PROSPECTUS
2024-25

MIRPUR UNIVERSITY OF SCIENCE & TECHNOLOGY
العلم یرفع قدر الانسان
2008
MIRPUR

Mirpur University of Science and Technology (MUST), Mirpur AJ&K


بسم الله الرحمن الرحيم
١٤٢٠

MUST VISION & MISSION

VISION

To be a superior teaching and research institution, having transformative impact on society and act as a knowledge corridor between Azad Jammu & Kashmir, Pakistan, and rest of the World.

MISSION

MUST is committed to all-encompassing growth of its students, besides enabling them to tap the world of knowledge and assume a leadership role in the future through a process of continual innovation in education, research, creativity, technological advancement and entrepreneurship.

CORE VALUES

1. • Academic Excellence and Advancement on Merit;
   • Fairness and Equality;
2. • Pluralism and Diversity;
   • Outreach and Community-building;
3. • Inclusiveness and Openness;
   • Academic Freedom and Freedom of Thought;
4. • Non-Discrimination;
   • Ethically Acceptable Standards of Conduct;
5. • Creativity and Innovation;
   • Leadership Development;
6. • Environmental Sustainability;
   • Learner-centric and Personalized Learning;
7. • Service with Integrity;
   • Collegial Environment and Dignity of Labour.

MESSAGE FROM THE CHANCELLOR

Barrister Sultan Mahmood Chaudhry

President of Azad Jammu and Kashmir
Chancellor Mirpur University of Science and Technology, (MUST), Mirpur AJ&K

I take immense pleasure to write that Mirpur University of Science and Technology (MUST) has made substantial progress since its establishment in 2009. The importance of education cannot be denied, but what puts the difference is the quality of education. In this context, MUST has emerged as one of the premier institutions in the State of

Azad Jammu and Kashmir. Since its inception, MUST has held several events such as seminars, conferences, workshops, and competitions to keep the issue of Illegally Indian Occupied Kashmir alive at the national and international levels, besides educating students and the masses about the historical background. The university has many disciplines of studies from the undergraduate to postgraduate levels like; engineering, natural sciences, technology, health sciences, animal sciences, business studies and social sciences etc. Along with the academic activities, the university also offers a variety of co-curricular activities, which include series of events organised by different societies and clubs, educational tours, inter-university sports etc. I believe that because of quality education imparted in MUST each graduate of MUST shall be able to compete globally.

MESSAGE FROM THE VICE CHANCELLOR

Brig (R) Prof. Dr. Muhammad Younus Javed, SI(M)

Vice Chancellor
Mirpur University of Science and Technology (MUST),
Mirpur AJ&K

It is indeed sheer blessing of Almighty Allah to bestow upon me, the honour of serving as Vice Chancellor of Mirpur University of Science and Technology MUST, Mirpur AJ&K since June 2021. Magnificently culminating another year marked by a steadfast commitment to academic and professional excellence is source of copious gratitude and deep acknowledgment. The resplendent successes are testament to resolute perseverance and resilience exhibited by the administrative hierarchy, esteemed faculty members, Staff and students of Mirpur University. Since the establishment of MUST, Mirpur AJ&K in 2008, University aspires to foster exceptional world-class education and research aiming to nurture, cultivate and promote students' global competence by exploring their concealed potentials, skills and creativity required to contest the challenges of modern times. For last 15 years, MUST has been playing pivotal role in providing the Youth across the State of Azad Jammu & Kashmir and Pakistan with tremendous opportunities to actualize their potential and rise to the apex of the glory as our motive is ever evolving educational, research centered goals and initiatives that collimate with our vision, mission and moral values. It's my pleasure to announce the release of the MUST Annual Report 2022-2023 by Mirpur University of Science and Technology MUST, Mirpur AJ&K, which encompasses the whole gamut of activities. The Edition will be offering a thorough insight into our Academic & Administrative accomplishments, Convocation Ceremony, International Conferences, Faculty Development Workshops & Seminars, Research Initiatives & Publications, Developmental & Research Grants, Health

& Wellness Campaigns, Quality Assurance, Celebration of National Days, Sports Mega Events & Literary activities, Industrial Collaborations, Memorandums of Understanding, Guest Speakers and overall progress made during the Year. MUST Annual Report 2022-2023 is a reflection of collective efforts put in by all quarters of the Mirpur University as our endeavors would not have been conceivable without devotion, professionalism and tireless efforts of our faculty members, administrative staff and students. In Times Higher Education (THE) and World University Rankings (WUR) 2024, MUST has earned 19th position in whole Pakistan & first in Azad Jammu and Kashmir. To keep flag high, Mirpur University is committed to provide a conducive environment and transformative learning prospects to its students so that they can develop academically, intellectually and socially, as our students are the ambassadors of MUST & their accomplishments in academia, sports, arts and community service mirror the teachings of Mirpur University. In this way with collective efforts, we will continue to propel forward under guidance of our strategic vision and will be leading the way with research & innovation. Entire apparatus of Institution is working round the clock to achieve our primary and foremost mission to contribute in national development while focusing on the professional growth of students and to equip them with the knowledge, skills & vision required to develop confident leaders, independent thinkers and creative entrepreneurs which will surely expand our reach and impact on the National Level and beyond. Mirpur University actively seeks collaborative ties with industry partners and also with National and International organization to foster the development of both faculty and students. Such initiatives are modernizing the scope of learning. I take immense pride in our collective achievements and MUST aspires to new heights and greater accomplishments in the coming year. Brig (R) Prof. Dr. Muhammad Younus Javed, SI(M) Vice Chancellor Mirpur University of Science and Technology (MUST), Mirpur AJ&K

About The State of Azad Jammu & Kashmir

Azad Jammu and Kashmir is the political entity within the Pakistani-controlled part of the former Princely State of Jammu and Kashmir. It borders Indian-administered Jammu and Kashmir to the east (separated from it by the Line of Control), Khyber Pakhtun khwa province to the west, Gilgit-Baltistan to the north, and the Punjab province to the south. With its capital at Muzaffarabad, Azad Jammu and Kashmir covers an area of 13,297 square kilometers (5134 square miles) and has an estimated population of about four million. Azad Jammu and Kashmir (AJK) is a self-governing state under Pakistani control, but under Pakistan's constitution, the state is not part of Pakistan. Azad Kashmir has its own elected president, prime minister, legislature, high court, and official flag. The state is administratively divided into three divisions which, in turn, are divided into ten districts namely, Mirpur, Kotli, Bhimber, Muzaffarabad, Hattian, Neelum, Poonch, Sudhanutti, Haveli, and Bagh. These ten districts are further subdivided into 29 subdivisions. The people's participation in the political and socio-economic development is ensured through the elected institutions of the Azad Jammu & Kashmir Legislative Assembly comprising 41 directly and 8 indirectly elected members and the Azad Jammu & Kashmir Council with six elected members. Azad Kashmir's financial matters, i.e., budget and tax affairs, are dealt with by the Azad Jammu and Kashmir Council rather than by Pakistan's Central Board of Revenue.

The Azad Jammu and Kashmir Council is a supreme body consisting of 11 members, six from the government of Azad Jammu and Kashmir and five from the government of Pakistan. Its chairman/chief executive is the president of Pakistan. Other members of the council are the President the Prime minister of Azad Kashmir and a few other AJK ministers.

The literacy rate in Azad Kashmir is more than 64%, which is significantly higher than the national average of Pakistan. At

At present the gross enrolment rate at the primary level is 95% for boys and 88% for girls (between the ages of 5-9). Urdu is the official language of Azad Jammu and Kashmir. However, due to the area's diverse cultural blend, many languages are spoken by different populations, including Pahari, and Potwari.

The northern part of Azad Jammu and Kashmir encompasses the lower part of the Himalayas, including Hari Parbat Peak in the Neelum Valley is the highest peak in the state. Fertile, green, mountainous valleys are characteristic of Azad Kashmir's geography, making it one of the most beautiful regions on the

subcontinent. The region receives rainfall in both winter and summer. Muzaffarabad and Patton are among the wettest areas of the state. Throughout most of the region, the average rainfall exceeds 1400 mm, with the highest average rainfall occurring near Muzaffarabad (around 1800 mm). During the summer season, monsoon floods of the Jhelum and Neelum rivers are common, due to high rainfall and melting snow.

Azad Jammu & Kashmir is very rich in natural beauty. Its snow-covered peaks, dense forests, winding rivers, turbulent foaming streams, wheat-scented valleys, velvet green plateaus, and climate varying from arctic to tropical, all join together to make it an excellent tourist attraction. Splendid valleys of Neelum, Jhelum, Leepa, Sudhan Gali, Banjosa, Rawalakot, Paniola, Datot, Tolipir, and many more have magical attractions for visitors. Azad Jammu & Kashmir is a fascinating land of diverse people, languages & cultures.

Agriculture is a major part of Azad Kashmir's economy. Low-lying areas that have high populations grow crops like barley, mangoes, millet, corn (maize), and wheat, and also raise cattle. In the elevated areas that are less populated and more widespread, forestry, corn, and livestock are the main sources of income.

There are mineral and marble resources in Azad Kashmir close to Mirpur and Muzaffarabad. There are also graphite deposits at Mohriwali. There are also reservoirs of low-grade coal, chalk, bauxite, and zircon. Commensurate with its natural beauty, Kashmir is famous for its rich and varied cultural heritage. Handicrafts are famous all over the world.

In addition to agriculture, textiles, arts and crafts, remittances by British Pakistanis have played a major role in the economy of Azad Kashmir.

About the University

Established in 2008, Mirpur University of Science and Technology MUST, Mirpur AJ&K evolved from the University College of Engineering and Technology (UCET), Mirpur AJ&K which was formerly component of University of Azad Jammu and Kashmir. As a state-run public sector institution, the university's Chancellor is the President of Azad Jammu and Kashmir, while the Vice Chancellor serves as the executive head responsible for overseeing its operations.

MUST is located in the culturally vibrant city of Mirpur, which also serves as the Divisional Headquarters and is a major economic hub in Azad Jammu and Kashmir. The university plays a pivotal role in delivering quality education across the region. MUST currently operates from three campuses, with the main campus situated on Allama Iqbal Road, directly across from the District Courts.

Departments at City Campus : The City Campus houses four departments within the Faculty of Engineering and Technology, including Electrical Engineering, Computer Systems Engineering, Software Engineering and Mechanical Engineering. Additionally, the Faculty of Natural and Applied Sciences offers programs in Biotechnology, Computer Science and Information Technology, and Physics. The Faculty of Social Sciences and Humanities is home to five departments: Education, International Relations, Islamic Studies, Media and Mass Communication, and Sociology. Moreover, the Faculty of MUST Business School (FMBS) comprises three departments: the Department of Business Administration, the Department of Banking and Finance, and the Department of Commerce. Key administrative offices such as the Directorate of Student Affairs, the Board of Advanced Studies and Research, the Office of Research, Innovation, and Commercialization (ORIC), and Sports and National Testing Center (NTC) offices are also located at this campus.

Designed as the hub of academic activities, the City Campus is having a range of facilities including a Central Library, an auditorium, student hostels, a mosque, student cafeterias, outdoor sports amenities, large lecture and conference halls, state-of-the-art laboratories, and ample parking space.

Second Campus Situated on Allama Iqbal Road, adjacent to the Girls Degree College, the second campus houses the Faculty of Health Sciences, which comprises five departments: Doctor of Pharmacy (Pharm-D), Doctor of Physical Therapy (DPT), Human Nutrition and Dietetics (HND), Allied Health Sciences (AHS), and Microbiology. Additionally, the Department of Home Economics, the Department of Zoology, and Maryum Girls' Hostel are located on this campus.

Third Campus: The third campus, located on Jarikas Bhimber Road, houses the administrative block and several academic departments, including Civil Engineering, Chemistry, Mathematics, Statistics and Mirpur Institute of Technology (MIT). The Department of Law is also based here. Additionally, MUST Pallandri offers degree programs in Education, Forestry, Hotel Management and Tourism, International Relations and Physics.

Organizational Setup	
• Chancellor	Barrister Sultan Mahmood Chaudhry
• Vice Chancellor	Engr. Brig. (R) Prof. Dr. Muhammad Younus Javed, SI (M)
• Dean Faculty of Engineering & Technology	Prof. Dr. Muhammad Sajid
• Dean Faculty of Health & Medical Sciences	Prof. Dr. Anwar Khitab
• Dean Faculty of Natural & Applied Sciences	Prof. Dr. Rashida Hussain
• Dean Faculty of Social Sciences & Humanities	Prof. Dr. Tahseen Ghous
• Dean Faculty of Veterinary and Animal Sciences	Veterinary Faculty is merged with University of Bhimber.
• MUST Business School	Prof. Dr. Zafar Iqbal
• Registrar	Prof. Dr. Khizar-ul-Haq
• Controller of Examinations	Kamran Hameed
• Treasurer	Prof. Dr. Muhammad Khalique
• Director of AS & RB	Dr. Anzar Mahmood
• Director QEC	Dr. Khuram Pervez Amber
• Director ORIC	Prof. Dr. Faisal Riaz
• Director SAC	Dr. Mohsin Zafar
• Director Planning & Development	Syed Zishan Ashiq
• Director NTC	Imtiaz Ahmed Bhat
• Director Student's Affairs	Dr. Muhammad Altaf Hussain
• Director Sports	Abid Hussain
• Provost Hostels	Dr. Kalim-ul-Haq Tariq


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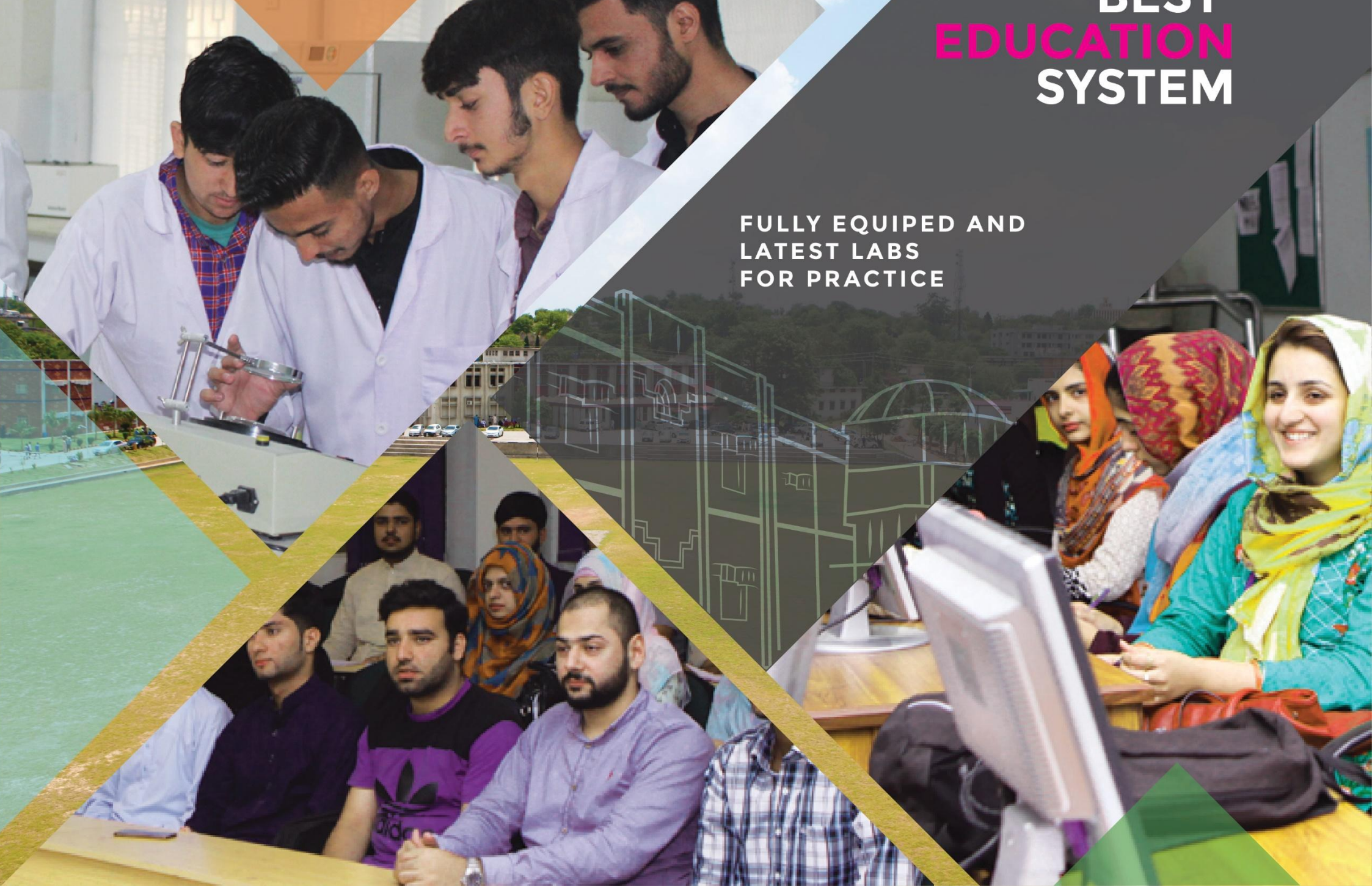
21st December, 2022


BEST
EDUCATION
SYSTEM
FULLY EQUIPED AND
LATEST LABS
FOR PRACTICE

FACULTY OF
ENGINEERING AND TECHNOLOGY

Dean Faculty of Engineering & Technology

Engr. Prof. Dr. Muhammad Sajid

Tel: +92-5827-961008

Message from Dean:

I would be pleased to welcome you by taking the challenge of becoming an aspiring student of the Faculty of Engineering and Technology (FE&T). The faculty of engineering and technology was established in 1980 and laid the foundation of MUST in 2009. The FE&T presents the colors of dynamic people with leading-edge ideas who are ready to work in highly practical, rigorous, and challenging environments. There are 50+ advanced and world-class laboratories for engineering education along with modern classrooms. We are blessed with highly qualified PhD faculty members from technologically advanced countries like the USA, European Union, South Korea, Japan, Australia, UK, and many more. Being Muslims, we take pride and reflect the real essence in the syllabi of different degree programs. The international image of our program is reflected through its amalgam of the best professional approach, CVs of highly qualified faculty and lab engineers, communication skills, ethical values, moral and social training, and industrial linkages to academia. Our Alumni are the clear evidence of the international image of FE&T at MUST.

The curricula in different programs of engineering at FE&T involve creative learning, hands-on implementation in labs and combination of research. Alongside the theme of theory and practice, there is an inspiration for research-led teaching. All the programs of FE&T are based on industrial projects and original ideas. The faculty is young and energetic with five departments and is envisaged to grow as a major modern center of excellence for engineering education and research. We have already been placed among the most dynamic, fastest-growing, and excelled faculties in engineering sciences in the country and our programs are accredited at Level II (OBE) by the Pakistan Engineering Council.

The faculty endeavors to grow into new programs like Biomedical Engineering Technology, Energy Engineering, Information Engineering Technology, the Cyber Security Engineering in the near future. Over the course of the next few years, we are hoping to continue the process of self-evaluation, renewal, and growth of our academic programs, staff, and infrastructure. I hope between our students we may have someone like Mark Zuckerberg of Facebook, Jeff Bezos of Amazon, Elon Musk of Telsa, or Nobel prize winners like Adre Geim Electronic Engineer Koichi Tanaka, Electrical

Engineer Sir Charles Kuen Kao, Civil Engineer Paul Jozef Crutzen, Mechanical Engineer Dan Shechtman. We highlight the knowledge curve through “Learn by Doing It.”

Introduction to Outcome-Based Education (OBE) System :

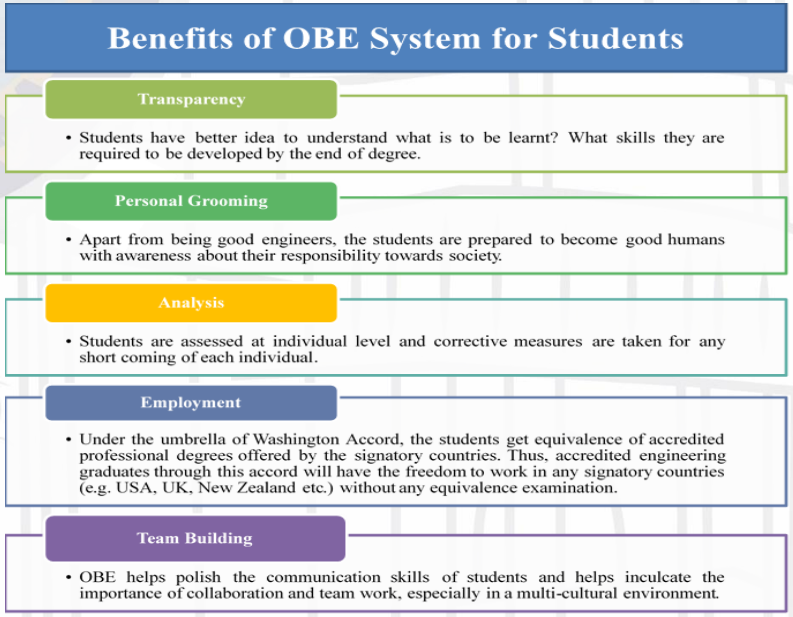
Advancing the conventional teacher-centered education system, Outcome Based Education (OBE) is a student-centered assessment approach evaluating students' learning during the course of four years. The learning capabilities are assessed based on the twelve graduate attributes, also known as the Program Learning Outcomes (PLOs)**, in line with the Program Educational Objectives (PEOs)*. OBE approach evaluates individual student learning at the course level based on Course Learning Outcomes (CLOs)*** leading to inculcate the basic to advance engineering skills to ensure that the graduate is fully equipped with all necessary engineering, communication, and management tools to serve the industry and society efficiently working individually and or in a team. Through the OBE System, Cognitive, Psychomotor, and Affective domains are strengthened among the students from basic knowledge to creativity/synthesis level.

Notably, the OBE approach registers students with Washington Accord. Established in 1989, US-based The Washington Accord is an international accreditation agreement signed among member countries recognizing graduates of the signatories as The Engineers at international level without appearing in the Degree-Recognizing Foundation Exam. Simply, no registration with The Washington Accord, and no international recognition as an engineer. Pakistan Engineering Council (PEC) is a full signatory of The Washington Accord since June 21, 2017. And BSc. The Electrical Engineering Program in MUST is accredited with PEC at Level II (OBE System).

***Program Educational Outcomes (PEOs):** The general statements that describe the expected achievements of graduates in their career, and also in particular, what the graduates are expected to perform and achieve during the first few years after graduation.

****Program Learning Outcomes (PLOs):** The narrower statements that describe what students are expected to know (graduate attributes (GA)) and be able to do by the time of graduation.

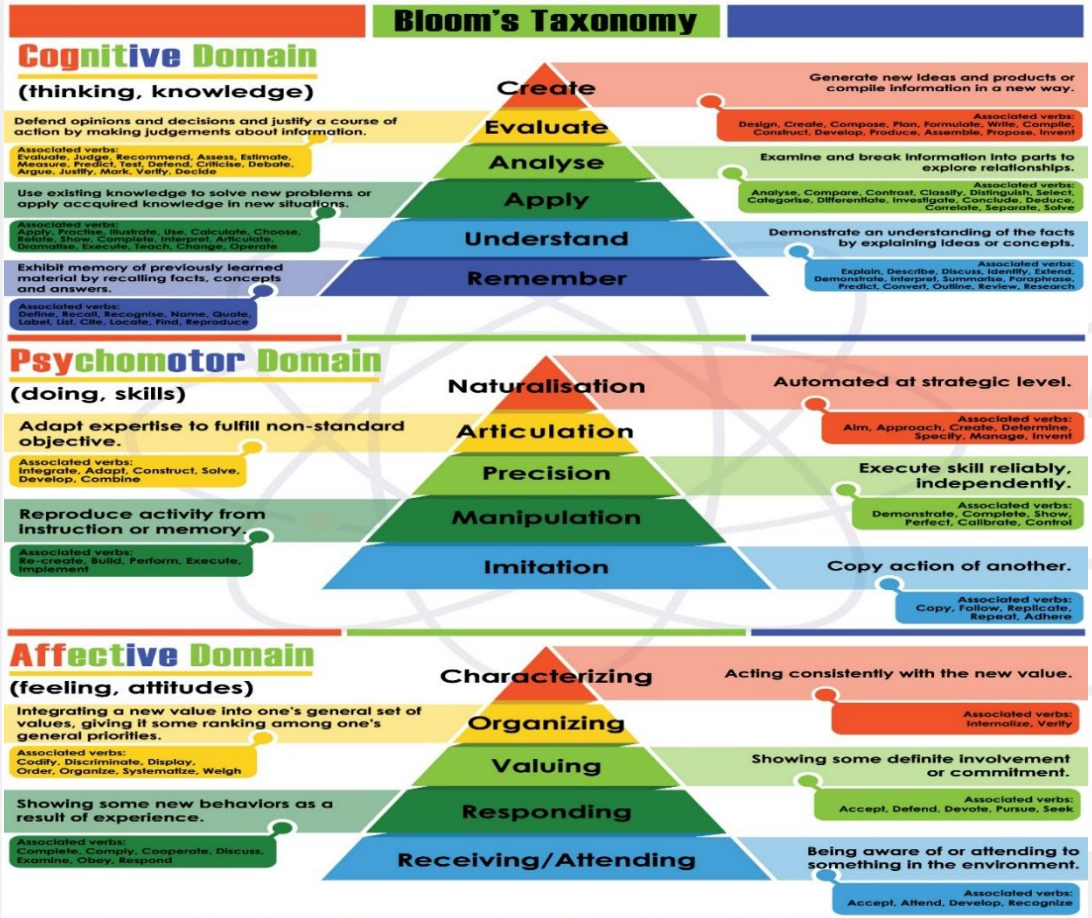
*****Course Learning Outcomes (CLOs):** Course Learning Outcomes describe the complex performances a student should be capable of as a result of learning experiences within a course.



Program Learning Outcomes		
PLO-1	**Engineering Knowledge**	Apply knowledge of mathematics, natural science, engineering fundamentals and engineering specialization to the solution of complex engineering problems (WK1-WK4)
PLO-2	**Problem Analysis**	Identify, formulate, conduct research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences (WK1-WK4)
PLO-3	**Design/ Development of Solutions**	An ability to design solutions for complex engineering problems and design systems, components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations (WK5)
PLO-4	**Investigation**	Conduct investigation of complex engineering problems using research-based knowledge and research methods, including design experiments, analysis and interpretation of experimental data, and synthesis of information to provide valid conclusions (WK8)
PLO-5	**Modern Tool Usage**	Create, select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling, to complex engineering problems, with an understanding of the limitations (WK2 and WK6)
PLO-6	**The Engineer and the World**	Analyze and evaluate sustainable development impacts to society, the economy, sustainability, health and safety, legal frameworks, and the environment while solving complex engineering problems (WK1, WK5 and WK7)
PLO-7	**Ethics**	Apply ethical principles and commit to professional ethics and norms of engineering practice. And adhere to relevant national and international laws. Demonstrate an understanding of the need for diversity and inclusion (WK9)
PLO-8	**Individual and Collaborative Teamwork**	Function effectively as an individual and as a member or leader in diverse and inclusive teams and in multi-disciplinary, face-to-face, remote and distributed settings (WK9)
PLO-9	**Communication**	Communicate effectively and inclusively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design

		documentation, make effective presentations, taking inti account cultural, language and learning differences (WK1 and WK9)
PLO-10	**Project Management and Finance**	Demonstrate knowledge and understanding of engineering management principles and economic decision making and apply these to one's own work, as a member and leader in a team, to manage projects in multidisciplinary environments (WK2 and WK5)
PLO-11	**Lifelong Learning**	Recognize the need for, and have the preparation and ability for i) independent and life-long learning ii) adaptability to new and emerging technologies and iii) critical thinking in broadest context of technological change (WK8 and WK9)

Revised Blooms Taxonomy with Relevant Action Verbs



DEPARTMENT OF
Civil Engineering

Vision

Endeavour to provide quality education in the field of Civil Engineering for the development of the human resource with professional ethics that would contribute towards a better civilized world.

Degree Programs Offered

B.Sc. Civil Engineering
M.Sc. Structural Engineering

Chairperson:
Engr. Dr. Muhammad Tausif Arshad
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E-mail: chairman.ce@must.edu.pk

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Message from Chairperson:

Greetings!

Greetings! Civil engineering stands at the forefront of shaping the modern world, playing a crucial role in creating the infrastructure and systems that define our daily lives. In our department, we are not teaching about constructing buildings and bridges; we are crafting a future where innovation, sustainability, and excellence come together seamlessly. As the Chairman, I am honored to lead a team of passionate faculty, innovative researchers, and ambitious students, all dedicated to pushing the boundaries of what's possible in this ever-evolving field.

Our curriculum is designed around a robust outcome-based framework that does more than impart technical knowledge—it empowers our students to convert that knowledge into practical, impactful solutions. We place a strong emphasis on equipping our graduates with industry-aligned skills and a profound understanding of the global challenges they will face. This approach ensures that they are not just prepared to enter the workforce

As you delve into this prospectus, I invite you to envision the countless opportunities a civil engineering education can unlock. Whether your passion lies in structural design, environmental engineering, transportation systems, geotechnics, project management, or any other specialty within the field, our department offers the guidance, cutting-edge resources, and diverse opportunities needed to turn your aspirations into reality.

Our mission is clear: to build a world that is safer, more sustainable, and increasingly interconnected. We are committed to nurturing the next generation of civil engineers who will take on the grand challenges of our time and propel society toward a brighter, more resilient future. I encourage you to join us on this exciting journey, where together, we will transcend boundaries and explore new horizons in the field of civil engineering.

Let's shape a better tomorrow, one innovative solution at a time.

With ambition and purpose,

Engr. Dr. Muhammad Tausif A

Faculty members of Civil Engineering

Faculty Members of Civil Engineering Department

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***Engr. Imran Mehmood**
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Introduction:

Civil Engineering is a professional engineering discipline that deals with the planning, design, construction operation, and maintenance of the physical and naturally built environment, including works such as bridges, roads, canals, dams, and buildings. Civil Engineering is the oldest engineering discipline after military engineering. It is traditionally broken into several sub-disciplines including Environmental Engineering, Geotechnical Engineering, Structural Engineering, Transportation Engineering, Municipal or Urban Engineering, Water Resources Engineering, Materials Engineering, Coastal Engineering, Surveying, Irrigation Engineering, Hydraulics Engineering, and Construction Engineering. Civil Engineering takes place on all levels: in the public sector from municipal to federal levels, and in the private sector from individual homeowners to international companies.

