, Scientists from Industry whereby they spend 2-3 days a month at the University and also agree to guide Masters and PhD students. The UET has established Industrial Professorship at UET Taxila in the following categories:

a. Title of Industry Aces for prominent industry leaders, having significant experience and clout in the industry (Existing and Retired CEOs, Chairmen of Boards, Secretaries).

b. Title of Full Industrial Professor for PhD industrial expert having 15+ years of industry experience.

c. Title of Associate Industry Professor for PhD industrial expert having 10+ years of industry experience.

d. Title of Assistant Industry Professor for PhD industrial expert having 5 years of industry experience.

4.2.2 In lieu their presence in the University and services provided, the engaged individuals get an honorarium (Industry Aces Rs. 25,000/- per month, Industry Professor Rs.15,000/-per month, Associate Industry Professor Rs. 12,000/- per month and Assistant Industry Professor Rs. 10,000/- per month) and benefits comparable to the University faculty for producing Masters and PhD.

4.3. Donations for Student Support Fund (SSF)

4.3.1 To create a Student Support Fund (SSF) for needy students at undergraduate level, initially the University will contribute Twenty (20) Million Rupees in SSF. The needy students will be awarded need base Scholarships from the SSF. The University may raise funds from donors and approve the award of scholarships.

4.3.2 Well off students of MSc and PhD may make donations in this fund. They may also encourage their parents, relative and friends to make donations for this fund.

4.3.3 A committee constituted as follows and headed by the Vice Chancellor to oversee the award of need based scholarship consistent of the following:

i. Vice Chancellor Chairman
ii. One Member of Syndicate Member
iii. All Deans Member
iv. One Alumni Representative Member
v. Director Students Affairs Member
vi. Treasurer Member/Secretary

SCHOLLARSHIP HOLDERS
(ON STAMP PAPER OF RS.100/-)

1. Mr./Miss/Mrs._____

s/o, d/o, w/o Mr._____,herby undertake that

I will complete my M.Sc/PhD Degree Course, within the prescribed time limit. In case I fail to complete

it, I will make no appeal/request to extend this limit and return all Fee/stipend paid to me by the

university.

Date:_____   Signature:_____

Place:_____   Address: _____

                                                            _____

NON SCHOLARSHIP HOLDERS
(ON STAMP PAPER OF RS.100/-)

1. Mr./Miss/Mrs._____

s/o, d/o, w/o Mr._____,herby undertake

that   I will complete my M.Sc/PhD Degree Course, within the prescribed time limit. In case I fail to complete

 it, I will make no appeal/request to extend this limit.

Date:_____   Signature:_____

Place:_____   Address: _____

                                                            _____
                                                            _____

DEED OF AGREEMENT

FOR SCHOLARSHIP HOLDERS OF MS/MSc PROGRAM AT UNIVERSITY OF ENGINEERING AND TECHNOLOGY, TAXILA.

This agreement is made, on the ………………………………..Day of ………………………, between
(1)   Mr./Ms……………………………son/daughter of …………………………hereinafter called the student or the scholar, and
(2)   University of Engineering and Technology, Taxila hereinafter called the University through the Registrar and Treasurer of the University.
          WHEREAS Mr./Ms …………………………… Has been selected by the University for award of scholarship for MSc studies at University of
          Engineering and Technology, Taxila and the student has agreed to accept the same on the terms and conditions governing this scholarship award as set
          out herein below:
  i.   This scholarship award shall be for 18 months towards earning MSc degree subject to the satisfactory academic performance of the scholar.
  ii.   The payment of scholarship program shall be made subject to complete adherence to all rules and regulations governing the scholarship program
          as well as satisfactory performance in the studies, which shall be judged within the sole discretion of the University.
  iii.   The scholar shall refrain from engaging himself/herself in any political or commercial activity incompatible with his/her studies.
  iv.   The student will pay the fee and other charges as per UET, Rules.
  v.   Each student will be paid maintenance allowance as per UET, Rules for a maximum duration of eighteen (18) Months.
  vi.   The MSc students will be required to be present in the University during all working days for usual working hours and 2-3 students will be
          associated with each senior faculty member. The scholars may be assigned the following duties in addition to their learning assignments:
          a.   Lab Engineer
          b.   Teaching and Research Associates
          c.   Working in collaboration with PhD Scholars
          d.   Any other appropriate task assigned
  vii.   **leave Rules.**
          a.   Casual leave not exceeding 24 days per year shall be admissible. More than 10 days leave at one time shall not be allowed. If weekend or
                      gazetted holiday falls as prefix or suffix of leave, it will be counted as leave. Record of leave allowed by the Chairman/Dean concerned
                      will be maintained by the Deptt.
          b.   Leave on medical grounds without stipend shall be admissible on production of medical certifcate by the Chief Medical Officer of the
                      University as per Punjab Medical Attendance Rules.
          c.   Leave will only be sanctioned on the recommendation of concerned supervisor.
  viii)   In case the student is unable to complete his/her degree in time whatever the reason may be he/she will have to pay back maintenance
          allowance received from the University along with the tuition fee etc pertaining to the period for which he/she had been receiving the mainte
          nance allowance.
  ix)   Each MSc. Student will have to maintain a minimum SGPA of 3.0 throughout his/her studies, failing which he/she will be terminated from
          his/her MSc. studies and he/she will have to return all fee/ maintenance allowance paid by the university.
  x)   The scholar shall not extend the specifed period of studies without prior written approval of the University.
  xi)   The scholar shall not undertake employment whether paid or otherwise without approval of University during his/her course of studies.
  xii)   The scholar would assure his/her availability during office hours of the University throughout the week and if he/she is called upon to render
          assistance in teaching, research or any other work that the University may reasonably require of him/her the scholar shall duly furnish such assistance
          provided that the assistance sought is not incompatible with the status of the scholar as a student.