B.Sc. Civil engineering

Civil Engineering (CE) is an evergreen discipline, and its demand exists throughout the world. Civil engineers cater to the national needs for buildings, highways, dams, bridges, irrigation networks, and water supply systems, and are the world's largest users of building materials. The Department of Civil Engineering has been actively engaged in disseminating civil engineering education for the last eleven years. The Department offers a full-time course of four years duration leading to a bachelor's degree in civil engineering. The department also offers graduate courses of study leading to M.Sc. Structural Engineering.

The Civil Engineering Department offers a bachelor's degree program that develops the necessary skills and competencies required to design and implement in the construction industry. In the bachelor's course, emphasis is laid on the fundamental concepts and principles, which inbuilt the basis of civil engineering practices. The department serves the community by producing quality Civil Engineers capable of addressing solutions to the challenging problems being faced at the National/International level. These engineers also play a pivotal role in the research sector of the country owning to its multidisciplinary nature and wide scope. Therefore, the department aims to produce qualified graduates, competitively to serve as a technically qualified workforce to the industry and academia, the corporate sector, and government organizations, globally.

Program Vision

Endeavor to provide quality education in the field of Civil Engineering for the development of the human resource with professional ethics that would contribute towards a better civilized world.

Program Mission

Civil Engineering Department is committed to impart contemporary Civil Engineering education for socioeconomic development of the region through quality graduates capable of playing leadership role through the process of continual innovation, research, creativity and entrepreneurship

Program Educational Objectives

PEO-1: Graduates will integrate sustainability, persistence, safety, and professional ethics in Civil Engineering projects.

PEO-2: Graduates will solve complicated challenges and furnish new ideas and inventions that will help in the advancement of their profession and society.

PEO-3: Graduates will contribute to the economic development of the state of Azad Kashmir, Pakistan, and the rest of the world.

PEO-4: Graduates will be able to work in multi-disciplinary teams with other professions to properly grasp stakeholder demands.

Scheme of Studies

SEMESTER 1			
CODE	**COURSE TITLE**	**LEC. CH**	**KNOWLEDGE AREA**
CIV-1101	Civil Engineering Materials	2	Foundation
CIV-1101L	Civil Engineering Materials Lab	1	Foundation
CIV-1102	Engineering Drawing	1	Foundation
CIV-1102L	Engineering Drawing Lab	2	Foundation
HSC-1103	Functional English	2	Humanities
NSC-1104	Applied Calculus/Math-I	3	Natural Science
CIV-1105L	Computer Fundamentals Lab	**1**	Computing
CIV-1106	Basic Electromechanical Engineering	2	IDEE
CIV-1106L	Basic Electromechanical Engineering Lab	1	IDEE
Total Theory CH		**10**	
Total Lab CH		**5**	
Grand Total CH		**15**	
SEMESTER 2			
CIV-1201	Engineering Geology	2	Natural Science
CIV-1202	Engineering Survey	2	Foundation
CIV-1202L	Engineering Survey Lab	1	Foundation
CIV-1203	Properties of Concrete	1	Foundation
CIV-1203L	Properties of Concrete Lab	1	Foundation
CIV-1204	Engineering Mechanics	3	Natural Science
CIV-1204L	Engineering Mechanics Lab	1	Natural Science
HSC-1205	Pakistan and Kashmir Studies	2	Humanities
HSC-1206	Arabic	1	Humanities
NSC-1207	Applied Differential Equations/Math-II	3	Natural Science
Total Theory CH		**14**	
Total Lab CH		**3**	
Grand Total CH		**17**	
SEMESTER 3			
HSC-2301	Islamic Studies	2	Humanities
CIV-2302	Advanced Engineering Surveying	2	Breadth

CIV-2302L	Advanced Engineering Surveying Lab	1	Breadth
CIV-2303	Strength of Materials-I	2	Foundation
CIV-2303L	Strength of Materials-I Lab	1	Foundation
NSC-2304	Numerical Analysis/Math-III	3	Natural Science
CIV-2305	Civil Engineering Drawing and Graphics	1	Computing
CIV-2305L	Civil Engineering Drawing and Graphics Lab	2	Computing
CIV-2306	Computer Programming	1	Computing
CIV-2306L	Computer Programming Lab	1	Computing
CIV-2307	Geoinformatics	1	Natural Science
CIV-2307L	Geoinformatics Lab	1	Natural Science
Total Theory CH		**12**	
Total Lab CH		**6**	
Grand Total CH		**18**	
SEMESTER 4			
CIV-2401	Quantity Survey and Cost Estimation	2	Computing
CIV-2401L	Quantity Survey and Cost Estimation Lab	1	Computing
NSC-2402	Probability & Statistics/Math-IV	3	Natural Science
CIV-2403	Soil Mechanics-I	3	Foundation
CIV-2403L	Soil Mechanics-I Lab	1	Foundation
CIV-2404	Fluid Mechanics	3	Foundation
CIV-2404L	Fluid Mechanics Lab	1	Foundation
CIV-2405	Theory of Structures-I	3	Foundation
Total Theory CH		**14**	
Total Lab CH		**3**	
Grand Total CH		**17**	
SEMESTER 5			
CIV-3501	Construction Engineering	3	Management Science
CIV-3501L	Construction Engineering Lab	1	Management Science
CIV-3502	Hydrology and Water Resources Management	2	Foundation
CIV-3502L	Hydrology and Water Resources Management Lab	1	Foundation
CIV-3503	Strength of Materials-II	3	Depth
CIV-3503L	Strength of Materials-II Lab	1	Depth
CIV-3504	Advanced Fluid Mechanics	2	Breadth
CIV-3504L	Advanced Fluid Mechanics Lab	1	Breadth
CIV-3505	Theory of Structures-II	3	Breadth
Total Theory CH		**13**	
Total Lab CH		**4**	
Grand Total CH		**17**	
SEMESTER 6			
CIV-3601	Transportation Engineering-I	3	Breadth

CIV-3602	Environmental Engineering-I	2	Breadth
CIV-3602L	Environmental Engineering-I Lab	1	Breadth
CIV-3603	Hydraulics Engineering	2	Breadth
CIV-3603L	Hydraulics Engineering Lab	1	Breadth
CIV-3604	Reinforced Concrete Design-I	3	Breadth
CIV-3605	Architectural & Town Planning	2	IDEE
CIV-3606	Steel Structures	3	Depth
Total Theory CH		**15**	
Total Lab CH		**2**	
Grand Total CH		**17**	
SEMESTER 7			
CIV-4701	Transportation Engineering-II	3	Depth
CIV-4701L	Transportation Engineering-II Lab	1	Depth
CIV-4702	Environmental Engineering-II	2	Depth
CIV-4703	Soil-Mechanics-II	2	Depth
CIV-4703L	Soil-Mechanics-II Lab	1	Depth
CIV-4704	Reinforced Concrete Design-II	2	Depth
CIV-4704L	Reinforced Concrete Design-II Lab	1	Depth
HSC-4705	Entrepreneurship	3	Management Science
CIV-4706	Civil Engineering Project-I	3	
Total Theory CH		**12**	
Total Lab CH		**6**	
Grand Total CH		**18**	
SEMESTER 8			
CIV-4801	Irrigation Engineering	2	Depth
CIV-4801L	Irrigation Engineering Lab	1	Depth
CIV-4802	Foundation Engineering	2	Depth
CIV-4803	Disaster Management	2	Management Science
CIV-4804	Engineering Economics	2	Management Science
CIV-4805	Structural & Earthquake Engineering	3	Depth
CIV-4806	Civil Engineering Project-II	3	
HSC-4807	Business Communication	2	Humanities
Total Theory CH		**13**	
Total Lab CH		**4**	
Grand Total CH		**17**	

Laboratories:

The Department of Civil Engineering is continuously enhancing its laboratory facilities to meet undergraduate program requirements as per the Pakistan Engineering Council's guidelines. The details of laboratory equipment are as follows:

Concrete/Materials Laboratory

The primary purpose of the Concrete/Materials Laboratory is to conduct both BSc and MSc-level research work to develop better, more durable, cost-effective, and sustainable concrete infrastructures by investigating and characterizing concrete component materials including cement, aggregate, supplementary, and alternative cementitious materials, and admixtures. The lab has recently been improved in terms of size and apparatus. The laboratory collaborates with academia, other government agencies, and industry, leveraging expertise in conducting research to address issues of national and international significance. Currently, there is about 30 equipment ranging from Impact value apparatus to the Ball milling machine & UTM.

Highway and Transportation Engineering Laboratory

The Highway & Transportation Engineering Laboratory is equipped with all necessary equipment required at BSc level including the conduction of intensive research work thus successfully covering the development of psychomotor and affective skills. The equipment is also sufficient to carry out moderate-level commercial testing, thus this laboratory has been serving the industry for a number of years. Furthermore, the lab has recently been improved in terms of the area, equipment as well as safety measures. Procedures to check the basic properties of bitumen including Flash and Fire point and Penetration Grade have been changed from manual to automatic system owing to the availability of new import automatic apparatus. In addition to it, machines for Marshall Mix Design and California Bearing Ratio have also been upgraded to the latest models; purchased in 2021.

Hydraulics Engineering Laboratory

The Hydraulics Engineering Laboratory is well equipped with the engineering apparatus, which is essential to perform experiments related to the BSc subjects e.g. Hydraulics Engineering, in order to develop psychomotor, cognitive, and affective skills. The lab has been significantly updated in terms of its size and is fully functional with all the safety measures and precautions. The presence of advanced apparatus e.g. open channel flume, pipe friction apparatus, etc. in the laboratory, not only makes students visualize the water surface profiles but also enables them to calculate various hydraulics parameters.

Engineering Surveying Lab

The objective of the surveying laboratory is to make students familiar with and competent enough to draw maps in suitable scale by using different surveying instruments like total station, theodolite, auto level, global positioning system (GPS), electromagnetic distance measurement (EDM), plane table, compass, etc. Students learn to survey from conventional as well as contemporary methods and technology. The lab is equipped with around 12 equipment and students can easily develop excellent psychomotor, affective as well as cognitive skills based on their usage.

Geotechnical Engineering Laboratory

Geotechnical Laboratory provides basic as well as advanced knowledge about different parameters related to the soil. The laboratory houses the soil classification testing apparatus, proctor compaction equipment, permeability (constant and falling head), one-dimensional consolidation, unconfined compression test, direct shear, and triaxial shear testing machines. All consolidation and shear testing systems are networked with a computer for automated load control and data acquisition. In addition to this standard equipment, we have dynamic triaxial/resilient modulus, CBR, and other specialized testing systems with electronic and computer support for students' use in this laboratory. Students develop different solutions to soil problems under the supervision of a teacher and by following proper safety measures. Lastly, the lab has a good reputation in terms of commercial testing all over the state.

Computer-Aided Design Laboratory

The laboratory is equipped with 22 fast computer systems and necessary Civil Engineering software is installed in them, so that Computer Fundamentals understanding, Building Construction Drawing, and Programming can easily be carried out. In the next year, another lab with 40 workstations will be completed.

Environmental Engineering Laboratory

The department has a dedicated Environmental Engineering lab for the performance of BSc as well as commercial testing level tests/practical's. Some of the equipment available in the lab is a Spectro-Direct photometer, portable multi-direct photometer for field testing, pH meter, turbidity meter, and E coli analyzer. Furthermore, BOD and COD can also be measured efficiently. Almost every year, a sufficient number of final year students, use this lab for the completion of their projects which in turn results in a good societal contribution; as lack of clean drinking water is one of the major issues currently being faced by residents of AJK and Pakistan.

Engineering Mechanics Laboratory

This laboratory has been recently developed. Some major equipment in the lab is Hook's law, reactions of simply supported beams, the centroid of regular and irregular shapes, basic roof truss, etc.

This laboratory fulfils the basic need of B.Sc. Civil Engineering Students

MS STRUCTURAL ENGINEERING

The department started a program of M.Sc. Structural Engineering in Fall 2016. This degree emphasizes on the practical application of knowledge one step ahead of the bachelor's program. The successful MS graduates may develop their careers in Research and Development, Industry, Academia, and Consultancy Organizations both nationally and internationally. There are currently 6 PhD faculty members who are running this program; total seats are 15 and their attainment is approximately 100%.

Admission Criterion:

- BSc Civil Engineering with at least 1st division or CGPA of 2.5/4.0 with no 3rd division in academic record.
- Registered with PEC
- GAT General qualifying score
- Entry test conducted by the university

Duration:

The normal duration of M.Sc. Structural Engineering is two years (four semesters) with a maximum duration of up to four years (eight semesters).

MSc STRUCTURAL ENGINEERING			
SCHEME OF STUDIES			
Course Code & Title		**Credit Hrs / Week**	**Pre-req.**
		Compulsory Courses	
CE-101	Computer Methods in Structural Engineering	3	–
STR-201	Advanced Structural Analysis	3	–
STR-203	Properties of Structural Materials	3	–
STR-209	Structural Dynamics and Earthquake Engineering	3	–
STR-212	Repair, maintenance, strengthening and retrofitting of structures	3	–
CE-102	Research Thesis	6	–
ELECTIVE COURSES			
STR-202	Seismic Design of Structures	3	–
STR-204	Bridge Engineering	3	–
STR-205	Advanced Design of Structures	3	–
STR-206	Finite Element Methods	3	–
STR-207	Advanced Strength of Materials	3	–
STR-208	Advanced Steel Structures	3	–
STR-210	Advanced Reinforced Concrete	3	–
STR-211	Pre-Stressed Concrete	3	–
WRI-302	Hydraulic Structures	3	–
GTF-402	Dam Engineering	3	–
GTF-403	Foundation Engineering	3	–
TRP-501	Pavement Analysis and Design	3	–
TRP-505	Railway Engineering	3	–
TRP-506	Advanced Traffic Engineering and Management	3	–
CEM-703	Construction Projects Scheduling and Control	3	–
CEM-704	Safety Management in Construction	3	–
CE-121	Nanotechnology in Engineering	3	–
CE-122	Research Methodology and Statistical Analysis	3	–

Scheme of Studies Semester wise			
Semester I			
Course Code	**Type**	**Subject**	**Cr.Hrs**
Subject I	Compulsory	Offered from the compulsory courses list	3
Subject II	Compulsory	Offered from compulsory courses list	3
Subject III	Elective	Offered from elective courses list	3
Semester II			

Subject IV	Compulsory	Offered from compulsory courses list	3
Subject V	Compulsory	Offered from compulsory courses list	3
Subject VI	Elective	Offered from elective courses list	3
Semester III			
CIV-7000	Compulsory	Offered from compulsory courses list	3
CIV-7998	Elective	Offered from elective courses list	3
CE-102	Compulsory	Research Thesis	6
Semester IV-VIII			
CE-102	Compulsory	Research Thesis	6

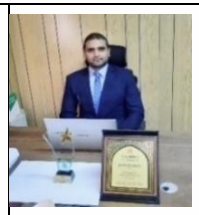
Ph.D. Civil ENGINEERING

Scheme Of Studies

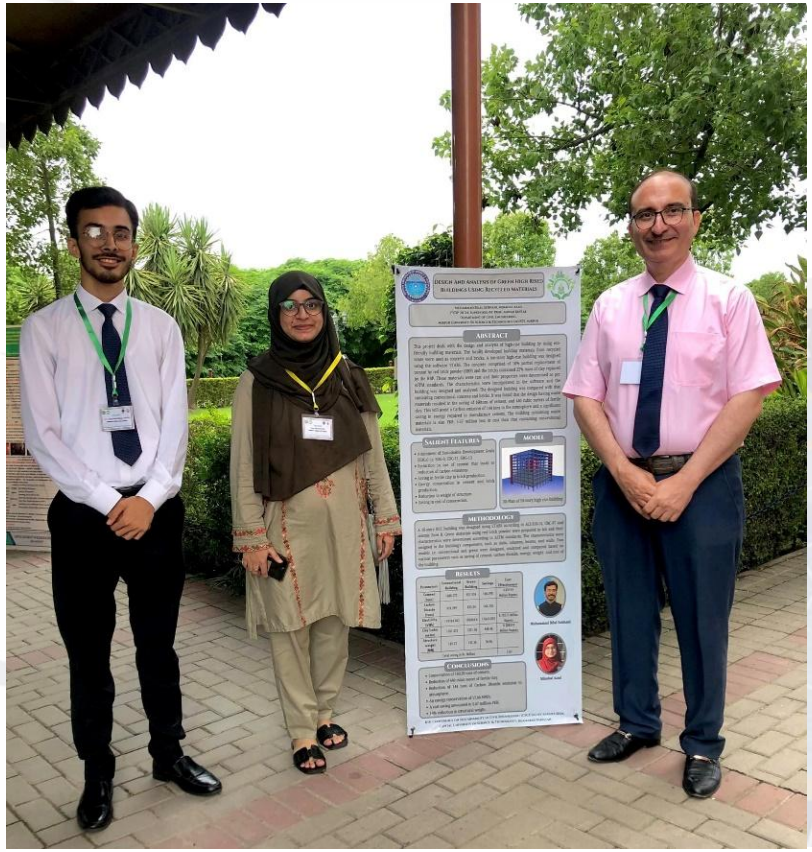
Course Code	Title	Category	Cr. Hrs.	Pre-req.
PCIV-7001	Research Methodology and Ethics	Compulsory	3	–
PCIV-7101	Numerical Modeling of Porous Media	GeoTech	3	–
PCIV-7102	Soil Dynamics	GeoTech	3	–
PCIV-7103	Advanced Rock Mechanics	GeoTech	3	–
PCIV-7104	Underground Excavation and Tunneling	GeoTech	3	–
PCIV-7105	Geotechnical Earthquake Engineering	GeoTech	3	–
PCIV-7106	Unsaturated Soil Mechanics	GeoTech	3	–
PCIV-7107	Ground Improvement and Geosynthetics	GeoTech	3	–
PCIV-7108	Earthquake Seismology & Hazard	GeoTech	3	–
PCIV-7109	Dam Engineering	GeoTech	3	–
PCIV-7201	Advanced Reinforced Concrete Mechanics	Structure	3	–
PCIV-7202	Structural Health Monitoring	Structure	3	–
PCIV-7203	Earthquake-resistant Design of Buildings	Structure	3	–
PCIV-7204	Innovative Cementitious Materials	Structure	3	–
PCIV-7205	Finite Element Method	Structure	3	–
PCIV-7206	Pre-Stressed Concrete	Structure	3	–
PCIV-7207	High Rise Structures	Structure	3	–

PCIV-7208	Extreme Loadings of Structures	Structure	3	–
PCIV-7209	Structural Dynamics and Modeling	Structure	3	–
PCIV-7210	Structural Reliability	Structure	3	–
PCIV-7211	Bridge Engineering	Structure	3	–
PCIV-7301	GIS for Water Resources	Hydraulics	3	–
PCIV-7302	Advanced Environmental Impact Assessment	Hydraulics	3	–
PCIV-7303	Integrated Water Resources Management	Hydraulics	3	–
PCIV-7304	Disaster Prevention Hydraulics	Hydraulics	3	–
PCIV-7305	Hydraulic Structure Design	Hydraulics	3	–
PCIV-7306	River Engineering	Hydraulics	3	–
PCIV-7307	Sediment Dynamics	Hydraulics	3	–
PCIV-7308	Statistical Hydrology	Hydraulics	3	–
PCIV-8401	Construction and Safety Management	Construction Engineering	3	–
PCIV-8402	Sustainability in Construction Projects	Construction Engineering	3	–
PCIV-8403	Advanced Construction Management	Construction Engineering	3	–
PCIV-8404	Construction Contracts for Civil Engineers	Construction Engineering	3	–
PCIV-8405	Construction Project Planning and Control	Construction Engineering	3	–

Alumni Comments

My name is Engr. Wajid Hussain Shah, and I am truly honored to represent MUST as an alumnus of the Civil Engineering Department. Currently, I am working as Technical Director of Civil Engineering in Saudi Arabia, where I have spent the last five years contributing to major projects like NEOM. Prior to this, I served for seven years as Assistant Director/SDO at C&W in AJK, Pakistan. I owe my success to the dedicated teachers at MUST, who tirelessly worked to not only ensure we became accredited engineers but also shaped us into professional engineers by enhancing our technical skills alongside theoretical knowledge. To the new students aspiring to join the engineering profession, I wish you all the best. Joining MUST will not only help you realize your dreams but also add value to the esteemed name of our university.	 Wajid Hussain Shah, Technical Director Huawei Kingdom of Saudi Arabia Session: B.Sc. Civil Engineering, 2009 – 2013
As a proud graduate of MUST's Civil Engineering Department, I reflect on my time there as a period of significant growth and learning. The department's rigorous curriculum, combining theory with practical skills, thoroughly prepared me for the challenges of the field. The dedicated faculty fostered curiosity and innovation, while the state-of-the-art facilities and advanced engineering software provided invaluable hands-on experience. MUST's commitment to excellence and focus on developing skilled, forward-thinking engineers has been pivotal in shaping my professional journey.	 Major Syed Irfan Haider, R.E, MIE (Pak) Pak Army Corps of Engineers Session: B.Sc. Civil Engineering, 2011 – 2015
As a Senior Engineer at EKFB, working on the groundbreaking HS2 project, I owe much of my success to the exceptional civil engineering department at MUST. Their guidance was instrumental in shaping my skills, and I am deeply grateful for their support. Together, let's keep building a brighter future!	 Ammar Nisar, Senior Engineer Eiffage, Kier, Ferrovial Construction and BAM Nuttall United Kingdom Session: B.Sc. Civil Engineering, 2012 – 2016

Graduating as a Civil Engineer from Mirpur University of Science and Technology (MUST) in 2017 was the beginning of an exciting journey. I had always envisioned myself as an entrepreneur, eager to apply the knowledge I had gained and explore innovative solutions within the field of engineering. Four years ago, I founded Kataria Engineering and Consultancy Services, specializing in Engineering Design, Geotechnical Investigations, Construction, and Supervision. This venture has been an incredibly rewarding experience, and much of the credit goes to my parents, whose unwavering support kept me motivated, and to the faculty at CED, MUST, who equipped me with the strong foundational knowledge and critical thinking skills needed to venture into entrepreneurship. The hands-on experience and comprehensive education I received have enabled me to turn my vision into reality.	 Atlas Karim Kataria, Founder Kataria Engineering and Consultancy Services Pakistan B. Sc. Civil Engineering Session: B.Sc. Civil Engineering, 2013 – 2017
As a proud alumnus of this esteemed department, I'm excited to share that I'm currently working as a Planning and Coordination Engineer at Ittefaq Group Pvt. Ltd. The education and experiences I gained during my time here laid a strong foundation for my career, and I'm deeply grateful for the impact they've had on my professional journey. Wishing the department continued success and growth. May it continue to inspire and nurture future engineers with the same passion and excellence.	 Muhammad Ibrahim Mustafai, Planning Engineer Ittefaq Group Pvt. Ltd. Pakistan Session: B.Sc. Civil Engineering, 2015 – 2019
Hi, I'm Engineer Faizan Tariq Abbasi, a proud alumnus of MUST's Civil Engineering program (2018-2022). Currently, I work as a Contract and Settlement Engineer at the Diamer Basha Dam Project with Power China Construction Corporation Limited, one of the world's leading construction companies. I credit my success to MUST's strong academic foundation, advanced skill development, and industry insights. With two years of experience, I confidently recommend MUST for its commitment to excellence, innovative learning, and dedicated faculty, all of which prepare students to make a meaningful impact in the world.	 Faizan Tariq Abbasi, Contract Engineer Power China Construction Corporation Pakistan Session: B.Sc. Civil Engineering, 2018 – 2022



Participation in 6th Conference on Sustainability in Civil Engineering (CSCE'24)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competition 2k24


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Computer System Engineering

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To be among the nation's premier computer systems engineering departments providing solutions in the field of engineering and emerging technologies to meet national and international socioeconomic challenges."

Degree Programs Offered

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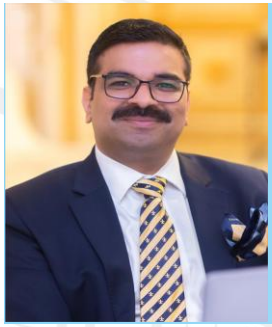
M.Sc. (Computer Systems Engineering)

Ph.D. (Computer Systems Engineering)



Chairperson:
Engr. Dr. Zafar Ali Khan
Tel: +92-5827-960037
E-mail: chairman.cse@must.edu.pk

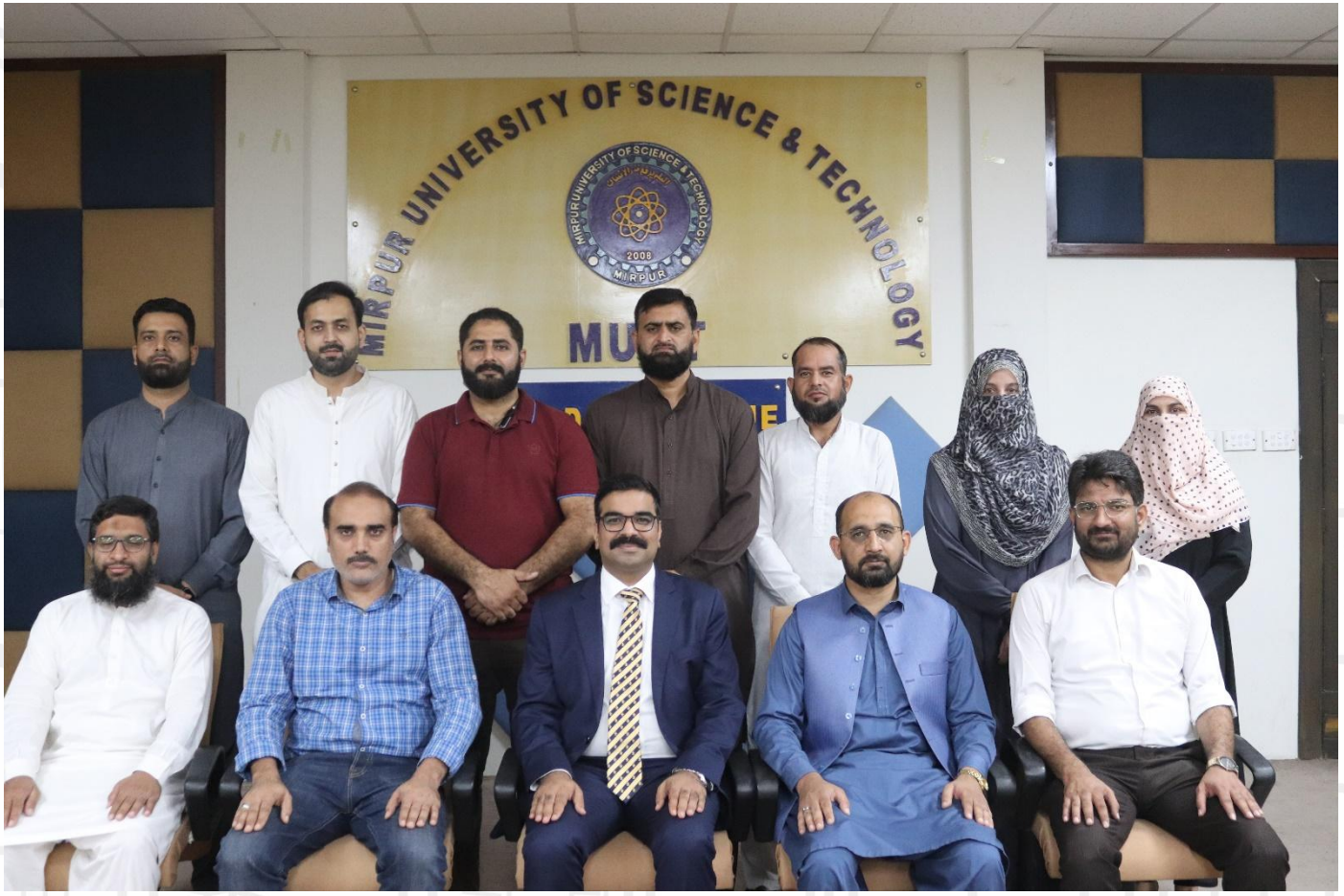
Message from Chairperson:

At the Mirpur University of Science and Technology, the Department of Computer Systems Engineering stands as a beacon of innovation and excellence. We are dedicated to equipping students with the critical, industry-relevant skills needed to thrive in today's fast-evolving technological landscape. Our department strives to foster not only academic excellence but also the confidence and leadership required for professional success.

With access to cutting-edge labs and a faculty passionate about the latest advancements in technology, students are immersed in a dynamic learning environment. Our goal is to empower them with both technical expertise and problem-solving capabilities, preparing them to be future leaders in their field.

Graduates from our department have access to a broad spectrum of career opportunities, including roles in mobile telecommunications multinationals, Pakistan Telecommunication Company Limited (PTCL), the Research Industry, the Pakistan Navy, Pakistan International Airlines (PIA), the National Database and Registration Authority (NADRA), and many more. Moreover, our alumni excel in areas such as software development, banking, stock exchanges, and public sector organizations like the Atomic Energy Commission and the Pakistan Railways.

Upon completing their degrees, students are not only well-positioned for immediate employment but also eligible to pursue postgraduate education in specialized fields.



Faculty members of Computer Systems Engineering

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Engr. Haleema Sadia (on study leave)
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B.Sc. Computer Systems Engineering

The Department of Computer Systems Engineering was established in 2005, and since then it has continuously expanded and is on the road of progress. It is the pioneer department in its field in the state of AJ&K and has been imparting a useful and erudite workforce to the nation. The facilities and opportunities for faculty and students are exemplary.

Admission Requirements

- F.Sc. Pre-Engineering/Pre-Medical/ICS (Math, Physics, Computer Science) at least 60 %-marks

OR

- 3 Year post-metric Diploma of Associate Engineer in the relevant field with a minimum of 60% marks.
- Candidates are required to pass an entrance test to fulfil the eligibility criteria.

Program Educational Objectives (PEOs)

- Be able to address real-life problems by translating learned engineering knowledge for designing and implementing computing systems.
- Be able to apply in-depth computer systems engineering knowledge to identify and solve technical challenges fulfilling the needs of society with consideration of the environmental impact and ethical values.
- Be able to lead as an individual or contribute as a team member and continually adapt with the upcoming trends of technology by continuous professional development for meeting individual and societal goals.

PEOs conformity with the department's vision and mission

	Department Vision	***Department Mission***
PEO 1	*Solution provision*	*Problem solver*
PEO 2	*Societal challenges*	*Social values*
PEO 3	*Intellectual development*	*Life-long learners*

Mapping of PLOs to PEOs.

PLOs	PEO1	PEO2	PEO3
1. Engineering Knowledge	X		
2. Problem Analysis	X		
3. Design/Development of Solutions	X		
4. Investigation	X		
5. Modern Tool Usage		X	
6. Engineer and Society		X	
7. Environment and Sustainability		X	
8. Ethics		X	
9. Individual and Teamwork			X
10. Communication			X
11. Project Management			X
12. Lifelong Learning			X

Scheme of Study

Minimum Duration:	8 Semesters
Courses:	43
Final Year Project:	6 Credits
Comprehensive oral examination:	S/U Basis
Internship/Practical Training:	S/U Basis
Total Credits	136

Course Code	Course Title	Credit Hours		Pre-req.
		(Theory)	(Lab)	
Semester 1				
MAT-1105	Calculus and Analytical Geometry	3	0	
ISL-1112	Islamic Studies/Ethics (for non-Muslims)	2	0	
ICT-1126	Application of Information and Communication Technologies	2	0	
ICT-1126L	Application of Information and Communication Technologies (Lab)	0	1	
PHY-1108	Applied Physics	2	0	
PHY-1108L	Applied Physics (Lab)	0	1	
ENG-1103	Functional English	3	0	
CSE-1101L	Engineering Workshop	0	1	
ICP-1129	Ideology and Constitution of Pakistan	2	0	
HQT-1128	Holy Quran with Translation, Tajveed, and Tafseer	0	0	
Total		**14**	**3**	
Semester 2				
MAT-1206	Complex Variables and Transforms	3	0	
CSE-1201	Circuit Analysis	3	0	
CSE-1201L	Circuit Analysis (Lab)	0	1	
CSE-1202	Computer Programming	3	0	
CSE-1202L	Computer Programming (Lab)	0	1	
CSE-1203	Electronic Devices and Circuits	3	0	
CSE-1203L	Electronic Devices and Circuits (Lab)	0	1	

QTR-1227	Quantitative Reasoning-I	3	0	
HQT-1128	Holy Quran with Translation, Tajveed, and Tafseer	0	0	
Total		**15**	**3**	
Semester 3				
CSE-2301	Digital Logic Design	3	0	
CSE-2301L	Digital Logic Design (Lab)	0	1	
ENG-2307	Expository Writing	3	0	
CSE-2302	Object Oriented Programming	3	0	CSE-1202, CSE-1202L
CSE-2302L	Object Oriented Programming (Lab)	0	1	CSE-1202, CSE-1202L
QTR-2328	Discrete Structures and Quantitative Reasoning-II	3	0	
MAT-2304	Linear Algebra	2	0	
MDE-2303	Occupational Health and Safety	1	0	
HQT-1128	Holy Quran with Translation, Tajveed, and Tafseer	0	0	
Total		**15**	**2**	

Semester 4				
MAT-2405	Differential Equations	3	0	
CSE-2401	Data Structures and Algorithms	3	0	
CSE-2401L	Data Structures and Algorithms (Lab)	0	1	
CSE-2402	Signals & Systems	3	0	MAT-1206
CSE-2402L	Signals & Systems (Lab)	0	1	MAT-1206
CSE-2403	Computer Architecture and Organization	3	0	
CSE-2403L	Computer Architecture and Organization (Lab)	0	1	
MAN-2411	Engineering Project Management	2	0	
HQT-1128	Holy Quran with Translation, Tajveed, and Tafseer	0	0	
Total		**14**	**3**	
Semester 5				
CSE-3501	Microprocessors and Interfacing	3	0	

CSE-3501L	Microprocessors and Interfacing (Lab)	0	1	
CSE-3502	Digital Signal Processing	3	0	CSE-2402, CSE-2402L
CSE-3502L	Digital Signal Processing (Lab)	0	1	CSE-2402, CSE-2402L
CSE-3503	Computer Communication Networks	3	0	
CSE-3503L	Computer Communication Networks (Lab)	0	1	
CSE-3504	Database Management System	3	0	
CSE-3504L	Database Management System (Lab)	0	1	
CCE-3530	Civics and Community Engagement	2	0	
HQT-1128	Holy Quran with Translation, Tajveed, and Tafseer	0	0	
Total		**14**	**4**	
Semester 6				

CSE-3601	Operating Systems	3	0	
CSE-3601L	Operating Systems (Lab)	0	1	
CSE-3602	Artificial Intelligence	2	0	
CSE-3602L	Artificial Intelligence Lab	0	1	
GS-3603	Probability and Statistics	2	0	
CSE-3604	Digital System Design	3	0	CSE-2301, CSE-2301L
CSE-3604L	Digital System Design (Lab)	0	1	CSE-2301, CSE-2301L
CSE-CEDE-I	Computer Engineering Depth Elective I	3	0	
CSE-CEDE-IL	Computer Engineering Depth Elective I (Lab)	0	1	
HQT-1128	Holy Quran with Translation, Tajveed, and Tafseer	0	0	
Total		**13**	**4**	
Semester 7				
ETRE-4708	Entrepreneurship	2	0	

CSE-CEDE-II	Computer Engineering Depth Elective II	3	0	
CSE-CEDE-IIL	Computer Engineering Depth Elective II (Lab)	0	1	
CSE-4701	Embedded Systems	3	0	CSE-3501, CSE-3501L
CSE-4701L	Embedded Systems (Lab)	0	1	CSE-3501, CSE-3501L
CSE-4702	Digital Image Processing	3	0	
CSE-4702L	Digital Image Processing (Lab)	0	1	
HQT-1128	Holy Quran with Translation, Tajveed, and Tafseer	0	0	
CSE-4705	Senior Design Project-I	3	0	
Total		**16**	**3**	
Semester 8				
ENG-4807	Technical Writing and Presentation Skills	3	0	
CSE-CEDE-III	Computer Engineering Depth Elective III	3	0	
CSE-CEDE-IIIL	Computer Engineering Depth Elective III (Lab)	0	1	
CSE-4802	Mobile and Pervasive Computing	3	0	
CSE-4802L	Mobile and Pervasive Computing (Lab)	0	1	
HQT-1128	Holy Quran with Translation, Tajveed, and Tafseer	0	0	
CSE-4805	Senior Design Project-II	3	0	
Total		**12**	**2**	

Computer Engineering Depth Electives (CEDE)

Code	Course	Cr. Hr.
CSE-E001	Machine Learning	3+1
CSE-E002	Internet of Things	3+1
CSE-E003	Embedded System Design	3+1
CSE-E004	Systems Programming	3+1
CSE-E005	Algorithm Design and Analysis	3+1
CSE-E006	System and Network Security	3+1
CSE-E007	Image Processing and Analysis	3+1

CSE-E008	Control Engineering	3+1
CSE-E009	VLSI System Design	3+1
CSE-4702	Cloud and Distributed Computing	3+0

Multi-Disciplinary Engineering Electives (MDEE)

MDE-4001	Human Computer Interaction (UI/UX)	3+0
MDE-4002	Block Chain Technologies and Applications	3+0
MDE-4003	Neural Networks and Fuzzy Logic	3+0
MDE-4004	Robotics and Automation	3+0
MDE-4005	Mobile Application/Game Development	3+0
MDE-4006	Virtual Reality	3+0
MDE-4007	Software Quality Assurance	3+0
MDE-4008	Instrumentation and Controls	3+0
MDE-4009	Data Warehousing and Big Data	3+0
MDE-4010	Applied Thermodynamics	3+0
MDE-4011	GIS and Remote Sensing	3+0
MDE-4012	Health, Safety and Environment (HSE)	3+0
MDE-4013	Biomedical Engineering	3+0
MDE-4014	Business Process Re-engineering	3+0
MDE-4015	Industry 4.0	3+0

Program Streams

	Computer Programming & Artificial Intelligence		Computer Networking & Communication		Computer Hardware/Robotics	
CEDE	CSE-E001	Machine Learning	CSE-E003	Embedded System Design	CSE-E003	Embedded System Design
	CSE-E007	Image Processing and Analysis	CSE-E002	Internet of Things	CSE-E002	Internet of Things
	CSE-E004	Systems Programming	CSE-E006	System and Network Security	CSE-E009	VLSI System Design
	CSE-E002	Internet of Things	CSE-4703	Cloud and Distributed Computing	CSE-E004	Systems Programming
	CSE-E005	Algorithm Design and Analysis			CSE-E008	Control Engineering
	CSE-4703	Cloud and Distributed Computing			CSE-4703	Cloud and Distributed Computing
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MDEE	MDE-4005	Mobile Application/Game Development	MDE-4013	Health, Safety and Environment (HSE)	MDE-4002	Block Chain Technologies and Applications
	MDE-4002	Block Chain Technologies and Applications	MDE-4012	GIS and Remote Sensing	MDE-4004	Robotics and Automation

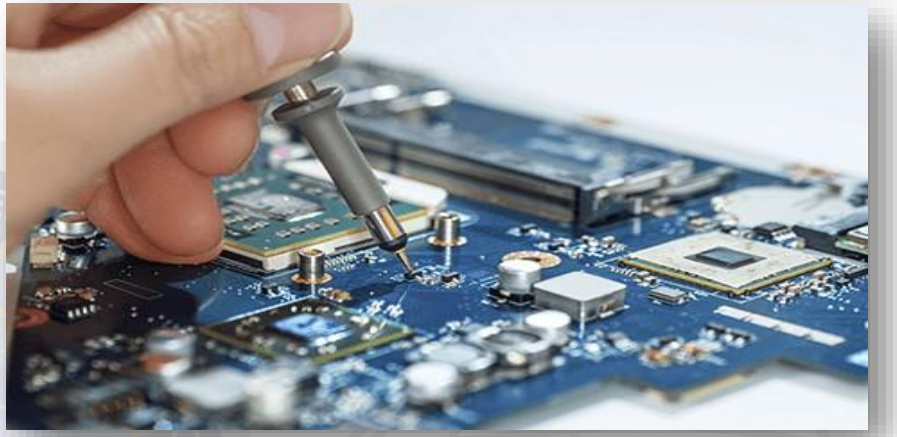
MDE-4010	Data Warehousing and Big Data	MDE-4001	Human Computer Interaction (UI/UX)	MDE-4015	Business Process Re-engineering
MDE-4013	Health, Safety and Environment (HSE)	MDE-4015	Business Process Re-engineering	MDE-4013	Health, Safety and Environment (HSE)
MDE-4003	Neural Networks and Fuzzy Logic	MDE-4002	Block Chain Technologies and Applications	MDE-4014	Biomedical Engineering
		MDE-4016	Industry 4.0	MDE-4016	Industry 4.0

Laboratories

The laboratories in the Computer Systems Engineering Department are vital components of the department's teaching and learning environment, designed to provide students with hands-on experience and practical application of theoretical concepts. These state-of-the-art facilities are equipped with the latest tools, instruments, and technology to support diverse academic programs and research initiatives.

Computer Lab:

The department has a well-equipped lab with the latest computers, which cover Digital Image Processing, Artificial Intelligence, DBMS, Workshop Practice, Computer Networks, Mobile Wireless Networks, Computer Fundamentals and Computer Programming subjects.



Embedded Lab:

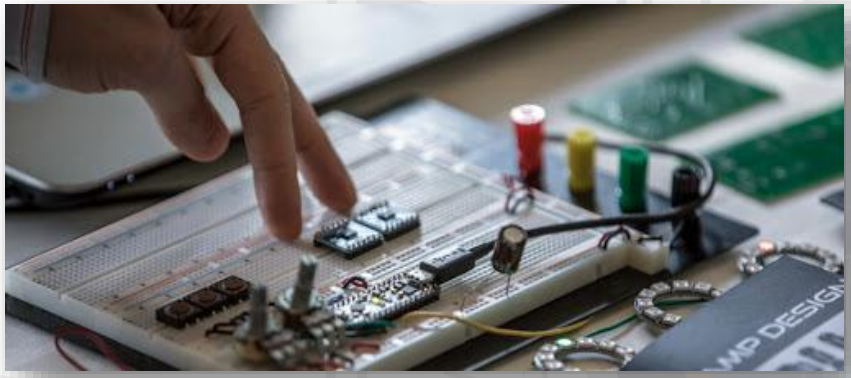
The embedded system lab is equipped with the latest computers, Microprocessor/Micro-controller trainers, Digital trainers and FPGA kits for various subjects like Microprocessors & Interfacing, Computer Architecture, Digital System Design, Digital Logic Design, Data Structure & Algorithms.

Communication/DSP Lab:

The Communication lab has Analog and Digital communication trainers, DSP trainers, oscilloscopes, DSK module kits, function generators, and computers for various subjects, such as digital Signal Processing, Communication Systems, and Signals & systems.

Digital and Electronics Lab.

The department has developed the lab for Digital design, circuit analysis, Electronic Devices and applied physics subjects. Lab has equipment like Digital trainers, oscilloscopes, multimeters, function generators, and power supplies to test and debug circuits.



Project Lab.

The department also has a final-year project lab where students design and implement their final-year projects.

M.Sc. Computer Systems Engineering Program

Admission criteria
• BS/BE/BSc. Degree in Computer (Systems) Engineering, Software Engineering, Electronic Engineering, Electrical Engineering, Telecommunication Engineering, or a four-year degree in any other relevant discipline with a minimum of 65% marks in the semester system and a minimum of 50% marks in the annual system. • Candidate has no 3rd division in his/her academic career. • Registered with the Pakistan Engineering Council (PEC). • Candidate must have passed GAT/HAT/NTS general test, or equivalent test acceptable by the HEC/University.

Duration
• Two years (four semesters). • Minimum 31 credit hours from graduate Computer (Systems) Engineering courses.

Degree Requirements
To obtain M.Sc. (CSE) degree, a student must: • Pass five (05) Core courses (15- credit hours). • Pass three (03) Elective courses (09-credit hours). • Satisfactorily complete a Research Project Thesis of 6 credit hours. • Pass seminar of 1 credit hour. • Pass a minimum of 31 credit hours.

Scheme of studies

Course Code	Course Title	Credit Hours.	
		Theory	Practical
Core Courses			
CSE-6201	Machine Learning	3	0
CSE-6202	Wireless Communication Networks	3	0
CSE-6203	Advanced Computer Architecture	3	0
CSE-6204	Parallel and Distributed Systems	3	0
CSE-6205	Deep Learning	3	0
CSE-6206	Advanced Topics in Computer Engineering	3	0
CSE-6207	Artificial Intelligence based Computer Architecture	3	0
CSE-6208	Advanced Digital Image Processing	3	0
CSE-5101	Computer Vision	3	0
CSE-5102	Advanced Operating Systems	3	0
CSE-5103	Advanced Microprocessor Systems	3	0
CSE-5104	Advanced Digital Signal Processing	3	0
CSE-5105	Advanced Digital Design	3	0
CSE-5106	Artificial Neural Networks	3	0
CSE-5107	Research Methodology & Ethics	3	0
Elective Courses			
CSE-6209	Biomedical Image Analysis	3	0
CSE-6210	Pattern Recognition	3	0
CSE-6211	Network Security and performance analysis	3	0
CSE-6212	Multimedia Communication Systems	3	0
CSE-6213	Advanced VLSI Design	3	0
CSE-6214	Cryptography and security	3	0
CSE-6215	Special Topics in Bio-Medical Engineering	3	0
CSE-6216	System on Chip (SoC)	3	0
CSE-6217	Application Specific Integrated Circuit (ASIC)	3	0
CSE-6218	Robotics	3	0
CSE-5108	Cloud Computing	3	0
CSE-5109	Internet of Things (IoT)	3	0
CSE-5110	Semantic Web	3	0
CSE-5111	Big Data Analytics	3	0
CSE-5112	Genetic Algorithms	3	0
CSE-5113	Data Mining and Warehousing	3	0
CSE-5114	Computer Communication Networks	3	0
Seminar & Thesis			
CSE-7001	Seminar-I	1	0
CSE-7002	Thesis	6	0

Ph.D. Computer Systems Engineering

Admission/ Eligibility criteria

- MS/M.Phil. /M.Sc. (Engineering) or equivalent 18-years education with at least a CGPA 3.00/4.00 or at least CGPA 3.50/5.00 (at least 65% marks) in semester systems and 1st Division (60% marks) in an annual system of examination.
- Candidate should have no 3rd division in his/her academic career provided that in case of the teachers at the University/Degree colleges engaged in postgraduate teaching and employees of the research organizations engaged in research, the vice chancellor may relax the condition 3rd division in matriculation or F.A/F.Sc. degree on compassionate grounds.
- The candidate must have passed the GRE/GAT (General)/UGAT test or equivalent test acceptable by the HEC/University.

Total Credit Hours:

Courses	18-Credit Hours
Seminar – I	01-Credit Hour
Seminar -II	01-Credit Hour
Comprehensive Oral/Written Examination	S/U basis
Thesis	50 Credits
Total Credits	70

Ph.D. Computer Systems Engineering (Semester Plan)			
Sr#.	Course Code	Course Title	**Cr. Hrs.**
Year-1 Semester-I			
1.	CSE-7105	Research Methodologies	**3**
2.	CSE-710x	Core Elective -I	**3**
3.	CSE-720x	Core Elective -II	**3**
Year-1 Semester-II			
4.	CSE-720x	Core Elective -III	**3**
5.	CSE-720x	Core Elective -IV	**3**
6.	CSE-710x	Elective -V	**3**
Year-2 Semester- III & IV			
7.		Comprehensive examination	**S/U**
8.	CSE-8000	Synopsis/Research Proposal	**A/D**
9.	CSE-7998	Seminar-I	**1**
Year-3 Semester- V & VI			
10.	CSE-7999	Seminar-II	**1**
11.	CSE-8000	Thesis	**50**

Semester wise break-up of Credit Hours

Semester Plan and List of Courses:

Scheme of studies:

Course Code	Course Title	Cr. Hrs.	
		Theory	Practical
Core Elective Courses			

CSE-7201	Advanced Computer Architecture	3	0
CSE-7202	Artificial Intelligence based Computer Architecture	3	0
CSE-7203	Wireless Communication Networks	3	0
CSE-7101	Advanced Digital Image Processing	3	0
CSE-7102	Advanced Operating Systems	3	0
CSE-7103	Advanced Microprocessor Systems	3	0
CSE-7104	Advanced Digital Design	3	0
CSE-7105	Research Methodologies	3	0
Elective Courses			
CSE-7204	Parallel and Distributed Systems	3	0
CSE-7205	Advanced Topics in Computer Engineering	3	0
CSE-7206	Computer Vision	3	0
CSE-7207	Deep Learning	3	0
CSE-7208	Machine Learning	3	0
CSE-7209	Bio Medical Image Analysis	3	0
CSE-7210	Network Security and performance analysis	3	0
CSE-7211	Multimedia Communication Systems	3	0
CSE-7212	Advanced VLSI Design	3	0
CSE-7213	Cryptography and security	3	0
CSE-7214	Robotics	3	0
CSE-7106	Advanced Digital Signal Processing	3	0
CSE-7107	Artificial Neural Networks	3	0

CSE-7108	Cloud Computing	3	0
CSE-7109	Pattern Recognition	3	0
Cse-7110	Internet of Things (IoT)	3	0
CSE-7111	Semantic Web	3	0
CSE-7112	Big Data Analytics	3	0
CSE-7113	Genetic Algorithms	3	0
CSE-7114	Data Mining and Warehousing	3	0
Thesis & Seminars			
CSE-7998	Seminar-I	1	0
CSE-7999	Seminar-II	1	0
CSE-8000	Thesis	50	0

Details about departmental focal persons

Examination Committee for M.Sc.

Engr. Dr. Zafar Ali Khan (Assistant Professor)	Convener
Engr. Bilal Ahmed (Assistant Professor)	Secretary
Engr. Muhammad Waqas Ahmed (Lecturer)	Member

Examination Committee for B.Sc.

Engr. Abdul Basit Awan (Assistant Professor)	Chairman
Engr. Waqas Riaz (Lecturer)	Secretary
Engr. Raja M. Basharat Manzoor (Assistant Professor)	Member
Engr. Qasim Yaqoob (Lecturer)	Member

Merit Scholarship Committee

Engr. Dr. Zafar Ali Khan (Assistant Professor)	Chairman
Engr. Hafiz Ata ul Mustafa Ahtesham (Lecturer)	Secretary
Engr. Bilal Ahmed (Assistant Professor)	Member

Sports Committee

Engr. Hafeez Ahmed (Lecturer)	Member
Engr. Qasim Yaqoob (Lecturer)	Member

Student Coordinator/Course Advisor

Engr. Qasim Yaqoob (Lecturer)	Member

Library In charge

Engr. Firdous Kanwal (Lecturer)	Member

Final Year Project Committee

Engr. Dr. Wahab Ali Gulzar (Assistant Professor)	Chairman
Engr. Hafiz Ata ul Mustafa Ahtesham (Lecturer)	Secretary
Engr. Waqas Ahmed (Lecturer)	Member

Departmental Academic Review Committee (DARC)

Engr. Dr. Zafar Ali Khan (Assistant Professor)	Chairman
Engr. Dr. Wahab Ali Gulzar (Assistant Professor)	Secretary
Engr. Muhammad Usman Khan (Assistant Professor)	Member
Engr. Bilal Ahmed (Assistant Professor)	Member

PEO Assessment Committee (PAC)

Engr. Qasim Yaqoob (Lecturer)	Chairman
Engr. Hafiz Ata ul Mustafa Ahtesham (Lecturer)	Secretary
Engr. Muhammad Waqas Ahmed (Lecturer)	Member

Under-Graduate Committee (UGC)

Engr. Abdul Basit Awan (Assistant Professor)	Chairman
Engr. Raja M. Basharat Manzoor (Assistant Professor)	Secretary
Engr. Qasim Yaqoob (Lecturer)	Member

Director CQI

Engr. Muhammad Usman Khan (Assistant Professor)	Director

Industrial Liaison Officer

Engr. Irfan Jamshed (Lecturer)	Chairman/Member

Graduate Advisory Committee

Engr. Dr. Ashfaq Ahmed (Assistant Professor)	Chairman
Engr. Waqas Riaz (Lecturer)	Secretary
Engr. Sarish Abid (Lecturer)	Member

Health and Safety Committee

Engr. Hafeez Ahmed (Lecturer)	Chairman
Engr. Safeena Razaq (Lecturer)	Secretary/Member

Collaboration and Outreach Committee

Engr. Qasim Yaqoob (Lecturer)	Chairman
Engr. Irfan Jamshed (Lecturer)	Secretary/Member

Success Stories

I entered the gates of MUST as an ambitious yet completely raw and vacillated creature, but the excellent academic and social blessings of MUST transformed me into a goal oriented professional. MUST in general and the Computer Systems Engineering (CSE) Department particularly developed an attitude of creativity and exploration that became the baseline of my professional career. As an Alumnus, I feel firmly connected to my alma mater through every walk of my life. I am grateful to my devoted and highly learned teachers of Computer Systems Engineering who invested into me and I owe every bit of my success to them.	 Engr. Farhad Aslam CSE Session 2006-2010 Program Architect Artificial Intelligence at Afiniti USA
During my stay at MUST, I got a chance to find my interests and polish my skills. Being a part of one of MUST most prestigious schools was a great experience. The faculty and staff at CSE are very encouraging and helpful. They helped me grow not only in academics but also as a human being. I learnt to balance my social life and work. CSE taught me how to be productive under stress. It also taught me to not worry about things too much because everything happens for a reason. MUST give you a hard time but it's all worth it in the end.	 Engr. Amjid Hussain CSE Session 2013-2017 Assistant Programmer at Ministry of Defence (POF), Former PACS/HMIS Manager at PACSLINK CORPORATION PVT.LTD.
Having studied Computer Systems Engineering at the MUST, AJK I have already been doing freelance software projects since my 3rd semester, when I was in 7th semester, I decided to start with the UK based digital marketing and Web design agency, Mangobit Ltd. I was into my career in the final year of my engineering degree as a young entrepreneur serving my clients globally having a UK based agency. In 2020 I decided to invest locally in surveillance and solar energy services Company named A&R Technologies, Ltd. Going from Computer Systems Engineering student to owner of AJK's Largest Digital, Surveillance and Solar Energy Company is an interesting route. As ex-president of AKCS (A departmental Society for tech skills) I am always available for free training sessions for MUST students.	 Engr. Tayyab Aziz Session 2015-19 CSE Department, MUST

DEPARTMENT OF
Electrical Engineering

Vision

Endeavour to provide quality Electrical Engineering education for the development of human resource, which contributes for the development of highly skilled workforce, innovators and entrepreneurs.

Degree Programs Offered

B.Sc. Electrical Engineering
M.Sc. Electrical Engineering
Ph.D. Electrical Engineering

Chairperson:
Engr. Prof. Dr. Naeem Iqbal Ratyal
Tel: +92-5827-960099
E-mail: chairman_ee@must.edu.pk

Message from Chairperson:

Department of Electrical Engineering (DEE) was initially raised in 1980 as a constituent college of the University of Azad Jammu and Kashmir, Muzaffarabad. On its establishment in 2008, the DEE was merged with Mirpur University of Science and Technology (MUST) and is offering an undergraduate program in Electrical Engineering accredited by Pakistan Engineering Council at Level-II under Washington Accord. The department also offers Electrical Engineering degree programs at the master's and Ph.D. levels. The DEE enjoys a bright history of educating students in diverse disciplines. Situated in the city center, the DEE endeavors to provide a favorable climate of knowledge with well-equipped laboratories, a library furnished with modern facilities, undergraduate hostels for boys and girls, examination halls, and lecture rooms. Since its inception, the DEE has worked hard to improve the quality of its faculty.

The DEE is honored to have a vibrant combination of highly qualified faculty, who graduated from universities of high repute. The DEE MUST is producing graduates for last 42 years and its graduates have meaningful and conspicuous representation in organizations related to power, communication, and electronic industry within and even outside Pakistan. Furthermore, faculty and students of the department boldly contribute towards co-curriculum activities. The department strives to enrich its traditions and disciplined environment for the campus life of the student

Faculty members of Electrical Engineering

Faculty Members

Engr. Dr. Syed Hassan Mujtba Jafri (on Leave)
Designation: Professor
Qualification: Ph.D.
Area of interest: Engineering Sciences

Engr. Dr. Muhammad Sajid
Designation: Professor
Qualification: Ph.D.
Area of interest: Image Processing

Engr. Dr. Anzar Mahmood
Designation: Associate Professor
Qualification: Ph.D.
Area of interest: Power Engineering

Engr. Muhammad Imran
Designation: Assistant Professor
Qualification: Ph.D. (Cont.)
Area of interest: Electronics

Engr. Munawar Sultan
Designation: Assistant Professor
Qualification: Ph.D. (Cont.)
Area of interest: Power Engineering

Engr. Dr. Naeem Iqbal Ratyal
Designation: Professor
Qualification: Ph.D.
Area of interest: Image Processing

Engr. Dr. Muhammad Ilyas Menhas
Designation: Associate Professor
Qualification: Ph.D.
Area of interest: Control Engineering

Engr. Shahid Amin
Designation: Assistant Professor
Qualification: Ph.D. (Cont.)
Area of interest: Electronics

Engr. Asif Raza Butt
Designation: Assistant Professor
Qualification: Ph.D. (Cont.)
Area of interest: Electronics

Engr. Rab Nawaz
Designation: Assistant Professor
Qualification: Ph.D. (Cont.)
Area of interest: Power Engineering

Engr. Mirza Ateeq Ahmed Baig
Designation: Assistant Professor
Qualification: Ph.D. (Cont.)
Area of interest: Power Systems and Energy Management

Engr. Dr. Anwar Ul Haq
Designation: Assistant Professor
Qualification: Ph.D.
Area of interest: Energy Informatics

Engr. Faheem Ashiq
Designation: Lecturer
Qualification: M.Sc.
Area of interest: Power Engineering

Engr. Nazish Habib
Designation: Lecturer
Qualification: Ph.D. (Cont.)
Area of interest: Image Processing

Engr. Shafaq Ejaz (on Study Leave)
Designation: Lecturer
Qualification: Ph.D. (Cont.)
Area of interest: Electronics

Engr. Jabbar Younis
Designation: Lecturer
Qualification: M.Sc.
Area of interest: System On Chip

Engr. Dr. Saeed Ahmed
Designation: Assistant Professor
Qualification: Ph.D.
Area of interest: Smart Grid

Engr. Dr. Omer Sher
Designation: Lecturer
Qualification: Ph.D.
Area of interest: Engineering Sciences

Engr. Benish Kanwal
Designation: Lecturer
Qualification: Ph.D. (Cont.)
Area of interest: Optical Systems

Engr. Shahbaz Baig
Designation: Lecturer
Qualification: Ph.D. (Cont.)
Area of interest: Power Systems

Engr. Dr. Adil Amin
Designation: Lecturer
Qualification: Ph.D.
Area of interest: Power Systems and Energy Management

Engr. Dr. Usman Mussadiq
Designation: Lab Engineer / Jr. Lecturer
Qualification: Ph.D.
Area of interest: Power Engineering

Engr. M. Usman Bashir
Designation: Lab Engineer
Qualification: M.Sc.
Area of interest: Power Engineering

Engr. Usama Samad (on Study Leave)
Designation: Lab Engineer / Jr. Lecturer
Qualification: Ph.D. (Cont.)
Area of interest: Control Engineering

Engr. Mahmood Ul Hassan
Designation: Lab Engineer
Qualification: B.Sc.
Area of interest: Electronics

Engr. M. Usman Zafar
Designation: Lab Engineer / Jr. Lecturer
Qualification: Ph.D. (Cont.)
Area of interest: Power Engineering

Electrical Engineering

The Department of Electrical Engineering was initially raised in 1980 as a unit college of the University of AJ&K, Muzaffarbad. On the establishment of Mirpur University of Science and Technology (MUST) in 2008, the DEE became its mother department and is offering programs in Electrical, Electronics, and Telecommunication at Undergraduate, Masters, and Ph.D. levels.