          The scholar is liable to this qualification from studies or such other disciplinary action as the University may consider appropriate, if:
          a.   He/she violates any of foregoing conditions, or
          b.   He /she is found to have made any misstatement herein before.

AND THE SCHOLAR FURTHER COVENANTS, that in case of breach of any of the above terms and conditions or those rules/terms and conditions governing
scholarship award as may be further imposed by the University for the specifed period, the scholar shall be bound to forthwith refund to University the total
amount of the maintenance allowance paid to the scholar and the tuition fee waived for him/her the amount of refund as prescribed and assessed by the
University shall be final and conclusive.

Witness No.1   Witness No. 2
Signature:-   _____   Signature:-   _____
Name:-   _____   Name:-   _____
CNIC No   _____   CNIC No   _____
Address   _____   Address   _____

Attested by
Notary Public

DEED OF AGREEMENT
FOR SCHOLARSHIP HOLDERS OF PhD PROGRAM AT UNIVERSITY OF ENGINEERING AND TECHNOLOGY, TAXILA

This agreement is made, on the ………………………………Day of ………………, between

(1)   Mr./Miss…………………………….son/daughter of ………………………Hereinafter called the student or the scholar, and

(2)   University of Engineering and Technology, Taxila hereinafter called the University through the Registrar and Treasurer of the University.

WHEREAS Mr./Miss ……………………………. Has been selected by the University for award of scholarship for PhD studies at University of Engineering and Technology, Taxila and the student has agreed to accept the same on the terms and conditions governing this scholarship award as set out herein below:

i.   This scholarship award shall be for 36 months towards earning PhD degree subject to the satisfactory academic performance of the scholar.

ii.   The payment of scholarship program shall be made subject to complete adherence to all rules and regulations governing the scholarship program as well as satisfactory performance in the studies, which shall be judged within the sole discretion of the University.

iii.   The scholar shall refrain from engaging himself/herself in any political or commercial activity incompatible with his/her studies.

iv.   The PhD student will be required to be present in the university during all working days for usual working hours and will work under the guidance of his supervisor.

v.   The PhD Scholar will pay the fee and other charges as per UET, Rules.

vi.   Each PhD Scholar student will be paid Maintenance Allowance as per UET, Rules for a maximum duration of Thirty Six (36) Months.

vii)   leave Rules   .

       a.   Casual leave not exceeding 24 days per year shall be admissible. More than 10 days leave at one time shall not be allowed. If weekend or gazetted holiday falls as prefx or sufx of leave, it will be counted as leave. Record of leave allowed by the Chairman/Dean concerned will be maintained by the Deptt.

       b.   Leave on medical grounds without stipend shall be admissible on production of medical certifcate by the Chief Medical **Officer of the** University as per Punjab Medical Attendance Rules. However, if medical leave is continued and exceeds two months, admission shall be terminated and the scholar will have to refund the complete stipend and deposit complete fee etc.

       c.   Leave will only be sanctioned on the recommendation of concerned supervisor.

viii)   In case the student is unable to complete his/her degree in time whatever the reason may be he/she will have to pay back maintenance al lowance received from the University along with the tuition fee etc pertaining to the period for which he/she had been receiving the maintenance allowance.

ix)   He/she will have to maintain a minimum CGPA of 3.0 throughout his/her studies, failing to which he/she will be terminated from his/her MSc studies and he she will have to return all fee/ maintenance allowance paid by the university.

       a.   Quarterly progress report will be submitted to Directorate of Advanced Studies Research & Technological development duly recommended by supervisor.

x)   The scholar shall not extend the specifed period of studies without prior written approval of the University.

xi)   The scholar shall not undertake employment whether paid or otherwise without approval of University during his/her course of studies.

xii)   The scholar would assure his/her availability during **office** hours of the University throughout the week and if he/she is called upon to render as sistance in teaching, research or any other work that the University may reasonably require of him/her the scholar shall duly furnish such assistance provided that the assistance sought is not incompatible with the status of the scholar as a student.

The scholar is liable to this-qualifcation from studies or such other disciplinary action as the University may consider appropriate, if:

       a.   He/she violates any of foregoing conditions, or

       b.   He /she is found to have made any misstatement herein before.

AND THE SCHOLAR FURTHER COVENANTS, that in case of breach of any of the above terms and conditions or those rules/terms and conditions governing scholarship award as may be further imposed by the University for the specifed period, the scholar shall be bound to forthwith refund to University the total amount of the maintenance allowance paid to the scholar and the tuition fee waived for him/her the amount of refund as prescribed and assessed by the University shall be fnal and conclusive.

Signature:-   _____
Name:-   _____
CNIC No   _____
Date:-   _____

Witness No. 1
Signature:-   _____
Name:-   _____
Designation:-_____
CNIC No   _____
Date:-   _____

Witness No. 2
Signature:-   _____
Name:-   _____
Designation:-_____
CNIC No   _____
Date:-   _____

Attested by
Notary Public

University of Engineering & Technology, Taxila

Prospectus-2021 Onwards
Ph: 051-9047541-472
Web: www.uettaxila.edu.pk