Since its inception, the department has been maintaining accreditation of its programs with Pakistan Engineering Council (PEC). This, of course, stands at the apex of the engineering arena. Communication, power, and electronics are the off spring seedlings of Electrical Engineering. Electrical Engineers find vast horizon of opportunities to ensure their contribution in facilitating the life on earth. Their contribution may be traced in communication computers, defense, design, aerospace also, more effectively in the telecom, electronic power and control industry.

The absorption of electrical engineers graduates from MUST is found largely in WAPDA, PTCL, Pakistan Navy, PIA, Air Force, Atomic Energy Commission, KRL, POF, AWC, PWD, NDC, Education, Telecomm and Power industry, modern textile industry, Hydel Power and Electricity Department.

The department has shifted on Outcome Based Education (OBE) and successfully got PEC accreditation at level II for its batch 2016. The batches on level II will enjoy acceptance of their degrees in the developed countries, signatories of Washington Accord, such as USA, UK, Germany, Singapore, Malaysia, and Turkey etc.

Department Mission

The Department of Electrical Engineering seeks to provide comprehensive, rigorous and accredited educational programme for the undergraduate and graduate students for the development of well rounded, educated, productive and ethical engineers with robust professional skills, who are capable of exploring diverse interest and can launch successfully into variety of careers offering learning, services and leadership role in various national and international organizations.

B.Sc. Electrical Engineering

Program Educational Objectives (PEOs)

- **PEO-1:** Serve competently in national and international industry or academia by showing excellent skills and knowledge in the field of Electrical Engineering.
- **PEO-2:** Exhibit the quest for learning and initiative through elevation in education or growth in professional status.
- **PEO-3:** Demonstrate commitment to ethical practices, community service and societal contribution.

Scheme of Study

Program Duration:	8-14 Semesters (4-7 Academic Years)
Total number of Credit Hours (CH) inclusive of 6-credit project:	136
Final Year Project Credits	6
Internship/Practical Training:	S/U Basis

Engineering Domain Courses:	95 (69.85%)
(Power/ Communication/ Electronics/ Electric Vehicles)	
Non-Engineering Domain Courses:	41 (30.14%)
(Basic Sciences/ Arts/ Humanities)	

*** Both Theory and Lab must be passed for all Pre-Requisite Courses.**

Semester 1

Code	Course Title	Cr. Hrs.	Ct. Hrs.	Pre-req.*
ENG-1103	Functional English	3	3	
MAT-1105	Calculus and Analytical Geometry	3	3	
BEE-1101	Linear Circuit Analysis	3	3	
BEE-1101L	Linear Circuit Analysis Lab	1	3	
ICT-1126	Applications of Information and Communication Technologies	2	2	
ICT-1126L	Applications of Information and Communication Technologies Lab	1	3	
BEE-2404L	Engineering Drawing	1	3	
PHY-1108	Applied Physics	2	2	
PHY-1108L	Applied Physics Lab	1	3	
Total		**17**	**25**	

Semester 2

Code	Course Title	Cr. Hrs.	Ct. Hrs.	Pre-req.*
MAT-2305	Differential Equations	3	3	
	Natural Science Elective	3	3	
BEE -1201	Computer Programming	3	3	
BEE -1201L	Computer Programming Lab	1	3	
BEE-1202L	Electrical Workshop Practice	1	3	
ICP-2329	Ideology and Constitution of Pakistan	2	2	
BEE -1203	Electronic Devices and Circuits	3	3	
BEE -1203L	Electronic Devices and Circuits Lab	1	3	
Total		**17**	**23**	

Semester 3

Code	Course Title	Cr. Hrs.	Ct. Hrs.	Pre-req.*
MAT-2406	Complex Variables and Transforms	3	3	

	Arts and Humanities Elective	2	2	
BEE-2301	Electrical Network Analysis	3	3	BEE-1101, BEE-1101L
BEE-2301L	Electrical Network Analysis Lab	1	3	
BEE-2303	Digital Logic Design	3	3	
BEE-2302	Data Structures and Algorithms	3	3	BEE-1201, BEE-1201L
BEE-2302L	Data Structures and Algorithms Lab	1	3	
BEE-2303L	Digital Logic Design Lab	1	3	
MDE -2303	Occupational Health and Safety	1	1	
Total		**18**	**24**	

Semester 4

Code	Course Title	Cr. Hrs.	Ct. Hrs.	Pre-req.*
	Social Sciences Elective	2	2	
MAT-1204	Linear Algebra	3	3	
ISL-1212	Islamic Studies/ Ethics	2	2	
BEE-2401	Probability and Statistics for Engineers	3	3	
BEE-2402	Signal and Systems	3	3	
BEE-2402L	Signal and Systems Lab	1	3	
BEE-2403	Electromagnetic Field Theory	3	3	
Total		**17**	**17**	

Semester 5

Code	Course Title	Cr. Hrs.	Ct. Hrs.	Pre-req.*
BEE-3501	Electrical Machines	3	3	
BEE-3501L	Electrical Machines Lab	1	3	
BEE-3502	Microprocessors and Interfacing	3	3	
BEE-3502L	Microprocessors and Interfacing Lab	1	3	
BEE-3503	Communication Systems	3	3	BEE-2402, BEE-2402L
BEE-3503L	Communication Systems Lab	1	3	
CEE-2330	Civics and Community Engagement	2	2	
	Multi-Disciplinary Domain Engineering Elective	3	3	
Total		**17**	**23**	

Semester 6

Code	Course Title	Cr. Hrs.	Ct. Hrs.	Pre-req.*
ENG-2407	Expository Writing	3	3	

BEE-3601	Linear Control Systems	3	3	
BEE-3601L	Linear Control Systems Lab	1	3	
BEE-3602	Power Distribution and Utilization	3	3	
BEE-3602L	Power Distribution and Utilization Lab	1	3	
	Artificial Intelligence	3	3	
	Artificial Intelligence Lab	1	3	
MAN-3511	Project Management	2	2	
Total		**17**	**23**	

Semester 7 (Power)

Code	Course Title	Cr. Hrs.	Ct. Hrs.	Pre-req.*
BEE-4701	Power System Analysis	3	3	
BEE-4701L	Power System Analysis Lab	1	3	
BEE-4702	Power Generation	3	3	
	Depth Elective -III	3	3	
	Depth Elective -III Lab	1	3	
	Depth Elective -IV	3	3	
	Depth Elective -IV Lab	1	3	
BEE-4805	Final Year Project-I	2	6	
Total		**17**	**27**	

Semester 7 (Electronics)

Code	Course Title	Cr. Hrs.	Ct. Hrs.	Pre-req.*
BEE-4701	Electronic Circuit Design	3	3	
BEE-4701L	Electronic Circuit Design Lab	1	3	
BEE-4702	Power Electronics	3	3	
BEE-4702L	Power Electronics Lab	1	3	
	Depth Elective -III	3	3	
	Depth Elective -III Lab	1	3	
	Depth Elective -IV	3	3	
BEE-4805	Final Year Project-I	2	6	
Total		**17**	**27**	

Semester 7 (Communication)

Code	Course Title	Cr. Hrs.	Ct. Hrs.	Pre-req.*
BEE-4701	Electronic Circuit Design	3	3	
BEE-4701L	Electronic Circuit Design Lab	1	3	
BEE-4702	Computer Communication Networks	3	3	

BEE-4702L	Computer Communication Networks Lab	1	3	
	Depth Elective -III	3	3	
	Depth Elective -III Lab	1	3	
	Depth Elective -IV	3	3	
BEE-4805	Final Year Project-I	2	6	
Total		**17**	**27**	

Semester 7 (Electric Vehicles)

Code	Course Title	Cr. Hrs.	Ct. Hrs.	Pre-req.*
BEE-4701	Automotive Engineering	3	3	
BEE-4701L	Automotive Engineering Lab	1	3	
BEE-4702	EV Charging Devices and Technologies	3	3	
BEE-4702L	EV Charging Devices and Technologies Lab	1	3	
	Depth Elective -III	3	3	
	Depth Elective -III Lab	1	3	
	Depth Elective -IV	3	3	
BEE-4805	Final Year Project-I	2	6	
Total		**17**	**27**	

Semester 8 (Power/ Electronics/ Communication/ Electric Vehicles)

Code	Course Title	Cr. Hrs.	Ct. Hrs.	Pre-req.*
ETR-3608	Entrepreneurship	2	2	
HQT-1128	Holy Quran with Translation, Tajveed and Tafseer	S/U	1	
	Depth Elective-V (Power/ Electronics/ Communication/ EV)	3	3	
	Flexible Engg./ Non-Engg. Elective-II (Power/ Electronics/ Communication/ EV)	3	3	
	Flexible Engg./ Non-Engg. Elective-II Lab (Power/ Electronics/ Communication/ EV)	1	3	
	Flexible Engg./ Non-Engg. Elective-III (Power/ Electronics/ Communication/ EV)	3	3	
BEE-4805	Final Year Project-II	4	12	
Total		**16**	**27**	

List of Arts and Humanities Electives (2+0)

Course Title	Course Title
Communication and Presentation Skills	Sociology for Engineers

Beginners Spanish	Sociology for Engineers
Elementary Arabic	Social Psychology
Elementary French	Critical Thinking
Elementary Chinese	Human Resource Management
History	Organizational Behavior
Philosophy	Engineering Law
Professional Ethics	Engineering Economics
	Applied Psychology

Proposed Electives for Natural Science (3+0)

Course Title	Course Title
Multivariable Calculus	Engineering Management
Discrete Mathematics	Financial Management
Numerical Analysis	Marketing Management
Applied Chemistry	Leadership and Personal Grooming
Biology	

List of Elective Courses (Power)

Course Title	Pre-req.*
Electrical Power Transmission	
Power System Protection	
Renewable Energy Systems	
Power System Operation and Control	
Smart Grid	
High Voltage Engineering	
Electrical Machine Design and Maintenance	
Electrical Power Transmission	
FACTS and HVDC Transmission	
Power Electronics	
Instrumentation and Measurement	

List of Elective Courses (Electronics)

Course Title	Pre-req.*
VLSI Design	
Embedded Systems	
Optoelectronics	
Medical Robotics	
RF and Microwave Engineering	BEE-2403
Biomedical Instrumentation	

Wave Propagation and Antennas	BEE-2403
Internet of Things (IoT)	
Analogue Integrated Electronics	
Digital Signal Processing	BEE-2402, BEE-2402L
FPGA Based Digital Design	
Digital Control	
Nanotechnology	
Micro Electro mechanical Systems (MEMS)	
Industrial Electronics	
Application Specific Integrated Circuits (ASIC) Design	

List of Elective Courses (Communication)

Course Title	Pre-req.*
Wireless and Mobile Communications	
Optical Communications	
Navigation Systems	
Digital Image Processing	
Microwave and Radar Systems	BEE-2403
Biomedical Instrumentation	

Antenna and Wave Propagation	BEE-2403
Data Communications	
Internet of Things (IoT)	
Satellite Communications	
Digital Communications	
Next Generation Networks	
Wireless Network Systems	
Telecommunications Standards and Regulations	
Network Management	
Telecommunications Traffic Engineering	
Transmission and Switching Systems	

List of Elective Courses (Electric Vehicles)

Course Title	Pre-req.*
Sensors and Actuators	
EV Batteries and Ancillaries	
EV Software	
EV Control Systems	
EV Integration with Power Grid	
Autonomous Vehicles	
EV Circuits and Electronics	
EV Body and Chassis Design	

Vehicular Networking	
EV Dynamics	

List of MDEs	
Course Title	**Pre-req.***
Applied Mechanics	
Fluid Mechanics	
Thermodynamics	
Surveying and Levelling	
Bio-Mechanics	
Environmental Engineering	
Software Engineering	
Optimization Techniques	

List of Flexible Courses	
Course Title	**Pre-req.***
Data Communications	
Data Analytics and Machine Learning	
Internet of Things (IoT)	
Artificial Intelligence for Electrical Engineers	
Intelligent Control	
Environment and Sustainability	
Python for Engineers	
Energy Informatics	

M.Sc. in Electrical Engineering

The Department of Electrical Engineering offers research-oriented multidisciplinary MSc in Electrical Engineering. The major tracks are Electronics, Power Systems, Telecommunication, Control & Automation, and Communication Systems & Networks. The department offers an evening program along with weekend learning opportunity and expects its graduates to provide engineering solutions to the society.

Program Educational Objectives

The M.Sc. in Electrical Engineering at MUST focuses to help students to develop confidence to work as professional and ready to explore new research dimensions of the discipline as a researcher.

- **PEO-1:** Acquire in-depth knowledge and abilities with quality advanced education in the chosen area of specialization of Electrical Engineering. (Quality Education)
- **PEO-2:** Identify and solve engineering problems by conducting intensive research and development to create better engineering solutions and present results in scientific forums to contribute to the advancement of science and technology. (Advanced Studies)
- **PEO-3:** Innovate and engage by continuous professional development in response to meeting individual goals as well as develop lifelong learning habits and abilities to solve various traditional and contemporary issues in Electrical Engineering. (Lifelong Learning)

Admission Criterion:

A candidate must:

- Have passed 16-years education with following minimal grades:

Education	Semester Based Examinations		Annual
	CGPA	Percentage	
16-Year	3.0 out of 4.00	65%	50%

- Candidate should have no 3rd division in his/ her academic career.
- The candidates must have passed the GRE/ HAT General/ GAT Equivalent tests, with a passing sore of 50% or any other test as required by the University.
- Latest HEC Graduate Policy will be followed.

Degree Requirements:

A candidate must successfully complete 24 credit hours for course work and 06 credit hours of research work with an overall minimum CGPA of 2.5/4.00 for obtaining degree.

Scholarships Offered:

Studentship is offered in various funded research projects.

Duration:

The duration of the degree will not be less than three (03) semesters and more than eight (08) semesters.

Selection Criterion:

- Admissions will be granted on open merit basis (there is no quota seat).
- A candidate shall be selected on the basis of cumulative merit to be determined from his/ her past academic record and achievements in the written tests conducted by the Controller of Examinations and Interview by Admission Committee of the concerned discipline.
- The allocation of marks for determining merit shall be as follows:

Academic Record	55 marks
Admission Test	35 marks
Interview	10 marks

Scheme of Study

M.Sc. Electrical Engineering

Semester I

Course	Type	Subject	Cr. Hrs.
Course-1	Compulsory*	Offered from list of compulsory courses	3
Course-2	Core**	Offered from list of core courses	3
Course-3	Core**	Offered from list of core courses	3
Course-4	Specialization***	Any course from list of specialization courses	3

Semester II

Course	Type	Subject	Cr. Hrs.
Course-5	Core	Offered from list of core courses	3
Course-6	Core	Offered from list of core courses	3
Course-7	Specialization	Any course from list of specialization courses	3
Course-8	Specialization	Any course from list of specialization courses	3

Semester III

Course	Type	Subject	Cr. Hrs.
Thesis	Compulsory	Postgraduate Thesis	6

Semester IV

Course	Type	Subject	Cr. Hrs.
Thesis	Compulsory	Postgraduate Thesis (continued)	6
		Total Credits	**30**

* **Mandatory** course for M.Sc. Electrical Engineering
** Must be taken from core courses. Minimum of four **(04)** core courses must be taken
*** Can be taken from specialized courses. Maximum of three **(03)** specialized courses allowed

PhD in Electrical Engineering

The Department of Electrical Engineering offers a PhD in Electrical Engineering. Research at this level covers all fields of Electrical

Engineering from nano-electronics to high power applications. It includes Electronics, Communication & Signal Processing, Power System & Energy Management, and Robotics & Control as key research areas. The department offers full-time program and expects that the students would produce original work with significant contribution to the knowledge in the field of study.

Program Educational Objectives

The PhD in Electrical Engineering at MUST focuses to prepare students having advanced knowledge and skills required to start research and/or teaching career in universities, research institutions or industry and to conduct independent research.

- **PEO-1:** Offer rigorous and innovative engineering education and training for the development of research-level scholars in the chosen area of specialization of Electrical Engineering. (Quality Education)
- **PEO-2:** Prepare graduates to identify and solve engineering problems by critically thinking, analyzing, and making decisions to create better engineering solutions that give due consideration to national as well as global issues in society and the environment. (Advanced Studies)
- PEO-3: Innovate and engage by committing to lifelong learning by embracing global challenges and opportunities to solve various traditional and contemporary issues to make a positive impact in the society. (Lifelong Learning)

Admission Criterion
The eligibility criteria for admission to the Ph.D. degree programme shall be as under:
(1) Have passed 18-years education with at least CGPA 3.00/ 4.00 and at least CGPA 3.50/ 5.00 (at least 65% marks) in semester system and 1st division (60% marks) in annual system of examination. (2) Candidate should have no 3rd division in his/ her academic career. (3) The candidate must have (a) passed the test equivalent to GRE/ HAT General, conducted by the university, with a passing score of 60%. OR (b) passed the GRE/ HAT General or equivalent, conducted by testing bodies accredited by HEC, with a passing score of 60%. (4) The latest HEC Graduate Policy will be followed.

Selection Criterion	
1. Admissions will be granted on open merit basis. 2. The merit for admission will be determined by the following criteria:	
Academic Record	80 marks
Interview	15 marks
Publications	05 marks
Total	100 marks

Scholarships Offered
Studentship is offered in various funded research projects.
Degree Requirements
A candidate must complete minimum 18 credit hours course work in maximum four semester duration, participate in two seminars (01 credit hour each), complete 50 credit hours of

research work with at least one publication in HEC recognized journal.
Duration
The duration of the program will not be less than six semesters and more than sixteen semesters.

Scheme of Study

PhD Electrical Engineering

Semester I

Course	Type	Subject	Cr. Hrs.
Course-1	Compulsory	Research Methodology and Ethics	3
Course-2	Compulsory	Offered from Ph.D. courses list	3
Course-3	Compulsory	Offered from Ph.D. courses list	3

Semester II

Course	Type	Subject	Cr. Hrs.
Course-4	Compulsory	Offered from Ph.D. courses list	3
Course-5	Compulsory	Offered from Ph.D. courses list	3
Course-6	Compulsory	Offered from Ph.D. courses list	3

Semester III-XVI

Course code	Type	Subject	Cr. Hrs.
PEE-7997		Comprehensive Exam	0 (Pass/Fail)
PEE-7998	Compulsory	Research Seminar-I	1
PEE-7999	Compulsory	Research Seminar-II	1
PEE-8000	Compulsory	Thesis	50

Note: *Semester III-XVI also includes passing Comprehensive Exam (Written+Oral), Ph.D. Synopsis, Research Seminar-I, Research Seminar-II, Final Open Defense*

Note: *A student shall not be enrolled for more than 12 and less than 3 credit hours of taught courses in a semester except for semester with thesis.*

List of Graduate courses (M.Sc. & Ph.D.)

COMPULSORY COURSES

Course Code	LIST OF COURSES
PEE-7101	Research Methodology and Ethics
PEE-7997	Comprehensive Exam
PEE-7998	Research Seminar-I
PEE-7999	Research Seminar-II
PEE-8000	Postgraduate Thesis

SPECIALIZATION COURSES	
Course Code	**LIST OF COURSES**
PEE-7201	Control of AC & DC Machines and Drives
PEE-7202	Modeling and Simulation of Electrical Machines
PEE-7203	Industrial Power System & Design
PEE-7204	Power System Operation and Planning
PEE-7205	Advanced Power System Analysis
PEE-7206	Alternate Energy Sources
PEE-7207	Advanced Topics in Power
PEE-7208	Advanced Power System Operation and Control
PEE-7209	Smart Grids
PEE-7210	Sustainable Energy System
PEE-7211	Electric Power Quality
PEE-7212	Wind Power Generation
PEE-7213	Faults Tolerated Power System
PEE-7214	Energy Resources and Technologies
PEE-7215	Metaheuristic Optimization
PEE-7216	Energy Informatics
PEE-7217	Embedded System Design
PEE-7218	Advanced Microwave Engineering
PEE-7219	Advanced VLSI Design
PEE-7220	Advanced Microprocessor Based Systems
PEE-7221	Artificial Neural Networks
PEE-7222	Advanced Digital Signal Processing
PEE-7223	Advanced Computer Architecture
PEE-7224	Digital Image Processing
PEE-7225	Nanoelectronics
PEE-7226	Modeling and Simulation of Semiconductor Devices
PEE-7227	VLSI Testing and Verification
PEE-7228	Integrated Optical Devices & Waveguides
PEE-7229	Digital Integrated Circuit Design
PEE-7230	Analog IC Design
PEE-7231	Advanced Topics in Electronics
PEE-7232	Fiber Optics Theory and Communication
PEE-7233	Computer Vision and Machine Learning
PEE-7234	Advanced Topics in VLSI
PEE-7235	Advanced Digital System Design
PEE-7236	Advanced Topics in Electromagnetics
PEE-7237	Advanced Antenna Theory
PEE-7238	VLSI Signal Processing
PEE-7239	VLSI Interconnects
PEE-7240	Nanophotonics and Metamaterials
PEE-7241	Advanced topics in Communication Networks
PEE-7242	Advanced Optical Networks
PEE-7243	Advanced Broadband Communication
PEE-7244	Advanced Satellite Communication
PEE-7245	Advanced Multimedia Communication
PEE-7246	Advanced Topics in Internet of Things
PEE-7247	Advanced topics in Communication Networks
PEE-7248	IP Telephony and VOIP
PEE-7249	Speech and Audio Processing
PEE-7250	Cellular Radio and Personal Communication
PEE-7251	Optimization of Data Network

PEE-7252	Smart Grid Communication
PEE-7253	Advanced Topic in Telecommunication
PEE-7254	Pattern Recognition
PEE-7255	Robot Control Theory
PEE-7256	Optimal Control Systems
PEE-7257	Estimation Theory
PEE-7258	Dynamics of Robots
PEE-7259	System Dynamics
PEE-7260	Advanced Topics in Control Systems
PEE-7261	Computational Methods in Large Scale Simulations
PEE-7262	Intelligent Control

CORE COURSES	
Course Code	**LIST OF COURSES**
PEE-7103	Advanced Topics in Electromagnetics
PEE-7104	Probability Theory
PEE-7105	Advanced Power Electronics Devices and Converters
PEE-7106	Metaheuristic Optimization
PEE-7107	Advanced Power System Distribution
PEE-7108	Power System Reliability
PEE-7109	Energy Management
PEE-7110	Power System Restructuring
PEE-7111	Advanced Power System and Protection
PEE-7112	Insulation Coordination in Power Systems

PEE-7113	Power System Circuit Breaker & Substations
PEE-7114	Renewable Energy Sources
PEE-7115	Advanced High Voltage Engineering
PEE-7116	Power System Modeling and Analysis
PEE-7117	Advanced Power System Transmission
PEE-7118	Advanced Power System Stability and Quality
PEE-7119	Power Generation Economics
PEE-7120	Distributed Generation
PEE-7121	Advanced Power Electronics Devices and Converters
PEE-7122	Switch-Mode Power Supplies
PEE-7123	Modeling and Simulation of Convertors
PEE-7124	Special Electrical Machine
PEE-7125	Advanced Control System
PEE-7126	Advanced Design of Electrical Machine
PEE-7127	Semiconductor Processing
PEE-7128	Electromagnetic Field Analysis
PEE-7129	Stochastic Process
PEE-7130	Solid State Electronics
PEE-7131	Photonic Devices
PEE-7132	Computational EM
PEE-7133	Semiconductor Device Physics
PEE-7134	Quantum Mechanics
PEE-7135	Radiating Systems & Antennas
PEE-7136	Microwave Networks & Passive Components
PEE-7137	Advanced Computer Networks
PEE-7138	Secure Communications

PEE-7139	Microwave IC Design
PEE-7140	Real-time DSP
PEE-7141	Spatial Array Processing
PEE-7142	Filtering & Tracking
PEE-7143	Advanced Digital Communication
PEE-7144	Information Theory and Coding
PEE-7145	Advanced Wireless Communication
PEE-7146	Microwave Systems & Devices
PEE-7147	Advanced Mobile Communication
PEE-7148	Signal Detection & Estimation
PEE-7149	Adaptive Filter Theory
PEE-7150	Wireless Adhoc Networks
PEE-7151	Unmanned Aerial Vehicles, Design and Performance Analysis
PEE-7152	Advanced Communication Networks
PEE-7153	Advanced Concepts in Radar Applications
PEE-7154	Global Positioning and Navigation System
PEE-7155	Electromagnetic Field Compatibility
PEE-7156	Cryptography and Security
PEE-7157	Advanced Optical Communication
PEE-7158	Telecommunication Network Operations
PEE-7159	Advanced Digital Control Systems
PEE-7160	Fuzzy Control Systems
PEE-7161	Adaptive Control System
PEE-7162	Robust Control
PEE-7163	System Identification
PEE-7164	Linear Control System Theory

PEE-7165	Non-Linear Control System
PEE-7166	Control System Optimization
PEE-7167	Chaos Theory
PEE-7168	Random Variables and Stochastic Processes
PEE-7169	Linear Multivariable Control Theory


MUST
We cordially
Welcome
Our Worthy Speaker


We cordially

Students from Pakistan attending WCU through exchange program

WCU ADMINISTRATOR › FEBRUARY 27, 2019

The Western Carolina University community has welcomed three new international students to campus this spring semester as part of the U.S. Department of State's Global Undergraduate Exchange Program in Pakistan.

Students from Pakistan studying at WCU this semester are (from left) Soha, Usman and Minahil.

Joining the WCU community is Soha, Minahil and Usman, all studying electrical engineering. (The students' full names are not being used in accordance with U.S. Department of State policy.)

Participation in National Events and Competitions

Alumni Messages

The department provides a unique and balanced environment for educational, professional and personal grooming. Our faculty embraces new propositions and help us in turning these ideas to reality. Being a student, I learned a lot about my engineering field and how to implement this knowledge in practical field. On campus accommodation, extracurricular activities, 24/7 Wi-Fi, library, symposiums & seminars, practical trainings, presentation & communication skills to enrich self-confidence makes MUST a great institution.		**Raja Faizan Ayub** **Student (8th Semester)** **B.Sc. Electrical Engineering** **Session: 2017-2021**
Words are powerless to express my gratitude to MUST. There are so many opportunities to develop ones personality in any field. The entire faculty and other staff members of the university are very cooperative. Each year many young graduates like me from this department are able to enter technical fields with prominent technical skills and utmost ethical grooming to serve their community.		**Engr. Sheeza Mariam Nawaz** **SDO GEPCO WAPDA** **M.Sc. Electrical Engineering** **Session: 2019-2021**
Advanced labs equipped with modern facilities, online resources, professional grooming, excellent environment, cooperative & highly qualified faculty makes MUST one of the best modern university of AJK and Pakistan. The Bachelor program at the department of Electrical Engineering motivated me to dive deeper in the research and thanks to the HEC HRDI-UESTP scholarship program, I am currently perusing my combined MS-PhD studies at the Department of Electrical and Computer Engineering at Sungkyunkwan University, South Korea. Currently, my research project (funded by Samsung) is mainly focused on wireless communication and networks.		**Engr. Danish Mahmood** **PhD Scholar** **Sungkyunkwan University** **South Korea** **Session: 2011-2015**
After graduation from the department of electrical engineering, I was greatly inclined towards applied technology. The energy crisis motivated me to apply my knowledge and provide cost effective energy solutions for the local community. This led to the start of my own business, KOMPAS SOLAR, in 2012 and to date we have the installed capacity of over 2 MW of solar energy in AJK and across Pakistan. We now run the largest solar company in AJK and have also expanded our business through e-market platform for online services.		**Muhammad Ahmed Kamal** **Chief Executive Officer** **KOMPAS SOLAR** **B.Sc. Electrical Engineering**

DEPARTMENT OF
Mechanical Engineering

Program Mission

To produce competent mechanical engineers having professional ethics effectively contributing for the betterment of society recognizing technological developments

Degree Programs Offered

B.Sc. in Mechanical Engineering
MS in Mechanical Engineering
MS in Energy Systems Engineering
Ph.D.in Mechanical Engineering

Chairperson/Incharge:
Engr. Dr. Naveed Akram
Tel: +92-5827- 960036
E-mail: chairman_me@must.edu.pk

Message from Chairperson:

It gives me immense pleasure to welcome you at the Department of Mechanical Engineering of Mirpur University of Science and Technology (MUST) Mirpur AJK. The department started its Bachelor of Science (B.Sc.) in Mechanical Engineering program in 2004 when it was a campus of the University of Azad Jammu and Kashmir, Muzaffarabad and known as Ali Ahmed Shah University College of Engineering and Technology Mirpur Azad Kashmir.

Since 2008, when it got its recognition as Mirpur University of Science and Technology (MUST), our department has grown significantly from the faculty point of view to the development of well-equipped laboratories for fulfilling the practical requirements of the students. Along with the Bachelor of Science in Mechanical Engineering program, the department offers two MS engineering programs and one Ph.D. engineering program. The two MS engineering programs include MS in Mechanical Engineering and MS in Energy Systems Engineering whereas the title of the Ph.D. program is Ph.D. in Mechanical Engineering.

We have highly qualified faculty including foreign qualified PhDs. We are committed to providing quality education and grooming the students to develop strong leadership qualities along with other professional skills to meet the challenging requirements of this modern world and to be a successful member of society. Research and development (R & D) has been one of our priorities and our students are doing several projects funded by Higher Education Commission (HEC) of Pakistan.

I am very much delighted to let you know that our B.Sc. Mechanical Engineering Program has now been accredited by Pakistan Engineering Council (PEC) under the Washington Accord Outcome-Based Education (OBE) system thus earning recognition and acceptance of its engineering degrees worldwide. Opportunities for our undergraduate and graduate students are virtually unlimited. In addition to our rigorous and challenging academic curriculum, our undergraduates are very active in extracurricular activities and national competitions, which are often coordinated by the various student organizations and clubs.

Faculty members of Mechanical Engineering

Faculty Members

Engr. Dr. Naveed Akram
Designation: Assistant Prof./In-charge
Qualification: PhD
Area of Interest: Heat Transfer & Fluid Mechanics

Engr. Dr. Khuram Pervez
Designation: Associate Prof.
Qualification: PhD
Area of Interest: Heat Transfer & Sustainable Energy System

Engr. Dr. Ghulam Qadir Ch.
Designation: Assistant Prof.
Qualification: PhD
Area of Interest: HVAC

Engr. Syed Kashif Hussain Shah
Designation: Assistant Prof.
Qualification: PhD (Cont'd)
Area of Interest: Thermal Systems

Engr. Noman Bashir
Designation: Lecturer
Qualification: PhD (Cont'd)
Area of Interest: Engineering Materials

Engr. Asad Ijaz
Designation: Lecturer
Qualification: PhD (Cont'd)
Area of Interest: CFD, Fluid-Structure Interaction, Flow-Induced Vibrations, Heat Transfer

Engr. Dr. Muhammad Yamin Younis
Designation: Assistant Prof.
Qualification: PhD
Area of Interest: Fluid Mechanics

Engr. Muhammad Imdad Hussain
Designation: Assistant Prof.
Qualification: PhD (Cont'd)
Area of Interest: Mechanical Engineering

Engr. Dr. Muhammad Anser Bashir
Designation: Assistant Prof.
Qualification: PhD
Area of Interest: Concentrated Solar-thermal Systems

Engr. Faraz Ikram
Designation: Assistant Prof.
Qualification: PhD (Cont'd)
Area of Interest: Experimental Fluid Mechanics

Engr. Ambreen Tajammal
Designation: Lecturer
Qualification: PhD (Cont'd)
Area of Interest: Mechanical Engineering

Engr. Kamran Afzal
Designation: Lecturer
Qualification: PhD (Cont'd)
Area of Interest: Computational Fluid Dynamics

Engr. Dr. M. Amar
Designation: Lecturer
Qualification: PhD
Area of Interest: Mechanical Engineering

Engr. Dr. Asad Munir
Designation: Lecturer
Qualification: PhD
Area of Interest: Functional Materials, Biomechanics

Engr. Dr. Zeeshan Anjum
Designation: Lecturer
Qualification: PhD
Area of Interest: Applied Mechanics Design

Engr. M. Abid
Designation: Jr. Lecturer
Qualification: M.S
Area of Interest: Thermal Systems

Lab Engineers

Engr. Muhammad Tahir Amin
Designation: **Lab Engineer**
Qualification**: M.S**
Area of interest: **Thermal Systems**

Engr. Muhammad Sajid Khan
Designation: Lab Engineer
Qualification: PhD (Cont'd)
Area of interest: Thermal Systems

Engr. Nasir Iqbal
Designation: Lecturer
Qualification: PhD (Cont'd)
Area of Interest: Mechanical Engineering

Engr. Haroon Mushtaq
Designation: Lecturer
Qualification: PhD (Cont'd)
Area of Interest: Manufacturing Design

Engr. Muhammad Azad
Designation: Jr. Lecturer
Qualification: M.S
Area of Interest: Computational Fluid Dynamics

Engr. Muhammad Asif Awan
Designation: Jr. Lecturer/Lab Engineer
Qualification: M.S
Area of Interest: Thermal Systems/Energy Systems

Engr. Faisal Maqbool
Designation: **Lab Engineer**
Qualification: **M.S**
Area of interest: **Thermal Systems**

Engr. Hafiz Sohaib Muhammad
Designation: Lab Engineer
Qualification: M.S
Area of interest: Thermal Systems

B.Sc. Mechanical Engineering

Mechanical Engineering is a highly versatile and diversified engineering discipline. On the one hand it is concerned 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, production and process equipment. The department offers four years degree program leading to B.Sc. in Mechanical Engineering. securing suitable positions. The department is equipped with state-of-the-art laboratories. These labs are always accessible by both students and the faculty, and they are also linked through the state-of-the-art network environment.

Program Educational Objectives (PEOs)

- **PEO 1:** The graduates exhibiting engineering skills towards a successful career.
- **PEO 2:** The graduates adapting to provide viable engineering solutions to uplift the society and environment.
- **PEO 3:** The graduates demonstrating professional ethics and knowledge progression individually and in a team.

Mapping of PEOs with VISION and MISSION

Program Education Objectives	MUST MIRPUR		Program Mission
	Vision	Mission	
PEO 1	Superior Teaching	Knowledge & leadership	Competency
PEO 2	Impact on Society	Growth of Students	Contribution towards Society
PEO 3	Knowledge Corridor	Technological Advancement	Professional Ethics

Program Learning Outcomes (PLOs)

PLO-1 Engineering Knowledge: Apply knowledge of mathematics, natural science, engineering fundamentals and Engineering specialization to the solution of complex engineering problems.

PLO-2 Problem Analysis: Identify, formulate, conduct research literature, and analyze complex Engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.

PLO-3 Design/Development of Solutions: An ability to design solutions for complex engineering problems and design systems, components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.

PLO-4 Investigation: Conduct investigation of complex Engineering problems using research-based knowledge and research methods, including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions.

PLO-5 Tool Usage: Create, select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modeling, to complex Engineering problems, with an understanding of the limitations.

PLO-6 The Engineer and the World: Analyze and evaluate sustainable development impacts to society, the economy, sustainability, health and safety, legal frameworks, and the environment while solving complex engineering problems.

PLO-7 Ethics: Apply ethical principles and commit to professional ethics and norms of engineering practice and adhere to relevant

national and international laws. Demonstrate an understanding of the need for diversity and inclusion.

PLO-8 Individual and Collaborative Team Work: Function effectively as an individual, and as a member or leader in diverse and inclusive teams and in multi-disciplinary, face-to-face, remote and distributed settings.

PLO-9 Communication: Communicate effectively and inclusively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, and make effective presentations, taking into account cultural, language, and learning differences.

PLO-10 Project Management and Finance: Demonstrate knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, to manage projects in multidisciplinary environments.

PLO-11 Lifelong Learning: Recognize the need for and have the preparation and ability for i) independent and life-long learning ii) adaptability to new and emerging technologies and iii) critical thinking in the broadest context of technological change.

MAPPING of PEOs with PLOs

Sr. No.	PLOs	PEO1	PEO2	PEO3
1	Engineering Knowledge	✓		
2	Problem Analysis	✓		
3	Design/Development of Solutions		✓	
4	Investigation	✓		
5	Modern Tool Usage		✓	
6	The Engineer and Society		✓	
7	Ethics			✓
8	Individual and Team Work			✓
9	Communication			✓
10	Project Management			✓
11	Lifelong Learning			✓

Scholarships Offered:

1. University Merit Scholarship Scheme
2. MUST-Need Based Scholarship Program
3. HBL Foundation Stipend Scheme (HBLFSS)
4. HEC-Need Based Scholarship Programmed
5. Provincial Government Scholarship
6. Benevolent fund scholarships
7. Pakistan Engineering Congress
8. Banking Council Scholarship
9. National Bank Scholarship
10. Institutions of Engineers Pakistan (Saudi Arabian Center)
11. AJ&K Council Scholarship Scheme
12. AJ&K State Talent Scholarship Scheme
13. Punjab Educational Endowment fund (PEEF)
14. USAID Scholarship
15. Fauji Foundation
16. Diya Pakistan
17. ASHAI Educational Trust

Duration

8-14 Semesters

Admission Criterion:

Admissions are made according to the eligibility conditions approved by the Academic Council/Syndicate of the University. The admission requirements are as under:

i. B.Sc.(Pre-Engineering) with at least 60% marks.

ii. Entry test - prescribed and conducted by the University.

3-year post-matric Diploma or Associate engineer (DAE)in relevant field with minimum 60% marks (Only against Reserved seats for DAEs)

Semester 1				
Course Code	**Title**	**Th (Cr. Hrs)**	**Lab. (Cr. Hrs)**	**Pre-req.***
GSM-1101	Calculus & Analytical Geometry	3	0	None
GSM-1102	Applied Physics	1	0	None
GSM-1102L	Applied Physics	0	1	
GSM-1103	Applied Chemistry	2	0	None
HSM-1104	Functional English	2	0	None
CSM-1105	Computer System & Programming	2	0	None
CSM-1105L	Computer System & Programming	0	1	
BME-1106	Engineering Drawing & Graphics	1	0	None
BME-1106L	Engineering Drawing & Graphics	0	1	
BME-1107	Engineering Mechanics-I	3	0	None
HSM-1108	Introduction to Chinese Language	0	0	None
	Total	**14**	**3**	
	Cumulative Total	**14**	**3**	

Semester 2				
Course Code	**Title**	**Th (Cr. Hrs)**	**Lab. (Cr. Hrs)**	**Pre-req.***
BME-1201L	Computer Aided Drawing	0	1	None
BME-1202	Engineering Materials	3	0	None
GSM-1203	Linear Algebra & Ordinary Differential Equations	3	0	None
BME-1204	Engineering Mechanics-II	3	0	None
BME-1204L	Engineering Mechanics-II	0	1	
BME-1205L	Workshop Practice	0	2	None

ISM-1206	Arabic	2	0	None
BME-1207	Thermodynamics-I	3	0	None
	Total	**14**	**4**	
	Cumulative Total	**28**	**7**	
Semester 3				
Course Code	**Title**	**Th (Cr. Hrs)**	**Lab. (Cr. Hrs)**	**Pre-req.***
HSM-2301	Communication Skills	1	0	None
BME-2302	Mechanics of Materials-I	3	0	None
ISM-2303	Pakistan Studies	2	0	None
BME-2304	Thermodynamics-II	3	0	BME-1207
BME-2304L	Thermodynamics-II	0	1	
BEE-2305	Electrical Engineering	2	0	None
BEE-2305L	Electrical Engineering	0	1	
GSM-2306	Complex Variables and Transforms	3	0	None
	Total	**14**	**2**	
	Cumulative Total	**42**	**9**	
Semester 4				
Course Code	**Title**	**Th (Cr. Hrs)**	**Lab. (Cr. Hrs)**	**Pre-req.***
BEE-2401	Electronics Engineering	2	0	None
BEE-2401L	Electronics Engineering	0	1	
GSM-2402	Numerical Analysis	2	0	None
GSM-2402L	Numerical Analysis	0	1	
ISM-2403	Islamic Studies/Ethics	2	0	None
BME-2404	Mechanics of Materials-II	3	0	None
BME-2404L	Mechanics of Materials-II	0	1	
BME-2405	Machine Design-I	3	0	None
BME-2406	Fluid Mechanics-I	3	0	None
	Total	**15**	**3**	
	Cumulative Total	**57**	**12**	
Semester 5				
Course Code	**Title**	**Th (Cr. Hrs)**	**Lab. (Cr. Hrs)**	**Pre-req.***
BME-3501	Fluid Mechanics-II	3	0	BME-2406
BME-3501L	Fluid Mechanics-II	0	1	
HSM-3502	Health, Safety & Environment	1	0	None
BME-3503	Machine Design-II	2	0	BME-2405
GSM-3504	Applied Statistics	3	0	None

BME-3505	Heat & Mass Transfer	3	0	None
BME-3505L	Heat & Mass Transfer	0	1	
BME-3506	Control Engineering	3	0	None
BME-3506L	Control Engineering	0	1	None
	Total	**15**	**3**	
	Cumulative Total	**72**	**15**	
Semester 6				
Course Code	**Title**	**Th (Cr. Hrs)**	**Lab. (Cr. Hrs)**	**Pre-req.***
HSM-3601	Technical Report Writing & Presentation Skills	1	0	None
HSM-3601L	Technical Report Writing & Presentation Skills	0	1	
BME-3602	Technical Elective-I	2	0	None
BME-3603	Manufacturing Processes	3	0	None
BME-3603L	Manufacturing Processes	0	1	
BME-3604	Mechanics of Machines	3	0	None
BME-3605	Heating, Ventilation and Air Conditioning	3	0	None
BME-3605L	Heating, Ventilation and Air Conditioning	0	1	
BME-3606	Internship/ Industrial Experience	0	0	None
BME-3607	Instrumentation, Measurement and Quality Control	2	0	None
BME-3607L	Instrumentation, Measurement and Quality Control	0	1	
	Total	**14**	**4**	
	Cumulative Total	**86**	**19**	
Semester 7				
Course Code	**Title**	**Th (Cr. Hrs)**	**Lab. Credit Hours**	**Pre-req.***
MSM-4701	Engineering Economics	2	0	None
BME-4702	Mechanical Vibrations	3	0	None
BME-4702L	Mechanical Vibrations	0	1	

BME-4703	Internal Combustion Engines	3	0	None
BME-4704	Introduction to Finite Element Analysis	2	0	None
BME-4704L	Introduction to Finite Element Analysis	0	1	
BME-4705	Final Year Project-I	0	3	None
	Total	**10**	**5**	
	Cumulative Total	**96**	**24**	
Semester 8				
Course Code	**Title**	**Th (Cr. Hrs)**	**Lab. (Cr. Hrs)**	**Pre-req.***
BME-4801	Technical Elective-II	2	0	
BME-4802	Technical Elective-III	2	0	None
MSM-4803	Entrepreneurship	2	0	None
MSM-4804	Management Elective	2	0	None
BME-4805L	Power Plants	3	0	None
BME-4805L	Power Plants	0	1	
BME-4806L	Final Year Project-II	0	3	None
	Total	**11**	**4**	
	Cumulative Total	**107**	**28**	

Non Engineering Courses Credit Hours	37		27.41
Engineering Courses Credit Hours	98		72.59

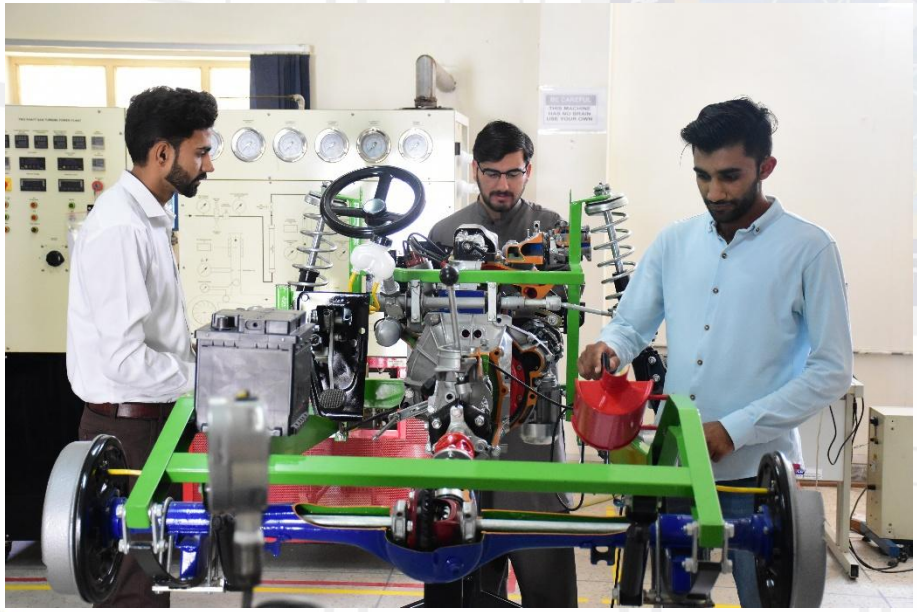
Laboratories

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:

- Applied Thermodynamics
- Mechanics of Materials
- Refrigeration & Air Conditioning
- Fluid Mechanics and Hydraulics
- Heat and Mass Transfer
- Mechanics of Machines
- Internal combustion Engines
- Engineering Materials
- Workshop Practices & Manufacturing Process
- Engineering Mechanics (Static & Dynamics)
- Drawing Hall
- Mechanical Vibrations


MUST


CREEP TESTING APPARATUS
DEPARTMENT OF MECHANICAL ENGINEERING
al Engineering



Departmental Focal Persons

Focal Person (Post Graduate Studies)
Engr. Dr. M. Anser Bashir
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Industry Liaison Officer (Ilo)
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Assistant Professor
Email:Imdad.Hussain@Must.Edu.Pk
Cell# +923485515065

Focal Person (Scholarships)
Engr. Nasir Iqbal
Lecturer
Email:Engr.Norani.Me@Must.Edu.Pk
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Focal Person (QEC/Departmental Library)
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Lecturer
Email:Kamran.Afzal@Must.Edu.Pk
Cell# +923127646310

Students' Messages

It's Haya Iqbal here and being a mechanical engineering student, my experience in the department has been both challenging and rewarding. One of the most important things I've learned is the value of critical thinking and problem-solving. From designing mechanical systems to analyzing the efficiency of energy systems, each course has pushed me to think creatively and approach problems from multiple angles. Through lab sessions and hands-on projects, I have gained practical experience in applying theoretical concepts. For instance, working with CAD software has taught me the intricacies of designing mechanical components, while projects on thermodynamics and fluid mechanics have given me insight into how heat and energy transfer occur in various systems. My department has also emphasized the importance of collaboration. Many of my courses involve group projects where teamwork is essential. This has not only helped me improve my technical skills but has also developed my communication and leadership abilities. Additionally, the supportive faculty and access to advanced lab equipment have allowed me to explore areas like manufacturing processes, materials science, and sustainable engineering. These experiences have deepened my understanding of how mechanical engineering plays a crucial role in solving real-world problems, particularly in the areas of renewable energy and advanced manufacturing techniques.	 **Name :Haya Iqbal** **Semester: 7th** **Session: 2021-25**
Studying Mechanical Engineering has been a transformative experience for me. I've gained a deep understanding of core engineering principles while developing practical skills through hands-on labs and real-world projects. The faculty has been instrumental in my growth, offering not only academic expertise but also mentorship that focuses on professional and personal development. Being a part of ASME and ASHRAE has been invaluable, providing me with guidance on navigating my future career and exploring areas of interest. The strong connection between seniors and juniors has also helped me gain insight into the industry and make informed decisions about my path forward. Overall, my time here has been filled with learning, collaboration, and opportunities that have shaped me into a well-rounded mechanical engineer, ready to face future challenges with confidence.	 **Talha bin khalid** **Session 21 25** **Semester 7th**

MS Mechanical Engineering

- **Qualification**

B.Sc. Mechanical Engineering with at least 65% marks in semester system and 50% in annual system of examination with no 3rd Division in the academic record.

- Registered with Pakistan Engineering Council.
- GAT (General) at least qualifying score
- Entry Test Conducted by the University
- **Grades**
  - Semester Based Examination
    - CGPA 2.5 out of 4.0
  - Annual System
    - Min Second Division
- No 3rd division is allowed.
- GAT / NTS general valid test.
- HEC attested degrees where applicable

Duration:

- **Full Time**
  - Minimum Semesters = 4
  - Maximum Semester = 8
  - Credit Hours = 30
  - Semester Duration = 18 Weeks
  - 16 Weeks of Teaching
  - 2 Week Examination

Degree Requirements:

- Four (4) courses (12 credit hours) from the core courses

AND

- Four (4) courses of 12 credit hours' graduate elective courses of which two graduate courses may be taken from other areas.

AND

- Satisfactory defence of MS-Mechanical Engineering thesis consisting of 6 credit hours according to the University prescribed format.

Proposed Scheme of Study (MS- Mechanical Engineering)

Duration	**4 Semesters**	
Core Courses	12 Credit Hours	
Elective Courses	12 Credit Hours	
Master's Thesis	6 Credit Hours	
Total	30 Credit Hours	
MS-Core Subjects		
Course Code	**Subject**	**Credit Hours**
MME-7101	Advanced Numerical Analysis	3
MME-7102	Research Methodology	3
MME-7103	Advanced Finite Element Methods	3
MTP-7104	Advanced Fluid Mechanics	3
MTP-7105	Advanced Heat Transfer	3
MS-Compulsory Subjects		
MME-7100	Thesis	6

	MS-Elective Subjects	
Course Code	**Subject**	**Credit Hours**
MTP-7201	Renewable Energy Systems	3
MTP-7202	Advanced Power Plant Systems	3
MTP-7203	Design of Experiments	3
MTP-7204	Thermal Design of Heat Exchanger	3
MTP-7205	Solar Thermal Systems	3
MTP-7206	Computational Fluid Dynamics	3
MTP-7207	Advance Aerodynamics	3
MTP-7208	Project Management	3
MTP-7209	Supply Chain in Engineering	3
MTP-7210	Design Optimization and Analysis Techniques	3
MTP-7211	Air Pollution	3
MTP-7212	Convection Heat Transfer	3
MTP-7213	Advanced IC. Engines	3
MTP-7214	Boiling & Condensation Heat Transfer	3
MTP-7215	Advanced Manufacturing Processes	3
MTP-7216	Fluid Structure Interaction	3
MTP-7217	Special Topic on Thermal Power Engineering	3
MTP-7218	Advance Refrigeration and Air Conditioning	3
MTP-7219	Advance Applied Mechanics and Design	3
MTP-7220	Advance Mechanical Vibration	3
MTP-7221	Energy System Analysis	3
MTP-7222	Advanced Thermodynamics	3
MTP-7223	Industrial and Manufacturing Entrepreneurship	3
MTP-7224	Stochastic Modeling and Optimization	3
MTP-7225	Advanced Computer Aided Design	3

MS in Energy Systems Engineering:

Admission Criteria
B.Sc. Mechanical, Electrical, Civil, Environmental or Chemical Engineering with at least 65% marks in semester system and 50% in annual system of examination with no 3rdDivision in the academic record. • Registered with Pakistan Engineering Council. • GAT (General) at least qualifying score. Entry Test Conducted by the University

Scheme of Study (MS-Energy Systems Engineering)

MS-Core Subjects		
Course Code	**Subject**	**Credit Hours**
MME-7101	Advanced Numerical Analysis	3
MME-7102	Research Methodology	3
MME-7103	Energy System Analysis	3
MES-7104	Energy Forecasting and Statistics	3
MES-7105	Energy Economics & Policy	3

MES-7106	Energy Conversion Technologies	3
MS-Compulsory Subjects		
MME-7100	Thesis	6
MS-Elective Subjects		
MES-7201	Renewable Energy Systems	3
MES-7202	Advanced Power Plant Systems	3
MES-7203	Design of Experiments	3
MES-7204	Thermal Design of Heat Exchanger	3
MES-7205	Solar Thermal Systems	3
MES-7206	Computational Fluid Dynamics	3
MES-7207	Advance Aerodynamics	3
MES-7208	Advanced Finite Element Methods	3
MES-7209	Project Management	3
MES-7210	Supply Chain in Engineering	3
MES-7211	Design Optimization and Analysis Techniques	3
MES-7212	Air Pollution	3
MES-7213	Computer Applications in Energy Systems	3
MES-7214	Wind Energy	3
MES-7215	Fuel Cells Technology	3
MES-7216	Clean Coal Technologies	3

Ph.D. in Mechanical Engineering:

Regulations for Ph.D. Degree programmes

Scheme of studies

The scheme of studies for Ph.D. degree programme shall be as under:

(1) Total credit hours for the degree program shall be seventy. A minimum of 18 credit hours course work is required in maximum four semester duration. The deficiency courses, if any, will be extra than the required 18 credit hours.
(2) Two Seminars, one credit hour each (02 credit hours).
(3) Synopsis to be submitted at the end of third semester.
(4) Comprehensive examination (Written + Oral).
(5) Thesis defense at Department/ Institute/ Centre/ School/ College level on a topic approved by the Advanced Studies & Research Board (50 credit hours).
(6) A Ph.D. scholar is required to publish at least one research paper from his/ her Ph.D. research work in the HEC recognized journal before the award of the degree.
(7) Evaluation of thesis by two foreign external examiners from technologically advanced countries and one local external examiner.
(8) Open Public Defense.

Duration of Scheme

The duration of the course for the degree of Ph.D. shall not be less than six semesters and more than sixteen semesters for whole time scholar. Extension in duration may be granted by the ASRB on recommendation of the supervisor. The letter by the supervisor countersigned by the concerned Head and Dean of the Faculty will be required for extension to the next semester(s), if required. The letter will be sent to the ASRB for necessary action.

Calendar Year

Normal Semester: 18 working weeks.

Teaching: 16 weeks.
Examination and Result: 02 weeks.
Spring Semester: 2nd Week of February to 2nd Week of June.
Fall Semester: 2ndWeek of September to 2nd Week of January.
Semester Break: Last Week of January to First Week of February.

Admission Procedure

(1) Applications for admission to Ph.D. degree programme shall be invited through advertisement in the electronic and print media. Director Students Affairs (DSA) will coordinate with the Departments/ Institutes/ Centres/ Schools/ Colleges for the advertisement well in advance.
(2) The candidate shall submit his/ her application on prescribed Admission Form to the relevant admission office/ DSA office of the University within the prescribed time limit.
(3) The departmental admission committee will grant admissions subject to the approval by the ASRB. The Departments/ Institutes/ Centres/ Schools/ Colleges will forward the cases to the ASRB before the start of sessional examination of the first semester. The ASRB will complete the admission process before the start of terminal examination of the first semester.
(4) Number of scholars, to be enrolled shall be determined by the Departments/ Institutes/ Centres/ Schools/ Colleges, depending upon the availability of faculty.

Admission Requirements

The eligibility criteria for admission to the Ph.D. degree programme shall be as under:

(1) Have passed MS, M.Phil. And M.Sc. (Engineering) or equivalent 18-years education with at least CGPA 3.00/ 4.00 and at least CGPA 3.50/ 5.00 (at least 65% marks) in semester system and 1st division (60% marks) in annual system of examination.
(2) Candidate should have no 3rd division in his/ her academic career provided that in case of the teachers at the University/ Degree Colleges engaged in postgraduate teaching and employees of the research organizations engaged in research, the Vice Chancellor may relax the condition of 3rd division in Matriculation or F.A./ F.Sc. examinations on compassionate grounds.
(3) The candidate must have passed the GRE subject test or equivalent as per HEC/ University requirements.
a. In the case of Graduate Assessment Test (GAT) (http://www.nts.org.pk/gat/gatsubject.asp)a minimum of 60% score is required.
b. In the case of GRE subject test, a minimum of 60% (for admissions thereafter) percentile score is required.
c. If the test is not available in NTS subject, then a university committee consisting of at least 3 Ph.D. faculty members in the subject area, approved by the HEC will conduct the Test at par with GRE Subject Test and qualifying score for this test will be 70%.
(4) Admissions will be granted on open merit basis. However, foreign candidate shall be selected through the Federal Ministry of Education, Government of Pakistan.
(5) The candidate has to produce a certificate from the Medical Officer of any public sector hospital to the effect that he/ she is free of any communicable disease or mental or physical disability which is likely to stand in the way of his/ her pursuit of higher studies and research.

(6) The candidate must have good moral character. All those candidates, who were punished by any Degree Awarding Institutions (DAI's) for acts of indiscipline and other undesirable activities and were awarded major penalties, shall not be admitted to postgraduate studies in the University under any circumstances. All other candidates, who were awarded minor penalties for more than once shall also not be admitted to the postgraduate studies in the University.

(7) All the employees of public sector organizations have to produce the certificate of study leave/ NOC to pursue the studies as a regular scholar from their respective head office.

(8) The employee(s) of the University appointed on permanent/ ad hoc/ contract basis shall be allowed to join the programme as whole-time regular scholar(s) without obtaining leave of absence. Such employees shall have to produce a certificate from the Head of Department concerned so that the normal teaching work of the employee will not be affected.

Scheme of Study PhD Mechanical Engineering

OPTION-1				
Semester I				
Course Code	**Type**	**Core/ Elective**	**Subject**	**Credit Hours**
Subject I	Compulsory	Core	Offered from Ph.D. courses list	3
Subject II	Compulsory	Core	Offered from Ph.D. courses list	3
Subject III	Compulsory	Elective	Offered from Ph.D. courses list	3
Semester II				
Course Code	**Type**		**Subject**	**Credit Hours**
Subject IV	Compulsory	Core	Offered from Ph.D. courses list	3
Subject V	Compulsory	Elective	Offered from Ph.D. courses list	3
Subject VI	Compulsory	Elective	Offered from Ph.D. courses list	3
OPTION-2				
Semester I				
Course Code	**Type**	**Core/ Elective**	**Subject**	**Credit Hours**
Subject I	Compulsory	Core	Offered from Ph.D. courses list	3
Subject II	Compulsory	Elective	Offered from Ph.D. courses list	3

Semester III-XVI			
Course Code	**Type**	**Subject**	**Credit Hours**
EE-80000	Compulsory	Comprehensive Exam	0 (Pass/Fail)
EE-81000	Compulsory	Research Seminar	2
EE-83000	Compulsory	Thesis	50
Note: *Semester III-XVI also includes passing Comprehensive Exam (Written Oral), Ph.D. Research Proposal, Final Open Defense*			

Semester II				
Course Code	**Type**	**Core/ Elective**	**Subject**	**Credit Hours**
Subject III	Compulsory	Core	Offered from Ph.D. courses list	3
Subject IV	Compulsory	Elective	Offered from Ph.D. courses list	3

Semester III				
Course Code	**Type**	**Core/ Elective**	**Subject**	**Credit Hours**
Subject V	Compulsory	Core	Offered from Ph.D. courses list	3
Subject VI	Compulsory	Elective	Offered from Ph.D. courses list	3

Semester IV-XVI			
Course Code	**Type**	**Subject**	**Credit Hours**
EE-80000	Compulsory	Comprehensive Exam	0 (Pass/Fail)
EE-81000	Compulsory	Research Seminar	2
EE-83000	Compulsory	Thesis	50

Note: *Semester IV-XVI also includes passing Comprehensive Exam (Written Oral), Ph.D. Research Proposal, Final Open Defense*	
Total credit hours for the degree program = 70	PhD Dissertation credit hours = 50
Minimum credit hours course work required in maximum four semester duration = 18	Synopsis to be submitted at the end of third semester
Two Seminars, one credit hour each (02 credit hours)	Comprehensive examination (Written +Oral)
Total credit hours for the degree program = 70	PhD Dissertation credit hours = 50
Minimum credit hours course work required in maximum four semester duration = 18	Synopsis to be submitted at the end of third semester
Two Seminars, one credit hour each (02 credit hours)	Comprehensive examination (Written +Oral)

Alumni Messages

Glory upon Allah, who hath guided me across the stormy seas with nary a scratch. Dr. Aamer Nazir works as Assistant Professor in Department of Mechanical Engineering and High-Speed 3D Printing Research Center at National Taiwan University of Science and Technology (NTUST) which is ranked No. 1 Technology University in Taiwan and also known as Taiwan Tech. He works on one of the rapidly growing research area of Design for Direct Digital Manufacturing which is crucial for revolutionary Forth Industrial Revolution. Dr. Aamer would like to extend his profound gratitude towards MED MUST where he completed his bachelor's degree with a Gold Medal. He thanks all faculty for their excellent insights, advice, unwavering patience, and never ending kindness. His journey of excellence in research and academics would not have been possible without the involvement, support, and encouragement of MED MUST at the start of his career. His today might be very different if MUST chapter of his life is neglected. Thank you MED MUST and all respectable teachers.	 **Dr. Aamer Nazir** **Assistant Professor** **Department of Mechanical Engineering** **NTUST**
An entrepreneur and certified trainer, Mudassar is a sound professional. After completing his bachelor's in mechanical engineering from MUST in 2014, he instantly got employed at Volvo. During his tenure, he took strategic initiatives for development and remained instrumental in embedding Volvo ways of working across the value chain. In 2017, he started his own firm while completing his Business Education. His engaging leadership and strong business acumen helped Realtech Engineering deliver sustainable business growth even during pressing times. Mudassir is currently on his journey to develop future leaders in Pakistan through his traineeship program. He holds strong understanding of his work and for it, he credits his institutions MUST AJ&K. Mudassir cherishes his time at MUST as it opened many opportunities for him, and he made some lifelong friends.	 **Mudassar Ghafoor** **Session 2010-14** **CEO-Realtech Engineering Services**
It was a golden era of my life at the Department of Mechanical Engineering, MUST during my bachelor study. Department of Mechanical Engineering has always supported its students to achieve their potential. It helped me in gaining the relevant professional knowledge and improving my soft skills through which I was able to secure my job. I am thankful to all the faculty members of the Department for their continuous efforts and support. Apart from excellent academic experience, I also gained the benefits of being a part of Cultural Student body. I cherish every moment spent at MUST.	 **Muhammad Tayyab** **Session 2011-15** **Shift Control Engineer (HUBCO)**

DEPARTMENT OF
Software Engineering

Vision

To create a conducive environment for quality academic and research-oriented education in software engineering to prepare the students to meet future challenges; innovate and create novel solutions for the nation and society

Degree Programs Offered

B.Sc. Software Engineering
MS Software Engineering
PhD in Software Engineering

Chairperson:
Engr. Dr. Nouman Ali
Tel: +92-5827-961016
E-mail: chairman.se@must.edu.pk

Message from Chairperson:

Software Engineering is the most flourishing department at Mirpur University of Science and Technology. The department aspires to provide students with the in-demand skills of the industry, so that they can excel in their professions. The department is committed to
achieve excellence in teaching and inculcating confidence in students. The principle goal is to engage students in the latest technologies and skills by exposing them to committed faculty and well-equipped labs. Our motivation is to nurture their technical and leadership skills. The Department of Software Engineering is offering the MS program from Fall 2019 which will enhance the research and development capacity of the university.

Faculty Members of Software Engineering Faculty Members

Engr. Dr. Nouman Ali
Designation: Associate Professor
Qualification: PhD
Area of interest: Image Processing
E-mail: nouman.se@must.edu.pk

Engr. Dr. Sohaib Manzoor
Designation: Lecturer
Qualification: Ph.D.
Area of interest: Electronic, Information and Communications Engineering

Dr. Tehmina Shehryar
Designation: Lecturer
Qualification: PhD
Area of interest: Image Processing
E-mail: tehmina.se@must.edu.pk

Engr. Asim Javaid
Designation: Lecturer
Qualification: PhD (Cont'd)
Area of interest: Cyber Security
E-mail: asim.se@must.edu.pk

Dr. Anum Tariq
Designation: Lecturer
Qualification: PhD
Area of interest: Requirement Engineering
E-mail: anum.se@must.edu.pk

Engr. Saba Zafar
Designation: Lecturer

Engr. Dr. Tasleem Kausar
Designation: Assistant Professor
Qualification: PhD
Area of interest: Bio-Medical Engineering
E-mail: tasleem.ee@must.edu.pk

Engr. Dr. Shamila Nasreen
Designation: Assistant Professor
Qualification: PhD
Area of interest: Natural Language Processing
E-mail: shamila.se@must.edu.pk

Engr. Areeb Ahmed Mir
Designation: Lecturer
Qualification: MS
Area of interest: Software Engineering
E-mail: areeb.se@must.edu.pk

Engr. Samiullah Khan
Designation: Lecturer
Qualification: MS
Area of interest: Software Engineering
E-mail: samiullah.se@must.edu.pk

Engr. Aqsa Rasheed
Designation: Lecturer
Qualification: MS
Area of interest: Digital Image Processing
E-mail: aqsa.se@must.edu.pk

Engr. Saman Fatima
Designation: Jr. Lecturer/ Lab Engineer

Qualification: MS
Area of interest: Software Engineering
E-mail: saba.se@must.edu.pk

Engr. Abdul Qadir
Designation: Lecturer
Qualification: MS
Area of interest: Software Quality Engineering & Machine Learning
E-mail: abdulqadir.se@must.edu.pk

Engr. Sehrish Manzoor
Designation: Jr. Lecturer/ Lab Engineer
Qualification: MS
Area of interest: Software Engineering
E-mail: sehrish.se@must.edu.pk

Qualification: MS
Area of interest: Machine Learning
E-mail: samanfatima.se@must.edu.pk

Faculty on Leave

Name	Designation	Degree	Country
Dr. Tehmina Shehryar	Lecturer	Post Doc	USA
Engr. Dr. Sohaib Manzoor	Lecturer	Post Doc	
Engr. Raees Ahmed	Lecturer	PhD	USA
Engr. Samina Fazilat	Lecturer	MS	Pakistan

B.Sc. Software Engineering

The Department of Software Engineering has been actively engaged in disseminating software engineering education for the since 2006. The department of Software Engineering at MUST takes pride in being one of the highest-ranking departments of the university. We aim to impart quality education to prepare the students with the latest emerging fields in the subject of software engineering.

The Department is committed to produce young entrepreneur for career in Software Project management and Software development and integration. The Software Engineering department covers wide domains such as software development, data bases, Computer Graphics, Networking and web developing etc. Their foundation is such that they can be life-long learners due to the department's strong emphasis on promoting research in the emerging fields such as artificial intelligence, robotics, machine learning, big data etc. at both undergraduate and graduate level. Our graduates are well perceived and sought after by the industry where they have been successful in securing suitable positions. The department is equipped with state-of-the-art laboratories. These labs are always accessible by both students and the faculty, and they are also linked through the state-of-the-art network environment.

Program Mission

To provide a comprehensive and transformative education in software engineering with innovation and critical thinking by preparing proficient and adaptable professionals who can foster social and ethical responsibilities through evolving technologies for software solutions.

Program Educational Objectives (PEOs)

PEO-1: Attain a high level of software engineering expertise, through investigation and problem-solving skills by applying cutting-edge technologies in both industry and academia

PEO-2: Communicate and collaborate effectively in teams on different roles for design & development of software solutions.

PEO-3: Develop a commitment towards leadership, ethics, environmental concerns, societal impact and adaptation of evolving technologies in software engineering practices.

Mapping of PEOs to PLOs

Program Mission	PEO-1	PEO-2	PEO-3
To provide a comprehensive and transformative education in software engineering with innovation and critical thinking by preparing proficient and adaptable professionals who can foster social and ethical responsibilities through evolving technologies for software solutions.	✓	✓	✓

Sr. No.	PLOs	PEO-1	PEO-2	PEO-3
1.	Engineering Knowledge	✓		

2.	**Problem Analysis**	✓		
3.	**Design/Development of Solutions**		✓	
4.	**Investigation**	✓		
5.	**Modern Tool Usage**	✓		
6.	**The Engineer and Society**			✓
7.	**Environment and Sustainability**			✓
8.	**Ethics**			✓
9.	**Individual and Teamwork**		✓	
10.	**Communication**		✓	
11.	**Project Management**		✓	
12.	**Lifelong Learning**			✓

Scholarships Offered:

1. University Merit Scholarship Scheme
2. MUST-Need Based Scholarship Program
3. HBL Foundation Stipend Scheme (HBLFSS)
4. HEC-Need Based Scholarship Programme
5. Provincial Government Scholarship
6. Benevolent fund scholarships
7. Pakistan Engineering Congress
8. Banking Council Scholarship
9. National Bank Scholarship
10. Institutions of Engineers Pakistan (Saudi Arabian Center)
12. AJ&K Council Scholarship Scheme
13. AJ&K State Talent Scholarship Scheme
14. Punjab Educational Endowment fund (PEEF)
15. USAID Scholarship
16. Fauji Foundation
17. Diya Pakistan
18. ASHAI Educational Trust

Admission Criterion:

The admission requirements are as under:

i. F. Sc. Pre-Engineering (Mathematics, Physics & Chemistry) with at least 60% marks or ICS (Mathematics, Physics & Computer Science) with at least 60% marks or equivalent qualification with at least 60% marks

ii. Entry Test and Interview as per HEC/PEC requirements

Duration

8-14 Semesters

Scheme of Study

Revised for the Sessions:	Session (2023-2027) and Onwards
Duration:	8 Semesters
Courses:	130 Credits
Final Year Project:	6 Credits
Total:	136 Credits
Internship:	S/U Basis

Semester-1				
Course Code	Course Title	Credit Hrs.		Pre-req.
		Th	Lab	
BSE-1101	Programming Fundamentals	3	0	NA
BSE-1101L	Programming Fundamentals	0	1	NA
ENG-1103	Functional English	3	0	NA
MAT-1105	Calculus & Analytical Geometry	3	0	NA
ICT-1126	Application of Information and Communication Technologies	2	0	NA
ICT-1126L	Application of Information and Communication Technologies	0	1	N
PHY-1108	Applied Physics	2	0	NA
PHY-1108L	Applied Physics	0	1	NA
ICP-1129	Ideology and Constitution of Pakistan	2	0	NA
HQT-1128	Holy Quran with Translation, Tajweed and Tafseer	S/U		NA
Total		**18**		

Semester-2				
Course Code	Course Title	Credit Hrs.		Pre-req.
		Th	Lab	
BSE-1201	Software Engineering Fundamentals	3	0	-
BSE-1202	Computer Architecture and Logic Design	3	0	-
BSE-1202L	Computer Architecture and Logic Design	0	1	-
QTR-1227	Quantitative Reasoning-I	3	0	-
ARA-1201	Arabic	2	0	-
BSE-1203	Occupational Health and Safety	1	0	-
BSE-1204	Object Oriented Programming	3	0	BSE-1101
BSE-1204L	Object Oriented Programming	0	1	BSE-1101L
HQT-1128	Holy Quran with Translation, Tajweed and Tafseer	S/U	NA	
Total		**17 (35)**		

Semester-3				
Course Code	Course Title	Credit Hrs.		Pre-req.
		Th	Lab	
BSE-2301	Data Structures and Algorithms	3	0	BSE-1101 & BSE-1101L
BSE-2301L	Data Structures and Algorithms	0	1	
BSE-2302	Database Systems	2	0	-
BSE-2302L	Database Systems	0	1	-
MAT-2306	Complex Variables and Transforms	2	0	-
BSE-2304	Introduction to Data Science	2	0	-
BSE-2304L	Introduction to Data Science	0	1	-
QTR-2328	Quantitative Reasoning-II	3	0	-
ISL-2312	Islamic Studies/Ethics (for non-Muslims)	2	0	-
HQT-1128	Holy Quran with Translation, Tajweed and Tafseer	S/U	NA	
Total		**17 (52)**		

Semester-4				
Course Code	Course Title	Credit Hrs.		Pre-req.
		Th	Lab	
BSE-2401	Probability & Statistics	3	0	-
BUE-1003	Professional Practices	2	0	
BSE-2403	Computer Networks	3	0	-
BSE-2403L	Computer Networks	0	1	-
BSE-2404	Design & Analysis of Algorithms	3	0	
BSE-2405	Operating Systems	2	0	-
BSE-2405L	Operating Systems	0	1	-
BUE-1007	Business Intelligence	3	0	
HQT-1128	Holy Quran with Translation, Tajweed and Tafseer	S/U	NA	
Total		**18 (70)**		

Semester-5				
Course Code	Course Title	Credit Hrs.		Pre-req.
		Th	Lab	
BSE-3501	Software Design & Architecture	2	0	BSE-2304
BSE-3501L	Software Design & Architecture (Core-Breadth)	0	1	
BSE-3502	Cloud Computing	2	0	-
BSE-3502L	Cloud Computing	0	1	-
MDE-3503	Embedded Systems	2	0	-
MDE-3503L	Embedded Systems	0	1	-

BSE-3504	Formal Methods in Software Engineering	2	0	-
BUE-1006	Software Engineering Economics	2		-
BDE-1013	Web Engineering	2	0	-
BDE-1013L	Web Engineering	0	1	
HQT-1128	Holy Quran with Translation, Tajweed and Tafseer	S/U	NA	
Total		**16 (86)**		

Semester-6

Course Code	Course Title	Credit Hrs.		Pre-req.
		Th	Lab	
BSE-3601	Software Construction & Development	2	0	BSE-3501 & BSE-3501L
BSE-3601L	Software Construction & Development	0	1	
ENG-3607	Expository Writing	3	0	-
BSE-3603	Human Computer Interaction	3	0	-
BSE-3604	Software Quality Engineering	2	0	BSE-2304
BSE-3604L	Software Quality Engineering	0	1	BSE-2304
BDE-1004	Mobile Application Development	3	0	-
BDE-1004L	Mobile Application Development	0	1	
HQT-1128	Holy Quran with Translation, Tajweed and Tafseer	S/U	NA	
Total		**16 (102)**		

Semester-7

Course Code	Course Title	Credit Hrs.		Pre-req.
		Th	Lab	
BSE-4701	Software Project Management	3	0	BSE-2304
BSE-4702	Information Security	2	0	-
BSE-4702L	Information Security	0	1	
BSE-4703	FYDP (Part-I)	0	3	-
ETRE-4711	Entrepreneurship	2		
BDE-1007	Artificial Intelligence	2	0	-

BDE-1007L	Artificial Intelligence	0	1	
BDE-1023	Software Requirement Engineering	3	0	-
HQT-1128	Holy Quran with Translation, Tajweed and Tafseer	S/U	NA	
Total		**17 (119)**		

Semester-8

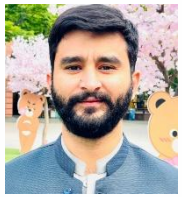
Course Code	**Course Title**	**Credit Hrs.**		**Pre-req.**
		Th	**Lab**	
CCE-4830	Civics and Community Engagement	2	0	-
MDE-4802	Internet of Things	2	0	-
BSE-4803	FYDP (Part-II)	0	3	-
BDE-1006	Machine Learning	2	0	-
BDE-1006L	Machine Learning	0	1	
BDE-1008	Natural Language Processing	2	0	
BDE-1008L	Natural Language Processing	0	1	

BDE-1016	Digital Image Processing	3	0	-
BDE-1016L	Digital Image Processing	0	1	
HQT-1128	Holy Quran with Translation, Tajweed and Tafseer	S/U	NA	
Total		**17(136)**		

Laboratories

Sr. #	Name of Lab	Type of Workstations	Nature of Experiments	No. of Students
1.	**Development & Testing Lab**	Core i3, 500 GB HD,4GB RAM	Hands-on	1-1
2.	**Analysis & Design Lab**	Core i3, 500 GB HD,4GB RAM	Hands-on	1-1
3.	**Electronics Lab**	1. analog and digital Trainer ETS-7000 8086 2. Microprocessor trainer MDA-win 3. Oscilloscope Aditeg Gos-620 (20 MHz) 4. Digital Multi meter	Hands-on	3 to 4
4.	**General Programming Lab**	1. Core i3, 500 GB HD,4GB RAM 2. Dual core, 250GB,1GB	Hands-on	1-2
5.	**Research Lab**	Intel CORE i3 HP Omni 200 PC	Hands-on	2-3

Alumni Message

During my time at MUST, I had the opportunity to discover my passions and refine my skills. We learnt about everything from the basics of programming to the latest trends in software development. We also got the opportunity to take electives in areas that we're interested in, so we can really customize our education. I'm so glad I chose to study software engineering at MUST University. The skills I acquired at MUST prove invaluable during my further studies in South Korea, providing a strong foundation for my academic and professional endeavours. If you're looking for a challenging and rewarding education in Software Engineering, then MUST University is the place for you	 Bilal Ahmed B.Sc. Software Engineering Session: 2009-2013 MS in Game Engineering (South Korea) PhD in HCI (South Korea) POSTDOC In Brain Computer Interaction (BCI), South Korea
I am Muneeb Arif, a proud 2015 graduate of MUST with a degree in Software Engineering. . The Department of Software Engineering at MUST offers a unique and balanced environment for educational, professional, and personal growth. Our faculty is open to new ideas and actively supports students in transforming these ideas into reality. During my time at MUST, I gained valuable knowledge in my field and learned how to effectively apply it in the practical world. In 2017, I launched my own startup, and today, we are honored to serve a global clientele of over 4,000, helping them thrive online	 Muneeb Arif B.Sc Software Engineering Session 2011-15 Founder and Director Xebex - Pvt Ltd.

MS Software Engineering

The Program involves teaching high level approaches of software quality assurance, information security and human computer interaction. The program ensures that the student will be able to conduct research and world along in a team and maintain lifelong learning. The program is designed accruing to international standards such as ACM/IEEE Curriculum guidelines in addition , the program was bench marked with the international universities across the world such as University of Glasgow, Queen Mary university of London, UK, California state university, Northridge, USA, king Fahd university of petroleum and minerals. In addition, various recent research concerned with the MSc in software Engineering curriculum are used in guidelines with Higher Education Commission (HEC) of Pakistan.

Program Objectives

- Prepare students with theoretical background of software engineering concepts and train them on applied research of the field.
- 2. Prepare students who can critically apply concepts, theories, and practices to provide creative solutions to complex computing problems.
- 3. To respond to the current and emerging industrial needs utilizing modern trends for building complex software systems

Degree Requirements:

- Four (4) courses (12 credit hours) from the core courses

AND

Four (4) courses of 12 credit hours' graduate elective courses of which two graduate courses may be taken from other areas.

AND

Satisfactory defense of MS-Software Engineering thesis consisting of 6 credit hours according to the University prescribed format.

Duration:

- **Full Time**
  - Minimum Semesters = 4
  - Maximum Semester = 6
  - Credit Hours = 31
  - Semester Duration = 18 Weeks
  - 16 Weeks of Teaching
  - 2 Week Examination
- **Part Time**
  - Minimum Semesters = 6
  - Maximum Semester = 10
  - Credit Hours = 31
  - Semester Duration = 18 Weeks
  - 16 Weeks of Teaching
  - 2 Week Examination

Admission Criterion:

- **Qualification**
  - B.Sc. (Software Engineering) / BS(SE) /B. E (SE) 4 years' degree program accredited with Pakistan Engineering Council (PEC).

OR

  - *B.Sc. (Computer Engineering) 4 years' degree program accredited with Pakistan Engineering Council (PEC).
- **Grades**
  - Semester Based Examination
    - CGPA (**3.0 out of 4.0**)
  - Annual System
    - Min Second Division
- No 3rd division is allowed.

- GAT / NTS general valid test.
- HEC attested degrees where applicable

Scheme of Study (MS Software Engineering)

Duration:	4 Semesters
Core Courses:	9 Credit Hours
Elective Courses	15 Credit Hours
Thesis	6 Credit Hours
Total:	30 Credit Hours

Semester-1				
Course Code	**Course Title**	**Credit Hrs**		**Prerequisite**
		Th	**Lab**	
MSE-7101	Advanced Requirements Engineering (Core)	3	0	
MSE-7102	Software Testing and Quality Assurance (Core)	3	0	
	Elective-I	3	0	
	Elective-II	3	0	
Total		**12**		
Semester-2				
Course Code	**Course Title**	**Credit Hrs**		**Prerequisite**
		Th	**Lab**	
MSE-7202	Advance Software System Architecture (Core)	3	0	
	Elective-III	3	0	
	Elective-IV	3	0	
	Elective-V	3	0	
Total		**12**		
Semester-3				
Course Code	**Course Title**	**Credit Hrs**		**Prerequisite**
		Th	**Lab**	
MSE-7301	Thesis	0	6	
Total		**6**		

List of Elective Courses

Course Code	Course Title	Credit Hours
MSE-7103	Research Methodology	**3+0**
MSE-7104	Software Risk Management	**3+0**
MSE-7105	Software Measurement and Metrics	**3+0**
MSE-7106	Software Configuration Management	**3+0**
MSE-7107	Component Based Software Engg.	**3+0**
MSE-7108	Design Patterns	**3+0**
MSE-7109	Complex Networks	**3+0**

MSE-7201	Software Project Management	**3+0**
MSE-7203	Agent Based Modelling	**3+0**
MSE-7204	Formal Methods in Software Engineering	**3+0**
MSE-7205	Aspect Oriented Software Development	**3+0**
MSE-7206	Automated Software Engineering	**3+0**
MSE-7207	Web Engineering	**3+0**
MSE-7208	Advanced Human Computer Interaction	**3+0**
MSE-7209	Usability Engineering	**3+0**
MSE-7210	Advanced Operating Systems	**3+0**
MSE-7211	Advance Databases	**3+0**
MSE-7212	Data Mining and Warehousing	**3+0**
MSE-7213	Distributed Databases	**3+0**
MSE-7214	Computer Vision	**3+0**
MSE-7215	Bio-informatics	**3+0**
MSE-7216	Digital Image Processing	**3+0**
MSE-7217	Machine Learning	**3+0**
MSE-7218	Pattern Recognition	**3+0**
MSE-7219	Artificial Intelligence	**3+0**
MSE-7220	Ubiquitous Computing	**3+0**
MSE-7221	Big Data	**3+0**
MSE-7222	Data Science	**3+0**
MSE-7223	Internet of Things	**3+0**
MSE-7224	Sustainable Software Engineering	**3+0**
MSE-7225	Advanced Computer Networks	**3+0**
MSE-7226	Blockchain Technology	**3+0**
MSE-7227	E-Commerce	**3+0**
MSE-7228	Advanced Programming Techniques	**3+0**
MSE-7229	Cyber Security	**3+0**
MSE-7230	Medical Image Processing	**3+0**
MSE-7231	Multimedia Systems	**3+0**
MSE-7232	Semantic Web	**3+0**
MSE-7233	Green Computing	**3+0**
Any other elective course as offered by the department		

Alumni Message

Engr. Fakhar Jabran, currently in the 4th semester of Software Engineering at MUST University, has made significant contributions to XR technology. His thesis, "Metaverse-Based University Campus," earned him the Prime Minister's National Innovation Award. Following this achievement, Engr. Fakhar was incubated at NUST's National Science & Technology Park, where he advanced immersive learning technologies. Selected for startup accelerators in Australia, including Spacecubed in Perth and iAccelerate at the University of Wollongong, Fakhar continues to inspire others with his dedication to innovation. He is always available for free training sessions for MUST students.	 **Engr. Fakhar jabran** **Ms software engineering** **(4th semester)** **Department of software engineering** **MUST**
After completing his bachelor's in software engineering from must in 2014, Awais khan got employed at must as lecturer. During his job, he completed his Ms from department of software engineering, must in 2021. He is currently doing PhD in machine learning from memorial university newfoundland, Canada. He holds a strong understanding of his work and for it, he credits his institutions must Aj&K. Awais cherishes his time at must as it opened many opportunities for him, and he made some lifelong friends.	 **Engr. Awais khan** **Session 2019-21** **PhD scholar (Canada)**

PhD in Software Engineering

The Department of Software Engineering offers a PhD in Software Engineering. Research at this level encompasses a wide range of Software Engineering fields, including artificial intelligence, natural language processing, machine learning, image processing, cybersecurity, cloud computing, and large-scale system architectures.

Program mission:

To enhance the theory and practice in the domain of Software Engineering by creation of new knowledge and highly qualified academicians and fostering innovation in the core areas of Software Engineering and applied computing disciplines.

Objectives

The objectives of PhD (Software Engineering) program are:

1. To equip scholars with necessary knowledge, relevant tools and techniques to make significant contribution in the field of study by conducting quality research independently or in collaboration.
2. To prepare scholars to effectively disseminate result in the form of written and oral presentation
3. To produce skilled professionals who can take up the challenges associated with the advancement of science and technology in industry or in academia.

Admission Criterion
The eligibility criteria for admission to the Ph.D. degree programme shall be as under: 1. Have passed MS, M.Phil., and M.Sc. (Engineering with research work) or equivalent 18-years education with at least CGPA 3.00/4.00 and at least CGPA 3.50/5.00 (at least 65% marks) in semester systems and 1st Division (60% marks) in annual system of examination. 2. Candidate should have no 3rd division in his/ her academic career. 3. The candidate must have passed the GRE subject test or equivalent as per HEC/ University requirements. i In the case of Graduate Assessment Test (GAT) a minimum of 60% score is required. ii In the case of GRE subject test, a minimum of 60% percentile score is required

Degree Requirements
i A candidate must complete a minimum of 18 credit hours course work in maximum four semester duration. ii Two Seminars of one credit hour each (02 credit hours). iii Synopsis to be submitted at the end of third semester. iv Comprehensive examination (Written + Oral). v Thesis Defense at Department/ Institute/ Centre/ School/ College level on a topic approved by the Advanced Studies & Research Board (50 credit hours). vi A Ph.D. scholar is required to publish at least one research paper from his/ her Ph.D. research work in the HEC recognized journal before the award of the degree. vii Evaluation of thesis by two foreign external examiners from technologically advanced countries and one local external examiner. viii Open Public Defense.
Duration
The duration of the program will not be less than six semesters and more than sixteen semesters.

Scheme of Study PhD Software Engineering

OPTION-1			
Semester I			
Course Code	**Type**	**Subject**	**Cr Hrs**
PSE-81XX	Elective Course	Offered from Ph.D. courses list	3
PSE-81XX	Elective Course	Offered from Ph.D. courses list	3
PSE-81XX	Elective Course	Offered from Ph.D. courses list	3
Semester II			
PSE-81XX	Elective Course	Offered from Ph.D. courses list	3
PSE-81XX	Elective Course	Offered from Ph.D. courses list	3
PSE-81XX	Elective Course	Offered from Ph.D. courses list	3
Semester III-XVI			
PSE-81XX	Compulsory	Comprehensive Exam	0 (Pass/Fail)
PSE-8100	Compulsory	Seminar-I	1
PSE-8101	Compulsory	Seminar-II	1
PSE-8000	Compulsory	Thesis	50
Note: Semester III-XVI also includes passing Comprehensive Exam (Written Oral), Ph.D. Research Proposal, Final Open Defense			
OPTION-2			
Semester I			
Code	**Type**	Subject	**Cr Hrs**
PSE-81XX	Elective Course	Offered from Ph.D. courses list	3
PSE-81XX	Elective Course	Offered from Ph.D. courses list	3
Semester II			
PSE-81XX	Elective Course	Offered from Ph.D. courses list	3
PSE-81XX	Elective Course	Offered from Ph.D. courses list	3
Semester III			
PSE-81XX	Elective Course	Offered from Ph.D. courses list	3
PSE-81XX	Elective Course	Offered from Ph.D. courses list	3
Semester IV-XVI			
PSE-8200	Compulsory	Comprehensive Exam	S/U (Pass/Fail)
PSE-8100	Compulsory	Seminar-I	1
PSE-8101	Compulsory	Seminar-II	1
PSE-8000	Compulsory	Thesis	50

List of Elective Courses

Course Code	Title of Course	Cr. Hrs.
PSE-8102	Advanced Human Computer Interaction	3
PSE-8103	Advanced Usability Engineering	3
PSE-8104	Formal Methods and Specifications	3
PSE-8105	Advanced Software Engineering	3
PSE-8106	Software Re-Engineering	3
PSE-8107	Component-Based Software Engineering	3
PSE-8108	Agile Methods	3

PSE-8109	Verification and Validation	3
PSE-8110	Advanced Software Requirements Engineering	3
PSE-8111	Empirical Software Engineering	3
PSE-8112	Model Driven Software Engineering	3
PSE-8113	Special Topics in Software Engineering	3
PSE-8114	Advanced Web Computing System and Application	3
PSE-8115	Service Oriented Computing	3
PSE-8116	Middleware For Networked and Distributed Systems	3
PSE-8117	Cloud Computing	3
PSE-8118	Advanced Distributed Systems	3
PSE-8119	Advanced e-Learning Systems	3
PSE-8120	Advanced Semantic Web	3
PSE-8121	Ontology Engineering	3
PSE-8122	Complex Adaptive Systems	3
PSE-8123	Advanced System Modeling and Simulation	3
PSE-8124	Agent Based Modeling	3
PSE-8125	Advanced Big Data Analytics	3
PSE-8126	Advanced Artificial Intelligence	3
PSE-8127	Advanced Natural Language Processing	3
PSE-8128	Advanced Neural Networks and Fuzzy Logic	3
PSE-8129	Pattern Recognition	3
PSE-8130	Advanced Data Mining	3
PSE-8131	Advanced Data Warehousing	3
PSE-8132	Advanced Information Retrieval	3
PSE-8133	Machine learning	3
PSE-8134	Data Visualization	3
PSE-8135	Deep Learning and Data Analysis	3
PSE-8136	Text Mining	3
PSE-8137	Computer Vision	3
PSE-8138	Bio Medical Image Analysis	3
PSE-8139	Computer Supported Cooperative Work	3
PSE-8140	Advanced Digital Image Processing	3
PSE-8141	Intelligent Tutoring System	3
PSE-8142	Research Methodology	3
PSE-8143	Advanced Engineering Mathematics	3
PSE-8144	Design of Fault-Tolerant Systems	3
PSE-8145	Power Aware Computing	3
PSE-8146	Ubiquitous Computing and Interaction	3
PSE-8147	Advanced Cryptography	3
PSE-8148	Advanced Operating Systems	3
PSE-8149	Advanced Computer Graphics	3
PSE-8150	Distributed Databases	3
PSE-8151	IP Multimedia System	3
PSE-8152	Parallel Processing	3
PSE-8153	Advanced Computer Architecture	3
PSE-8154	Object Oriented Databases	3
PSE-8155	Web Based DBMS	3
PSE-8156	Multimedia Databases	3
PSE-8157	Advanced Computer Networks	3
PSE-8158	Advanced Internet Technologies	3
PSE-8159	Advanced Network Security	3
PSE-8160	Advanced Embedded Systems	3
PSE-8161	Advanced Digital System Design	3
PSE-8162	Wireless Sensor Networks	3
PSE-8163	Mobile and ad-hoc Networks	3
PSE-8164	Advanced Digital Signal Processing	


CURRENT TRENDS IN E-COMMERCE


CURRENT TRENDS IN ECOMMERCE


CURRENT TRENDS IN ECOMMERCE


SOFTWARE ENGINEERING SOCIETY
EXECUTIVE BODY 2022-2023

Won Prime Minister
National Innovation Award, 23rd July 2023

2nd Federal Engineering Expo 2024
(Final year Engineering design Projects Exhibition)
23rd January, 2024

Abdul Ahad B.Sc. Software Engineering (6th Semester) attending Global UGRAD exchange program, USA

MIRPUR INSTITUTE OF Technology

Vision

To Transfer technology incubation and enterprising spirit among student for the advancement of society as a whole creating wealth and economic opportunity to all. To develop excellent professionals for the economic development of the country.

Degree Programs Offered

B.Sc Architectural Engineering Technology
B.Sc Biomedical Engineering Technology
B.Sc Civil Engineering Technology
B.Sc Electrical Engineering Technology
B.Sc Information Engineering Technology
MS Civil Technology
MS Electrical Technology

Director MIT
Dr. Sajjad Manzoor
Tel. +92-5827-961062
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Message from Director

It's a moment of pride and satisfaction to welcome you in MIT, MUST. It is my hope that through our programs, we are able to provide quality training which will enables our graduates to effectively engage in providing services in community settings. At MIT, we MUST believe in active learning though a participatory approach whether we are dealing with academics or planning services for individual and community needs. We pursue a holistic approach to understand human issues and attempt to explore their solutions. MIT MUST fosters a culture of collaborative learning through innovative models of teaching and training. We understand that growth entails changes within and outside ourselves and, therefore, offer opportunities to our students and colleagues to reflect and engage in critical thinking.

Our curriculum is designed to ensure that our graduates will have the skills and the capacity to play a role in the national and global markets through service, research, policymaking and advocacy.

At MIT, we must aspire to develop the department into an icon of quality training of international standards, and our endeavors are making promising headways. If challenges excite you and you long for opening new windows through interdisciplinary endeavors, MIT MUST provide you with a platform to do just that.

I warmly welcome our new students who are embarking on this new journey towards transformation and excellence.

Faculty Members (Electrical Engineering Technology)

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Engr. Junaid Tariq

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Mr. Awais Ahmed Naveed

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B.Sc. Civil Engineering Technology

A 4-Year degree, entitled, BS in Civil Engineering Technology provides the bright students an opportunity to realize their dream as Technologists by advancing their higher education in technical fields. It is an internationally recognized degree, which is offered in all advanced countries like USA, Canada, Australia, UK, Malaysia, and many more. The NTC is applying for membership of Sydney Accord (http://www.ieagreements.org/accords/sydney/). Sydney accord is global accreditation for engineering technologists of the signatory countries, whereas Washington Accord is for global accreditation for engineers.

1. To standardize 4-year degree in engineering, technologies, NTC has given 4-year curricula for BS (Engineering Technology) in Civil, Electrical, Biomedical, Information and Architectural. The following distinct features of the curricula are stated here for information.
2. All programs have three years (6 semesters) of formal classroom education.
3. In both 7th and 8th semesters (fourth year), a student registers 16 credit hours of "Supervised Industrial Training (16 credit hours)" and three credit hours of Project.
4. In the first three years, more emphasis has been put on lab work than theory classes. For example, during any semester of BS (Engineering), a student takes 15-16 credit hours of theory, and 2-3 credit hours of lab courses. However, in BS (Engineering Technology), a student takes 10-11 credit hours of theory and 5-7 credit hours of lab courses.
5. In engineering programs, 1-credit lab means 3 hours of supervised lab work, whereas, in engineering technology curriculum, it is two hours of lab work.
6. The program shall be structured based on Outcome Based Education (OBE) system.

Mission Statement

To provide quality education and produce competent Civil Engineering technologists conscious of professional, ethical, and social responsibilities for productive careers in industry in national and international level.

Program Educational Objectives (PEOs)

PEO 1	**Equipped with sound knowledge and modern skills enabling them to address technological challenges in professional environment.**
PEO 2	Engaged in life-long learning to play role for global sustainability along with socio-economic betterment as an individual or a team in the civil engineering technology sector.
PEO 3	Successful in attaining position of leadership of a small section/ team and enjoying good repute in terms of communication, managerial skills and professional ethics.

MAPPING OF PLOs WITH PEOs

PLOs	Description	PEO:1	PEO:2	PEO:3

PLO:1	Engineering Technology Knowledge	✓		
PLO:2	Problem Analysis	✓		
PLO:3	Design/Development of Solutions	✓		
PLO:4	Investigation	✓		
PLO:5	Modern Tool Usage	✓		
PLO:6	The Engineering Technologist and Society		✓	
PLO:7	Environment and Sustainability		✓	
PLO:8	Ethics			✓
PLO:9	Individual and Teamwork		✓	
PLO:10	Communication			✓
PLO:11	Project Management			✓
PLO:12	Lifelong Learning		✓	

Program Learning Outcomes (PLOs)

PLO-1	**Engineering Technology Knowledge:** An ability to apply knowledge of mathematics, natural science, Engineering Technology fundamentals and Engineering Technology specialization to defined and applied Engineering Technology procedures, processes, systems or methodologies.
PLO-2	**Problem Analysis:** An ability to Identify, formulate, research literature and analyze broadly defined Engineering Technology problems reaching substantiated conclusions using analytical tools appropriate to the discipline or area of specialization.
PLO-3	**Design/Development of Solutions:** An ability to design solutions for broadly- defined Engineering Technology problems and contribute to the design of systems, components or processes to meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.
PLO-4	**Investigation:** An ability to conduct investigations of broadly-defined problems; locate, search and select relevant data from codes, data bases and literature, design and conduct experiments to provide valid conclusions.
PLO-5	**Modern Tool Usage:** An ability to Select and apply appropriate techniques, resources, and modern technology and IT tools, including prediction and modelling, to broadly-defined Engineering Technology problems, with an understanding of the limitations.
PLO-6	**The Engineering Technologist and Society:** An ability to demonstrate understanding of the societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to Engineering Technology practice and solutions to broadly defined Engineering Technology problems.
PLO-7	**Environment and Sustainability:** An ability to understand and evaluate the sustainability and impact of Engineering Technology work in the solution of broadly

	defined Engineering Technology problems in societal and environmental contexts.
PLO-8	**Ethics:** Understand and commit to professional ethics and responsibilities and norms of Engineering Technology practice
PLO-9	**Individual and Teamwork:** An ability to Function effectively as an individual, and as a member or leader in diverse teams.
PLO-10	**Communication:** An ability to communicate effectively on broadly defined Engineering Technology activities with the Engineering Technologist community and with society at large, by being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PLO-11	**Project Management:** An ability to demonstrate knowledge and understanding of Engineering Technology management principles and apply these to one's own work, as a member or leader in a team and to manage projects in multidisciplinary environments.
PLO-12	**Lifelong Learning:** An ability to recognize the need for and have the ability to engage in independent and life-long learning in specialist Engineering Technologies.

Scheme of Study (B.Sc. Civil Engineering Technology)

Programme Duration:	**8-14 Semesters**
Courses:	97 Credits hours
Project:	06 Credits hours
Supervised Industrial Training:	32 Credits hours
Total	135 Credits hours

Semester I			
Course Code	**Subject**	**Cr. Hrs.**	**Cont. Hrs.**
QTR-1101	Applied Mathematics I	3+0	3+0
ISL-1112	Islamic Studies	2+0	2+0
CET-1101	Materials and Methods of Construction	2+0	2+0
CET-1101L	Materials and Methods of Construction Lab	0+1	0+3
PHY-1108	Applied Physics	2+0	2+0
PHY-1108L	Applied Physics Lab	0+1	0+3
ENG-1103	Functional English	3+0	3+0
CET-1102	Surveying	1+0	1+0
CET-1102L	Surveying Lab	0+2	0+6
Total		**17**	**26**

Semester II			
Course Code	**Subject**	**Cr. Hrs.**	**Cont. Hrs.**
CET-1201	Concrete Technology	1+0	1+0
CET-1201L	Concrete Technology Lab	0+2	0+6
ENG-1202	Communication Skills	3+0	3+0
CET-1203	Civil Engineering drawing, Drafting and Interpretation	1+0	1+0

CET-1203L	Civil Engineering drawing, Drafting and Interpretation Lab	0+2	0+6
ICT-1226	Applications of Communication & Information Technologies	2+0	2+0
ICT-1226L	Applications of Communication & Information Technologies	0+1	0+3
MAT-1205	Applied Mathematics II	3+0	3+0
ARA-1201	Arabic	2+0	2+0
CHE-1204	Applied Chemistry	0+0	0+0
Total		**17**	**27**

Semester III

Course Code	Subject	Cr. Hrs.	Cont. Hrs.
CCE-2330	Civics & Community Engagement	2+0	2+0
ICP-2329	Ideology and Constitution of Pakistan	2+0	2+0
ETH-2332	Professional Ethics	2+0	2+0
CET-2301	Environmental Technology	1+0	1+0
CET-2301L	Environmental Technology Lab	0+1	0+3
CET-2302	Fluid Mechanics	2+0	2+0
CET-2302L	Fluid Mechanics Lab	0+1	0+3
CET-2303	Mechanics of Solids	2+0	2+0
CET-2303L	Mechanics of Solids Lab	0+1	0+3
CET-2304	Evolution of Architecture and Engineering	2+0	2+0
	Total	**16**	**22**

Semester IV

Course Code	Subject	Cr. Hrs.	Cont. Hrs.
CET-2401	Transportation and Highway Technology	2+0	2+0
CET-2401L	Transportation and Highway Technology Lab	0+2	0+6
HUM-2402	Human Skills	2+0	2+0
CET-2403	Soil Mechanics	1+0	1+0
CET-2403L	Soil Mechanics	0+2	0+6
CET-2404	Structural Principles	2+0	2+0
ENG-2407	Technical & Scientific Writing	3+0	3+0
ECO-246	Fundamentals of Applied Economics	3+0	3+0
	Total	**17**	**25**

Semester V

Course Code	Subject	Cr. Hrs.	Cont. Hrs.
CET-3501	Hydrology	1+0	1+0
CET-3501L	Hydrology Lab	0+1	0+3
CET-3502	Reinforced and Prestressed Concrete	2+0	2+0

CET-3502L	Reinforced and Prestressed Concrete Lab	0+1	0+3
CET-3503	Construction Equipment and Jobsite Practices	2+0	2+0
CET-3503L	Construction Equipment and Jobsite Practices Lab	0+1	0+3
CET-3504	Computer Aided Drawing and Building Information Modelling	1+0	1+0
CET-3504L	Computer Aided Drawing and Building Information Modelling Lab	0+2	0+6
CET-3505	Geotechnical Investigation and Foundations	1+0	1+0
CET-3505L	Geotechnical Investigation and Foundations Lab	0+1	0+3
MDE-3506	Electro-Mechanical Technology	2+0	2+0
CET-3507	Project Part -I	0+3	0+9
Total		**18**	**36**

Semester VI

Course Code	Subject	Cr. Hrs.	Cont. Hrs.
CET-3601	Geology	1+1	2+0
CET-3602	Irrigation Technology	3+0	3+0
CET-3603	Construction of Steel Structures	2+0	2+0
CET-3603L	Construction of Steel Structures Lab	0+1	0+3
CET-3604	Quantity Surveying and Estimation	1+0	1+0
CET-3640L	Quantity Surveying and Estimation Lab	0+2	0+6
CET-3605	Maintenance and Repair of Civil Works	1+0	1+0
CET-3605L	Maintenance and Repair of Civil Works	0+1	0+3
ETRE-3608	Technopreneurship	2+0	2+0
CET-3606	Project Part-II	0+3	0+9
	Total	**18**	**36**

Semester VII

Course Code	Subject	Cr. Hrs	Cont. Hrs.
CET-4701	Supervised Industrial Training	16	40Hrs/ Week
	Total	**16**	**640**

Semester VIII

Course Code	Subject	Cr. Hrs.	Cont. Hrs.
CET-4801	Supervised Industrial Training	16	40Hrs/ Week
Total		**16**	**640**

Laboratories

Sr. #	Name of Laboratory	Lab (s) Course (s) Conducted in the Lab	No of students

1	**Transportation Engineering Laboratory (Shared)**	Transportation Engineering-I, Transportation Engineering-II	5-7
2	**Computer Aided Design Laboratory (Shared)**	Computer Fundamentals, Building Construction Drawing & Graphics (AutoCAD) , Computer Programming	5-7
3	**Fluid Mechanics and Hydraulics Engineering Lab (Shared)**	Fluid Mechanics , Advanced Fluid Mechanics, Hydraulics Engineering, Engineering Hydrology, Irrigation Engineering	5-7
4	**Concrete Testing Laboratory (Shared)**	Plain and Reinforced Concrete-I , Plain and Reinforced Concrete-II Properties of Concrete	5-8
5	**Geotechnical Engineering Laboratory (Shared)**	Geo-Technical Engineering-I, Geo-Technical Engineering-II, Foundation and Pavement Engineering	5-8

B.Sc. Electrical Engineering Technology

A 4-year degree, entitled, BS in Electrical Engineering Technology provides the bright students an opportunity to realize their dream as Technologists by advancing their higher education in technical fields. It is an internationally recognized degree, which is offered in all advanced countries like USA, Canada, Australia, UK, Malaysia, and many more. The National Technology Council (NTC) is applying for membership of Sydney Accord (http://www.ieagreements.org/accords/sydney/). Sydney accord is global accreditation for engineering technologists of the signatory countries, whereas Washington Accord is for global accreditation for engineers.

In order to standardize a 4-year degree in engineering. technologies, NTC has given 4-year curricula for Bachler of Engineering Technology in Civil, Electrical, Biomedical, Information and Architectural. The following distinct features of the curricula are stated here for information;

1. All programs have three years (6 semesters) of formal classroom education.
2. In both 7th and 8th semesters (fourth year), a student registers 16 credit hours of Supervised **Industrial** Training (16 credit hours) and three credit hours of Project in each semester.
3. In the first three years, more emphasis has been put on lab work than theory classes. For example, during any semester of BS (Engineering), a student takes 15-16 credit hours of theory, and 2-3 credit hours of lab courses. However, in BS (Engineering Technology), a student takes 10-11 credit hours of theory and 5-7 credit hours of lab courses.
4. In engineering programs, 1-credit lab means 3 hours of supervised lab work, whereas, in engineering technology curriculum, it is 2 credit hours mean 6 hours of lab work.
5. The program shall be structured based on Outcome Based Education (OBE) system.

Mission Statement

To provide quality education and produce competent Electrical technologists conscious of professional, ethical, and social responsibilities for productive careers in industry at a national and international level.

Program Educational Objectives (PEOs)

PEO 1: To produce competent electrical engineering technologists having strong technical knowledge to serve national and international industries and organizations.

PEO 2: To fulfil the needs of society in identifying and solving technical challenges in engineering technology and related fields using fundamental engineering technology principles with modern tools and practices.

PEO 3: To instill the ability to communicate and function effectively as individuals and team- members with leadership and entrepreneurial potential.

PEO 4 : To demonstrate life-long learning through advanced technical and professional development activities to enhance their ethics and skills and capabilities for personal growth and betterment of society and environment.

MAPPING OF PEOs AND PLOs

PLOs	Description	PEO:1	PEO:2	PEO:3	PEO:4
PLO:1	Engineering Technology Knowledge	✓			
PLO:2	Problem Analysis		✓		
PLO:3	Design/Development of Solutions		✓		
PLO:4	Investigation		✓		
PLO:5	Tool Usage		✓		
PLO:6	The Engineer and the World				✓
PLO:7	Ethics				✓
PLO:8	Individual and Collaborative Teamwork			✓	
PLO:9	Communication			✓	
PLO:10	Project Management and Finance	✓			
PLO:11	Lifelong Learning				✓

Program Learning Outcomes (PLOs)

PLO-1	**Engineering Knowledge SA1:** Apply knowledge of mathematics, natural science, computing and engineering fundamentals and an engineering specialization as specified in SK1 to SK4 respectively to defined and applied engineering procedures, processes, systems, or methodologies.
PLO-2	**Problem Analysis SA2:** Identify, formulate, research literature, and analyze broadly defined engineering problems reaching substantiated conclusions using analytical tools appropriate to the discipline or area of specialization. (SK1 to SK4).
PLO-3	**Design/Development of Solutions SA3:** Design solutions for broadly defined engineering technology problems and contribute to the design of systems, components, or processes to meet identified needs with appropriate consideration for public health and safety, whole-life cost, net zero carbon as well as resource, cultural, societal, and environmental considerations as required (SK5).
PLO-4	**Investigation SA4:** Conduct investigations of broadly defined engineering problems; locate, search and select relevant data from codes, data bases and literature, design and conduct experiments to provide valid conclusions (SK8)

PLO-5	**Tool Usage SA5:** Select and apply, and recognize limitations of appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling, to broadly defined engineering problems (SK2 and SK6)
PLO-6	**The Engineer and the World SA6:** When solving broadly defined engineering problems, analyze and evaluate sustainable development impacts (represented by the 17 UN-SDGs) to: society, the economy, sustainability, health and safety, legal frameworks, and the environment (SK1, SK5, and SK7)
PLO-7	**Ethics SA7:** Understand and commit to professional ethics and norms of engineering technology practice including compliance with national and international laws. Demonstrate an understanding of the need for diversity and inclusion (SK9).
PLO-8	**Individual and Collaborative Teamwork SA8:** Function effectively as an individual, and as a member or leader in diverse and inclusive teams and in multi-disciplinary, face-to-face, remote, and distributed settings (SK9).
PLO-9	**Communication SA9:** Communicate effectively and inclusively on broadly defined engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, taking into account cultural, language, and learning differences.
PLO-10	**Project Management and Finance: SA10:** Apply knowledge and understanding of engineering management principles and apply these to one's own work, as a member or leader in a team and to manage projects in multidisciplinary environments.
PLO-11	**Lifelong Learning: SA11:** Recognize the need for, and have the ability for (i) independent and life-long learning and (ii) critical thinking in the face of new specialist technologies (SK8)

Scheme of Study (B.Sc. Electrical Engineering Technology)

Semester I			
Course Code	**Subject**	**Cr. Hrs.**	**Cont. Hrs.**
HS-111	Islamic Studies / Professional Ethics	2	2
GS-112	Applied Mathematics-I	3	3
GS-113	Applied Physics	2	2
GS-113L	Applied Physics Lab	1	3
ET-114	Basic Circuit Analysis	2	2
ET-114L	Basic Circuit Analysis Lab	2	6

ET-115	Engineering Drawing	1	1
ET-115L	Engineering Drawing Lab	2	6
ET-116	Introduction to Computer Fundamentals	2	2
ET-116L	Introduction to Computer Fundamentals Lab	1	3
	Total	**18**	**30**

Semester II

Course Code	Subject	Cr. Hrs.	Cont. Hrs.
HS-121	Fundamentals of English	2	2
HS-122	Pakistan Studies	2	2
ET-123	Electronics	2	2
ET-123L	Electronics Lab	2	6
ET-124	Basic Mechanical Technology	2	2
ET-124L	Basic Mechanical Technology Lab	1	3
GS-125	Applied Mathematics -II	3	3
ET-126	AC Circuit Analysis	2	2
ET-126L	AC Circuit Analysis Lab	2	6
	Total	**18**	**28**

Semester III

Course Code	Subject	Cr. Hrs.	Cont. Hrs.
ET-231	Power Generation Systems	2	2
HS-232	Technical Report Writing & Presentation Skills	2	2
ET-233	Electrical Instruments and Measurements	2	2
ET-233L	Electrical Instruments and Measurements Lab	2	6
ET-234	Electrical Machines-I	2	2
ET-234L	Electrical Machines-I Lab	1	3
ET-235	Digital Electronics	2	2
ET-235L	Digital Electronics Lab	2	6
ET-236L	Workshop Practice Lab	1	3
	Total	**16**	**28**

Semester IV

Course Code	Subject	Cr. Hrs.	Cont. Hrs.
ET-241	Electrical Machines-II	2	2
ET-241L	Electrical Machines-II Lab	2	6
ET-242	Electro-Magnetic Fields Theory	2	2
ET-243	Electrical Power Transmission	2	2
ET-243L	Electrical Power Transmission Lab	1	3
ET-244	Electrical Power Distribution and Utilization	2	2
ET-244L	Electrical Power Distribution and Utilization Lab	1	3
ET-245	Power Electronics	2	2
ET-245L	Power Electronics Lab	2	6
GS-246	Total Quality Management	2	2
	Total	**18**	**30**

Semester V			
Course Code	**Subject**	**Cr. Hrs.**	**Cont. Hrs.**
ET-351	Micro-Processor Theory & Interfacing	2	2
ET-351L	Micro-Processor Theory & Interfacing Lab	1	3
ET-352	Switch Gear & Protective Devices	2	2
ET-352L	Switch Gear & Protective Devices Lab	1	3
ET-353	Communications Technology	2	2
ET-353L	Communications Technology Lab	2	6
ET-354	Control Technology	2	2
ET-354L	Control Technology Lab	1	3
ET-355	High Voltage Technology	2	2
ET-355L	High Voltage Technology Lab	1	3
ET-356	Project-I	2	6
	Total	**18**	**30**

Semester VI			
Course Code	**Subject**	**Cr. Hrs.**	**Cont. Hrs.**
GS-361	Project Management	1	1
ET-362	Power System Analysis	2	2
ET-363	Data and Computer Communication	2	2
ET-363L	Data and Computer Communication Lab	2	6
ET-364	Industrial Drives & PLC	2	2
ET-364L	Industrial Drives & PLC Lab	2	6
HS-365	Arabic	2	2
ET-366	Project-II	4	12
	Total	**17**	**33**

Semester VII			
Course Code	**Subject**	**Cr. Hrs.**	**Cont. Hrs.**
ET-471	Supervised Industrial Training	16	40Hrs/ Week
	Total	**16**	**640**

Semester VIII			
Course Code	**Subject**	**Cr. Hrs.**	**Cont. Hrs.**
ET-481	Supervised Industrial Training	16	40Hrs/ Week
	Total	**16**	**640**

Laboratories

Sr. #	Name of Laboratory	Lab (s) Course (s) Conducted in the Lab	No of students/ workstation
1	**Electrical Technology Lab**	Basic Circuit Analysis, AC Circuit Analysis, Electronics	3-5
2	**Machine Lab (Shared)**	AC Machine, DC Machine	3-5

3	**Power System Protection and Transmission Lab (Shared)**	Switchgear and Protective Devices, Electrical Power Transmission	3-5
4	**DLD Lab (Shared)**	Digital Electronics, Microprocessor Theory and Interfacing	3-5
5	**Power Distribution and Utilization (Shared)**	Electrical Power Distribution and Utilization	3-5
6	**Electronics Lab**	Electronics, Power Electronics	3-5
7	**High Voltage Lab**	High Voltage Technology	3-5

B.Sc. Biomedical Engineering Technology

A 4-year degree, entitled BSc Biomedical Engineering Technology provides the bright students an opportunity to realize their dream as Technologists by advancing their higher education in technical fields. It is an internationally recognized degree, which is offered in all advanced countries like USA, Canada, Australia, UK, Malaysia, and many more. The NTC is applying for membership of Sydney Accord (http://www.ieagreements.org/accords/sydney/). Sydney accord is global accreditation for engineering technologists of the signatory countries, whereas Washington Accord is for global accreditation for engineers.

In order to standardize a 4-year degree in engineering. technologies, NTC has given 4-year curricula for BS (Engineering Technology) in Civil, Electrical, Architectural, Biomedical and Information. The following distinct features of the curricula are stated here for information;

1. All programs have three years (6 semesters) of formal classroom education.
2. In both 7th and 8th semesters (fourth year), a student registers 15 credit hours of "Supervised Industrial Training (15 credit hours)" and three credit hours of Project.
3. In the first three years, more emphasis has been put on lab work than theory classes. For example, during any semester of BS (Engineering), a student takes 15-16 credit hours of theory, and 2-3 credit hours of lab courses. However, in BS (Engineering Technology), a student takes 10-11 credit hours of theory and 5-7 credit hours of lab courses.
4. In engineering programs, 1-credit lab means 3 hours of supervised lab work, whereas, in engineering technology curriculum, it is two hours of lab work.
5. The program shall be structured based on Outcome Based Education (OBE) system.

Program Mission

To produce biomedical engineering technologists well equipped with knowledge, professional, ethical, social skills and heaving passion for innovation and entrepreneurship in health care industry

Vision & Mission	PEO 1	PEO 2	PEO 3
University Vision: To be a superior teaching and research institution, having transformative impact on society and acting as a knowledge corridor between Azad Jammu &Kashmir, Pakistan, and rest of the world.	✓	✓	✓
University Mission: MUST is committed to all-encompassing growth of its students, besides enabling them to tap the world of knowledge and assume leadership role in the future through a process of continual innovation in education, research, creativity, technological advancement, and entrepreneurship.	✓	✓	✓

Program Mission: To produce biomedical engineering technologists well equipped with knowledge, professional, ethical, social skills and having passion for innovation and entrepreneurship in health care industry.	✓	✓	✓

Mapping of PEOs with PLOs

PLOs	Description	PEO:1	PEO:2	PEO:3
PLO:1	Engineering Technology Knowledge	✓		
PLO:2	Problem Analysis	✓		
PLO:3	Design/Development of Solutions		✓	
PLO:4	Investigation	✓		
PLO:5	Modern Tool Usage		✓	
PLO:6	The Engineering Technologist and Society	✓		
PLO:7	Environment and Sustainability			✓
PLO:8	Ethics			✓
PLO:9	Individual and Teamwork			✓
PLO:10	Communication			✓
PLO:11	Project Management			✓
PLO:12	Lifelong Learning		✓	

Program Learning Outcomes (PL

PLO-1	**Engineering Technology Knowledge:** An ability to apply knowledge of mathematics, natural science, Engineering Technology fundamentals and Engineering Technology specialization to defined and applied Engineering Technology procedures, processes, systems or methodologies.
PLO-2	**Problem Analysis:** An ability to Identify, formulate, research literature and analyze broadly defined Engineering Technology problems reaching substantiated conclusions using analytical tools appropriate to the discipline or area of specialization.
PLO-3	**Design/Development of Solutions:** An ability to design solutions for broadly- defined Engineering Technology problems and contribute to the design of systems, components or processes to meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.
PLO-4	**Investigation:** An ability to conduct investigations of broadly-defined problems; locate, search and select relevant data from codes, data bases and literature, design and conduct experiments to provide valid conclusions.
PLO-5	**Modern Tool Usage:** An ability to Select and apply appropriate techniques, resources, and modern technology and IT tools, including prediction and modelling, to broadly-defined Engineering Technology problems, with an understanding of the limitations.
PLO-6	**The Engineering Technologist and Society:** An ability to demonstrate understanding of the societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to Engineering Technology practice and solutions to broadly defined Engineering Technology problems.
PLO-7	**Environment and Sustainability:** An ability to understand and evaluate the sustainability and impact

	of Engineering Technology work in the solution of broadly defined Engineering Technology problems in societal and environmental contexts.
PLO-8	**Ethics:** Understand and commit to professional ethics and responsibilities and norms of Engineering Technology practice
PLO-9	**Individual and Teamwork:** An ability to Function effectively as an individual, and as a member or leader in diverse teams.
PLO-10	**Communication:** An ability to communicate effectively on broadly defined Engineering Technology activities with the Engineering Technologist community and with society at large, by being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PLO-11	**Project Management:** An ability to demonstrate knowledge and understanding of Engineering Technology management principles and apply these to one's own work, as a member or leader in a team and to manage projects in multidisciplinary environments.
PLO-12	**Lifelong Learning:** An ability to recognize the need for and have the ability to engage in independent and life-long learning in specialist Engineering Technologies.

Scheme of Study (B.Sc. Biomedical Engineering Technology)

Program Duration:	**8-14 Semesters (4-7 Academic Years)**
Total number of Credit Hours	133
Courses Credit Hours	95
Project Credits Hours	06
Supervised Industrial Training Credit Hours	32
Holy Quran with Translation, Tajweed and Tafseer	S/U Basis
Engineering Technology Courses	24
Non-Engineering Technology Courses	17
Total Courses	41

	Semester I		
Course Code	**Subject**	**Cr. Hrs.**	**Cont. Hrs.**
ISL-1112	Islamic Studies / Social Ethics	2	2
BIO-1103	Basic Biology (For Pre-Engineering Students)	2	2
BIO-1103L	Basic Biology Lab (For Pre-Engineering Students)	1	3
MAT-1103	Basic Mathematics (For Pre-Medical Students)	3	3
PHY-1108	Applied Physics	2	2
PHY-1108L	Applied Physics Lab	1	3
BMT-1104	Basic Electrical Technology	2	2
BMT-1104L	Basic Electrical Technology Lab	1	3

BMT-1105L	Technical Drawing Lab	1	3
ICT-1126	Applications of ICT	2	2
ICT-1126L	Applications of ICT Lab	1	3
HQT-1128	Holy Quran with Translation, Tajveed, and Tafseer	S/U	S/U
	Total	**16**	**23 or 25**
	Semester II		
Course Code	**Subject**	**Cr. Hrs.**	**Cont. Hrs.**
ENG-1203	Functional English	3	3
ICP-1229	Ideology and Constitution of Pakistan	2	2
BMT-1203	Human Anatomy & Physiology	3	3
BMT-1203L	Human Anatomy & Physiology Lab	1	3
BMT-1204	Electronic Devices and Circuits	2	2
BMT-1204L	Electronic Devices and Circuits Lab	1	3
BMC-1205	Computer Programming	1	1
BMC-1205L	Computer Programming Lab	1	3
QTR-1206	Calculus and Analytical Geometry	3	3
HQT-1128	Holy Quran with Translation, Tajveed, and Tafseer	S/U	S/U
	Total	**17**	**23**

	Semester III		
Course Code	**Subject**	**Cr. Hrs.**	**Cont. Hrs.**
ENG-2307	Expository Writing	3	3
CHE-2302	Biochemistry	2	2
CHE-2302L	Biochemistry Lab	1	3
BMT-2303	Electrical Circuit Analysis	2	2
BMT-2303L	Electrical Circuit Analysis Lab	1	3
BMT-2304	Digital Logic Design	2	2
BMT-2304L	Digital Logic Design Lab	1	3
QTR-2305	Linear Algebra & Differential Equations	3	3
BMT-2306L	Workshop Practice Lab	1	3
BMT-2307	Occupational Health and Safety	1	1
HQT-1128	Holy Quran with Translation, Tajveed, and Tafseer	S/U	S/U
	Total	**17**	**25**
	Semester IV		
Course Code	**Subject**	**Cr. Hrs.**	**Cont. Hrs.**
BMT-2401	Signals and Systems	2	2
BMT-2401L	Signals and Systems Lab	1	3
ETH-2432	Professional Ethics	2	2
BMT-2402	Microprocessors and Microcontrollers	2	2
BMT-2402L	Microprocessors and Microcontrollers Lab	1	3

MAT-2403	Probability and Statistics	2	2
ARA-2401	Arabic	2	2
ETR-2408	Entrepreneurship	2	2
CCE-2430	Civics and Community Engagement	2	2
HQT-1128	Holy Quran with Translation, Tajveed, and Tafseer	S/U	S/U
	Total	**16**	**20**
	Semester V		
Course Code	**Subject**	**Cr. Hrs.**	**Cont. Hrs.**
BMT-3501	Biomedical Instrumentation	2	2
BMT-3501L	Biomedical Instrumentation Lab	1	3
MAN-3511	Project Management	3	3
BMT-3503	Biomechanics	2	2
BMT-3503L	Biomechanics Lab	1	3
BMT-3504	Molecular Biology	2	2
BMT-3504L	Molecular Biology Lab	1	3
IDTE-3505	IDTE-I	3	3
BMT-3506	Project-I	3	9
HQT-1128	Holy Quran with Translation, Tajveed, and Tafseer	S/U	S/U
	Total	**18**	**30**
	Semester VI		
Course Code	**Subject**	**Cr. Hrs.**	**Cont. Hrs.**
BMT-3601	Biomaterials	2	2
BMT-3601L	Biomaterials Lab	1	3
IDTE-3602	IDTE-II	2	2
IDTE-3602L	IDTE-II Lab	1	3
BMT-3603	Medical Imaging Devices	2	2
BMT-3603L	Medical Imaging Devices Lab	1	3
	Total	**9**	**15**
	Semester VII		
Course Code	**Subject**	**Cr. Hrs.**	**Cont. Hrs.**
BMT-4701	Supervised Industrial Training	16	40 Hrs/Week
	Total	**16**	**640**
	Semester VIII		
Course Code	**Subject**	**Cr. Hrs.**	**Cont. Hrs.**
BMT-4801	Supervised Industrial Training	16	40 Hrs/Week
	Total	**16**	**640**

B.Sc. Information Engineering Technology

A 4-year degree, entitled, BSc Information Engineering Technology provides bright students an opportunity to realize their dream as Technologists by advancing their higher education in technical fields. It is an internationally recognized degree, which is offered in all advanced countries like USA, Canada, Australia, UK, Malaysia, and many more. The NTC is applying for membership of Sydney Accord (http://www.ieagreements.org/accords/sydney/). Sydney accord is global accreditation for engineering technologists of the signatory countries, whereas Washington Accord is for global accreditation for engineers.

In order to standardize a 4-year degree in engineering. technologies, NTC has given 4-year curricula for BS (Engineering Technology) in Civil, Electrical, Architecture, Biomedical and Information. The following distinct features of the curricula are stated here for information;

1. All programs have three years (6 semesters) of formal classroom education.
2. In both 7th and 8th semesters (fourth year), a student registers 15 credit hours of "Supervised Industrial Training (15 credit hours)" and three credit hours of Project.
3. In the first three years, more emphasis has been put on lab work than theory classes. For example, during any semester of BS (Engineering), a student takes 15-16 credit hours of theory, and 2-3 credit hours of lab courses. However, in BS (Engineering Technology), a student takes 10-11 credit hours of theory and 5-7 credit hours of lab courses.
4. In engineering programs, 1-credit lab means 3 hours of supervised lab work, whereas, in engineering technology curriculum, it is two hours of lab work.
5. The program shall be structured based on Outcome Based Education (OBE) system.

Program Mission

To provide quality education and produce proficient information engineering technologists are well equipped with professional, ethical and social responsibilities using modern technologies and along with passion for innovation and entrepreneurship in industry at national and international level.

University Mission: MUST is committed to all-encompassing growth of its students, besides enabling them to tap the world of knowledge and assume leadership role in the future through a process of continual innovation in education, research, creativity, technological advancement, and entrepreneurship.	✓	✓	✓
Program Mission: To provide quality education and produce proficient information engineering technologists well equipped with professional, ethical, and social responsibilities using modern technologies and along with passion for innovation and entrepreneurship in industry at national and international level.	✓	✓	✓

Program Educational Objectives (PEOs)

PEO 1	To produce quality information engineering technologists who will demonstrate proficiency and skills to address technological challenges in professional environment.
PEO 2	To produce technologists with contemporary communication, presentation and management skills who will play in global sustainability along with socio-economic betterment in the information technology sector.
PEO 3	To produce technologists with interpersonal skills that will foster them to participate for societal as an individual or as team members contributions through communities and life-long learning.

Mapping of PEOs With PLOs

PLOs	Description	PEO:1	PEO:2	PEO:3
PLO:1	Engineering Technology Knowledge	✓		
PLO:2	Problem Analysis	✓		
PLO:3	Design/Development of Solutions	✓		
PLO:4	Investigation	✓		
PLO:5	Modern Tool Usage		✓	
PLO:6	The Engineering Technologist and Society			✓
PLO:7	Environment and Sustainability		✓	
PLO:8	Ethics			✓
PLO:9	Individual and Teamwork			✓
PLO:10	Communication			✓
PLO:11	Project Management		✓	
PLO:12	Lifelong Learning			✓

Program Learning Outcomes (PLOs)

PLO-1	**Engineering Technology Knowledge:** An ability to apply knowledge of mathematics, natural science, Engineering Technology fundamentals and Engineering Technology specialization to defined and applied Engineering Technology procedures, processes, systems or methodologies.
PLO-2	**Problem Analysis:** An ability to Identify, formulate, research literature and analyze broadly defined Engineering Technology problems reaching substantiated conclusions using analytical tools appropriate to the discipline or area of specialization.
PLO-3	**Design/Development of Solutions:** An ability to design solutions for broadly- defined Engineering Technology problems and contribute to the design of systems, components or processes to meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.

PLO-4	**Investigation:** An ability to conduct investigations of broadly-defined problems; locate, search and select relevant data from codes, data bases and literature, design and conduct experiments to provide valid conclusions.
PLO-5	**Modern Tool Usage:** An ability to Select and apply appropriate techniques, resources, and modern technology and IT tools, including prediction and modelling, to broadly-defined Engineering Technology problems, with an understanding of the limitations.
PLO-6	**The Engineering Technologist and Society:** An ability to demonstrate understanding of the societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to Engineering Technology practice and solutions to broadly defined Engineering Technology problems.
PLO-7	**Environment and Sustainability:** An ability to understand and evaluate the sustainability and impact of Engineering Technology work in the solution of broadly defined Engineering Technology problems in societal and environmental contexts.
PLO-8	**Ethics:** Understand and commit to professional ethics and responsibilities and norms of Engineering Technology practice
PLO-9	**Individual and Teamwork:** An ability to Function effectively as an individual, and as a member or leader in diverse teams.
PLO-10	**Communication:** An ability to communicate effectively on broadly defined Engineering Technology activities with the Engineering Technologist community and with society at large, by being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PLO-11	**Project Management:** An ability to demonstrate knowledge and understanding of Engineering Technology management principles and apply these to one's own work, as a member or leader in a team and to manage projects in multidisciplinary environments.
PLO-12	**Lifelong Learning:** An ability to recognize the need for and have the ability to engage in independent and life-long learning in specialist Engineering Technologies.

Scheme of Study (B.Sc. Information Engineering Technology)

Program Duration:	**8-14 Semesters (4-7 Academic Years)**
Total number of Credit Hours	133
Courses Credit Hours	95
Project Credits Hours	06
Supervised Industrial Training Credit Hrs	32

Holy Quran with Translation, Tajveed and Tafseer	S/U Basis
Engineering Technology Courses	37
Non-Engineering Technology Courses	96
Total Courses	39

	Semester I		
Course Code	**Subject**	**Cr. Hrs.**	**Cont. Hrs.**
ISL-1112	Islamic Studies/Social Ethics	2	2
QTR-1101	Applied Mathematics-I	3	3
PHY-1108	Applied Physics	2	2
PHY-1108L	Applied Physics Lab	1	3
IET-1102	Linear Circuit Analysis	2	2
IET-1102L	Linear Circuit Analysis Lab	1	3
ENG-1103	Functional English	3	3
ICT-1126	Applications of Information and Communication Technologies	2	2
ICT-1126L	Applications of Information and Communication Technologies Lab	1	3
HQT-1128	Holy Quran with Translation, Tajveed and Tafseer	S/U	S/U
	Total	**17**	**23**
	Semester II		
Course Code	**Subject**	**Cr. Hrs.**	**Cont. Hrs.**
ENG-1201	Communication Skills	2	2
ICP-1229	Ideology and Constitution of Pakistan	2	2
IET-1202	Programming Fundamentals	2	2
IET-1202L	Programming Fundamentals Lab	1	3
IET-1203	Electronics	2	2
IET-1203L	Electronics Lab	1	3
QTR-1204	Applied Mathematics -II	3	3
IET-1205	Database Systems	2	2
IET-1205L	Database Systems Lab	1	3
HQT-1128	Holy Quran with Translation, Tajveed and Tafseer	S/U	S/U
	Total	**16**	**22**
	Semester III		
Course Code	**Subject**	**Cr. Hrs.**	**Cont. Hrs.**
ENG-2307	Expository Writing	3	3
IET-2301	Object Oriented Programming	2	2
IET-2301L	Object Oriented Programming Lab	1	3
IET-2302	Discrete Structures	3	3
IET-2303	Digital Logic Design	2	2
IET-2303L	Digital Logic Design Lab	1	3

IET-2304	Signals and Systems	2	2
IET-2304L	Signals and Systems Lab	1	3
ETH-2332	Professional Ethics	2	2
HQT-1128	Holy Quran with Translation, Tajveed and Tafseer	S/U	S/U
	Total	**17**	**23**
	Semester IV		
Course Code	**Subject**	**Cr. Hrs.**	**Cont. Hrs.**
IET-2401	Computer System Architecture	2	2
IET-2402	Data Structures and Algorithms	2	2
IET-2402L	Data Structures and Algorithms Lab	1	3
IET-2403	Digital System Design	2	2
IET-2403L	Digital System Design Lab	1	3
IET-2404	Operating Systems	2	2
IET-2404L	Operating Systems Lab	2	6
IET-2405	Software Requirement and Specification	2	2
ETR-2408	Entrepreneurship	2	2
CCE-2430	Civics and Community Engagement	2	2
HQT-1128	Holy Quran with Translation, Tajveed and Tafseer	S/U	S/U
	Total	**18**	**26**
	Semester V		
Course Code	**Subject**	**Cr. Hrs.**	**Cont. Hrs.**
IET-3501	Microprocessors & Microcontrollers	2	2
IET-3501L	Microprocessors & Microcontrollers Lab	2	6
IET-3502	Information Security	2	2
IET-3503	Communication and Networks Technology	2	2
IET-3503L	Communication and Networks Technology Lab	1	3
IET-3504	Mobile Application Development	2	2
IET-3504L	Mobile Application Development Lab	1	3
ARA-3501	Arabic	2	2
IET-3506	Project-I	3	9
HQT-1128	Holy Quran with Translation, Tajveed and Tafseer	S/U	S/U
	Total	**17**	**31**
	Semester VI		
Course Code	**Subject**	**Cr. Hrs.**	**Cont. Hrs.**
MAN-3601	Software Project Management	2	2
IET-3602	Software Testing	2	2
IET-3603	Artificial Intelligence	2	2
IET-3603L	Artificial Intelligence Lab	1	3
IET-3604	Cyber Security	2	2
IET-3604L	Cyber Security Lab	1	3
IET-3605	Digital Image Processing	2	2

IET-3605L	Digital Image Processing Lab	1	3
IET-3606	Project-II	3	9
HQT-1128	Holy Quran with Translation, Tajveed and Tafseer	S/U	S/U
	Total	**16**	**28**
Semester VII			
Course Code	**Subject**	**Cr. Hrs.**	**Cont. Hrs.**
IET-4701	Supervised Industrial Training	16	40 Hrs/ Week
Total		**16**	640
Semester VIII			
Course Code	**Subject**	**Cr. Hrs.**	**Cont. Hrs.**
IET-4801	Supervised Industrial Training	16	40Hrs/ Week
Total		**16**	**640**

B.Sc. Architectural Engineering Technology

A 4-year degree, entitled BSc Architecture Engineering Technology provides bright students an opportunity to realize their dream as Technologists by advancing their higher education in technical fields. It is an internationally recognized degree, which is offered in all advanced countries like USA, Canada, Australia, UK, Malaysia, and many more. The NTC is applying for membership of Sydney Accord (http://www.ieagreements.org/accords/sydney/). Sydney accord is global accreditation for engineering technologists of the signatory countries, whereas Washington Accord is for global accreditation for engineers.

In order to standardize a 4-year degree in engineering. technologies, NTC has given 4-year curricula for BS (Engineering Technology) in Civil, Electrical, Architecture, Biomedical and Information. The following distinct features of the curricula are stated here for information;

1. All programs have three years (6 semesters) of formal classroom education.
2. In both 7th and 8th semesters (fourth year), a student registers 15 credit hours of “Supervised Industrial Training (15 credit hours)” and three credit hours of Project.
3. In the first three years, more emphasis has been put on lab work than theory classes. For example, during any semester of BS (Engineering), a student takes 15-16 credit hours of theory, and 2-3 credit hours of lab courses. However, in BS (Engineering Technology), a student takes 10-11 credit hours of theory and 5-7 credit hours of lab courses.

4. In engineering programs, 1-credit lab means 3 hours of supervised lab work, whereas, in engineering technology curriculum, it is two hours of lab work.
5. The program shall be structured based on Outcome Based Education (OBE) system.

Program Mission

To provide quality education and produce competent Architecture Engineering technologists conscious of professional, ethical, and social responsibilities for productive careers in industry at a national and international level.

Program Educational Objectives (PEOs)

PEO 1	Graduates will be able to develop practical, sustainable, and creative solutions to architectural engineering problems.
PEO 2	Graduates will possess the ability to lead multifunctional teams effectively, demonstrate entrepreneurship, and maintain a positive reputation through exceptional communication skills and professional ethics.
PEO 3	Graduates will continuously acquire and adapt to emerging technologies, methodologies, and techniques throughout their professional career, and actively seek professional development and advanced education to contribute to the advancement of society.

Mapping of PEOs with PLOs

PLOs	Description	PEO:1	PEO:2	PEO:3
PLO:1	Engineering Technology Knowledge	✓		
PLO:2	Problem Analysis	✓		
PLO:3	Design/Development of Solutions	✓		
PLO:4	Investigation	✓		
PLO:5	Modern Tool Usage			✓
PLO:6	The Engineering Technologist and Society			✓
PLO:7	Environment and Sustainability			✓
PLO:8	Ethics		✓	
PLO:9	Individual and Teamwork		✓	
PLO:10	Communication		✓	
PLO:11	Project Management		✓	
PLO:12	Lifelong Learning			✓

Program Learning Outcomes (PLOs)

PLO-1	**Engineering Technology Knowledge:** An ability to apply knowledge of mathematics, natural science, Engineering Technology fundamentals and Engineering Technology specialization to defined and applied Engineering Technology procedures, processes, systems or methodologies.
PLO-2	**Problem Analysis:** An ability to Identify, formulate, research literature and analyze broadly defined Engineering Technology problems reaching substantiated conclusions

	using analytical tools appropriate to the discipline or area of specialization.
PLO-3	**Design/Development of Solutions:** An ability to design solutions for broadly- defined Engineering Technology problems and contribute to the design of systems, components or processes to meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.
PLO-4	**Investigation:** An ability to conduct investigations of broadly-defined problems; locate, search and select relevant data from codes, data bases and literature, design and conduct experiments to provide valid conclusions.
PLO-5	**Modern Tool Usage:** An ability to Select and apply appropriate techniques, resources, and modern technology and IT tools, including prediction and modelling, to broadly-defined Engineering Technology problems, with an understanding of the limitations.
PLO-6	**The Engineering Technologist and Society:** An ability to demonstrate understanding of the societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to Engineering Technology practice and solutions to broadly defined Engineering Technology problems.
PLO-7	**Environment and Sustainability:** An ability to understand and evaluate the sustainability and impact of Engineering Technology work in the solution of broadly defined Engineering Technology problems in societal and environmental contexts.
PLO-8	**Ethics:** Understand and commit to professional ethics and responsibilities and norms of Engineering Technology practice
PLO-9	**Individual and Teamwork:** An ability to Function effectively as an individual, and as a member or leader in diverse teams.
PLO-10	**Communication:** An ability to communicate effectively on broadly defined Engineering Technology activities with the Engineering Technologist community and with society at large, by being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PLO-11	**Project Management:** An ability to demonstrate knowledge and understanding of Engineering Technology management principles and apply these to one's own work, as a member or leader in a team and to manage projects in multidisciplinary environments.
PLO-12	**Lifelong Learning:** An ability to recognize the need for and have the ability to engage in

	independent and life-long learning in specialist Engineering Technologies.

Scheme of Study (B.Sc. Architectural Engineering Technology)

Program Duration:	**8-14 Semesters**
Courses:	97 Credit Hours
Project:	06 Credit Hours
Supervised Industrial Training:	32 Credit Hours
Total:	135 Credit Hours

	Semester I		
Course Code	**Subject**	**Cr. Hrs.**	**Cont. Hrs.**
AT-111	Introduction to Architecture and Town Planning	2	2
AT-112	Computer Applications	2	2
AT-112L	Computer Applications Lab	1	3
HS-113	Islamic Studies	2	2
GS-114	Applied Mathematics-I	3	3
AT-115	Engineering Mechanics	2	2
AT-115L	Engineering Mechanics Lab	1	3
AT-116	Engineering Drawing	1	1
AT-116L	Engineering Drawing Lab	2	6
	Total	**16**	**23**
	Semester II		
Course Code	**Subject**	**Cr. Hrs.**	**Cont. Hrs.**
AT-121	Building Construction Technology-I	1	1
AT-121L	Building Construction Technology-I Lab	2	6
AT-122L	Basics of Design Lab	2	6
HS-123	Pakistan Studies	2	2
AT-124	Technical Drawing	1	1
AT-124L	Technical Drawing Lab	2	6
GS-125	Applied Mathematics-II	3	3
AT-126	History of Architecture	2	2
AT-127	Elementary Surveying	1	1
AT-127L	Elementary Surveying Lab	2	6
	Total	**18**	**32**
	Semester III		
Course Code	**Subject**	**Cr. Hrs.**	**Cont. Hrs.**
AT-231	Fluid Mechanics	1	1
AT-231L	Fluid Mechanics Lab	1	3
AT-232	Architectural Design	1	1
AT-232L	Architectural Design Lab	2	6
AT-233L	Computer Aided Design-I Lab	2	6
AT-234	Strength of Materials	2	2
AT-234L	Strength of Materials Lab	1	3
AT-235	Building systems & services-I	2	2
AT-235L	Building systems & Services-I Lab	1	3

AT-236	Theory of Structures	3	3
GS-237	Occupational Health and Safety Management	2	2
	Total	**18**	**32**
	Semester IV		
Course Code	**Subject**	**Cr. Hrs.**	**Cont. Hrs.**
HS-241	Professional Ethics	2	2
AT-242	Building Construction Technology-II	2	2
AT-242L	Building Construction Technology-II Lab	1	3
AT-243	Sustainability in Buildings	2	2
AT-243L	Sustainability in Buildings Lab	1	3
AT-244	Building systems & services-II	2	2
AT-244L	Building systems & services-II Lab	1	3
AT-245	Computer Aided Design-II	1	1
AT-245L	Computer Aided Design-II Lab	2	6
AT-246	Concrete Technology	2	2
AT-246L	Concrete Technology Lab	2	6
	Total	**18**	**32**

Semester V				
Sr. No	**Course Code**	**Subject**	**Cr. Hrs.**	**Cont. Hrs.**
1	AT-351	Construction contracts, codes & Regulations	3	3
2	AT-352	Technological Building Analysis	2	2
3	AT-352L	Technological Building Analysis Lab	1	3
4	AT-353 L	Building Information Modelling Lab	3	9
5	GS-354	Project Management	3	3
6	HS-355	Communication Skills	2	2
7	AT-356	Quantity Surveying & Estimation	1	1
Total			**17**	**29**

	Semester VI		
Course Code	**Subject**	**Cr. Hrs.**	**Cont. Hrs.**
AT-361	Building Conservation & Rehabilitation	2	2
AT-361L	Building Conservation & Rehabilitation Lab	1	3
AT-362	Geotechnical & Foundation Engineering	2	2
AT-362L	Geotechnical & Foundation Engineering Lab	1	3
AT-363	Steel structures	2	2
AT-364	Architectural Technologies Research Project	6	18
AT-365	Technical Report Writing	2	2
	Total	**16**	**32**
	Semester VII		

Course Code	Subject	Cr. Hrs.	Cont. Hrs.
AT-471	Supervised Industrial Training	16	40Hrs/ Week
	Total	**16**	**640**
	Semester VIII		
Course Code	**Subject**	**Cr. Hrs.**	**Cont. Hrs.**
AT-481	Supervised Industrial Training	16	40Hrs/ Week
	Total	**16**	**640**

Alumni Comments

Being a student of Department of Mirpur Institute of Technology (MIT). It was pleasured to join MUST. It was my best decisions to take admission in Electrical Engineering Technology. I feel proud It makes me expert in my field. My personality developed and groomed up. The Labs are up-to date and the equipment's available is the modern of its field. The interaction with faculty has given me tremendous confidence. The faculty has a good reputation in term of good work. The university provides financial support and intensives to talented and needy students in the form of scholarship. The Electrical Engineering Technology is curving me for field work and practical life. MUST is playing a vital role in polishing my hidden skills and boosting self-confidence. The time I have spent here is enjoyable and knowledge full experience of my life.	 **Muhammad Awais Asghar** **MS Electrical Technology** **Session (2021-23)**
My university experiences thus far have been amazing. I have learned and experienced so many new things in such a short period of time, and it has gone by so fast. There is a great focus on practical work and all the necessary equipment in the labs are is in abundance and upgraded regularly. The faculty is very competent. It is real high ground where quality technologist is produced and are serving the nation.	 **Danyal Zamir** **Electrical Engineering Technology** **Session (2015-19)**

MS Electrical Technology

MUST is the first Public University of Pakistan who offers MS in Electrical Technology in department of MIT-MUST. This program will involve teaching high level approaches of industry, information security and practical interaction with industry. It will ensure that the students will be able to conduct research and do practical work alone or in a team and maintain life-long learning after completing this program. The community by producing quality Electrical Technologists capable of addressing solutions to the challenging problems being faced at National/International level. The technologists will play a pivotal role to the development sector of the country owning to its multidisciplinary in nature and wide scope. In addition, the program is benchmarked with international universities across the world such as USA, Canada, Australia, UK, Malaysia, India and many more.

Program Objectives:

1. Help graduates to develop a more profound knowledge base of the subject at and advance level.
2. Equip graduates with the necessary tools to undergo simulation studies, research, optimize engineering designs and solutions.
3. Assist and motivate graduates to become leaders, entrepreneurs, consultants, and successful engineer technologist.
4. Make graduates understand the importance of team building, effective communication skills, and function efficiently as an individual and as a part of a team.

Admission Criteria

1. **Qualification**

- Candidate heaving 16years of education in B.Sc. (Engineering Technology)/B.Sc. (Technology 4 Years) degree program and duly registered National Technology Council (NTC) Pakistan.

2. Grades

- Semester Based Examination
- CGPA
- 2.7 out of 4.0
- 3.0 out of 5.0
- Percentage
- 65%
- Annual system
- Minimum Second Division
- No 3rd Division is allowed.
- The candidates must have passed the GAT/NTS General test, or any other test as required by the university.

Duration and Scheme of Study

Duration	**4 -8 Semesters**
Core Courses	06 Credit Hours
Elective Courses	18 Credit Hours
Master Thesis	06 Credit Hours
Total	30 Credit Hours

1st Semester	Course Title	Credit Hours
	Compulsory Course	03
	Core-I	03
	Elective-I	03
	Elective-II	03
	Total	**12**

2nd Semester	Core-II	03
	Elective-III	03
	Elective-IV	03
	Elective-V	03
	Total	**12**
3rd Semester	Thesis	06
	Total	**06**
4th Semester	Thesis	**06**

Compulsory Courses

Course Code	Subject	Cr. Hrs.
MET-5201	Research Methodology and Professional Ethics	03

Core Courses

Course Code	Subject	Cr. Hrs.
MET-5202	Renewable Energy Sources	03
MET-5203	Industrial Instrumentation and Control	03
MET-5204	Engineering Procurement Commissioning	03
MET-5205	Energy Management	03
MET-5206	Industrial Safety	03
MET-5207	Electrical Transients in Power System	03
MET-5208	Power System Troubleshooting	03
MET-5209	Digital Image Processing	03
MET-5210	Advanced Topics in Electromagnetics	03

Elective Courses

Course Code	Subject	Cr. Hrs.
MET-6201	Advanced Industrial and Power Electronics	03
MET-6202	Advanced High Voltage Technology	03
MET-6203	Advanced Image Processing and Computer Vision Techniques	03
MET-6204	Machine Vision and Recognitions Technology	03
MET-6205	Artificial Intelligence	03
MET-6206	Cellular and Mobile Communications	03
MET-6207	Advanced Digital Communication Systems	03
MET-6208	Power Electronics Convertors	03
MET-6209	Energy Informatics	03
MET-6210	Big Data Analytic Techniques	03
MET-6211	Advanced Power Systems	03
MET-6212	Power System Economics	03
MET-6213	Power System Restructuring	03
MET-6214	Advanced Topic in Power System	03
MET-6215	Power System Planning	03
MET-6216	Solar Power Generation	03

MET-6217	Power System Troubleshooting	03
MET-6218	Optoelectronic Devices	03
MET-6219	Switchgear and Power System Protection	03
MET-6220	Advanced Power System Distribution	03
MET-6221	Advanced Power System Transmission	03
MET-6222	Advanced Electronics	03
MET-6223	Advanced Electrical Machines	03
MET-6224	Industrial Automation	03
MET-6225	Energy Storage System	03
MET-6226	Power System Operation and Control	03

MS Civil Technology

MUST is the first Public University of Pakistan who offers MS Civil Technology in department of MIT-MUST. This program will involve teaching high level approaches of industry, information security and practical interaction with industry. It will ensure that the students will be able to conduct research and do practical work alone or in a team and maintain life-long learning after completing this program. The community produces quality Civil Technologists capable of addressing solutions to the challenging problems being faced at National/International level.

Technologists will play a pivotal role in the development sector of the country owing to its multidisciplinary nature and wide scope. In addition, the program is benchmarked with international universities across the world such as USA, Canada, Australia, UK, Malaysia, India and many more.

Program Objectives

1. Help graduates to develop a more profound knowledge base of the subject at an advanced level.
2. Equip graduates with the necessary tools to undergo simulation studies, research, optimize engineering designs and solutions.
3. Assist and motivate graduates to become leaders, entrepreneurs, consultants, and successful engineer technologist.
4. Make graduates understand the importance of team building, effective communication skills, and function efficiently as an individual and as a part of a team.

Duration

Duration	**4 Semester/2 Years**
Core Courses	15 Credit Hours
Elective Courses	09 Credit Hours
Thesis	06 Credit Hours
Total	30 Credit Hours

Course Code	Title	Credit Hrs/ Week	Pre req
	COMPULSORY COURSES		
CET-6001	Computer Aided Analysis and Designs of Structures	3	–
CET-6002	Construction Technology and Management	3	–

CET-6003	Design of Hydraulic Structures	3	–
CET-6004	Highway Planning & Design	3	–
CET-6000	Research Methodology	3	-
CET-7002	Research Thesis	6	–

	ELECTIVE COURSES		
GCT-5101	Geotechnical Modelling	3	–
CTS-6101	Advanced Steel Structures	3	–
CTS-6102	Advanced Strength of Materials	3	–
CTS-6103	Advanced Reinforced Concrete	3	–
CTS-6100	Dam Engineering Technology	3	–
GCT-6102	Foundation Engineering Technology	3	–
GCT-6103	Bridge Engineering Technology	3	–
CTT-5000	Railway Technology	3	–
CTT-6100	Advanced Traffic Engineering and Management	3	–
CTM-6101	Construction Projects Scheduling and Control	3	–
CTM-6102	Safety Management in Construction Technology	3	–
CTW-5101	Hydropower Development and Technology	3	–
CTE-6111	Environmental Impact Assessment	3	–
CTD-6001	Disaster Risk Assessment and Evaluation	3	–
CTT-6112	Advance Testing's in Civil Technology	3	–

Semester wise Breakdown			
Semester I			
Course Code	**Type**	**Subject**	**Cr. Hrs.**
Subject I	Compulsory	Offered from core courses list	3
Subject II	Compulsory	Offered from Elective courses list	3
Subject III	Compulsory	Offered from core courses list	3
Semester II			
Subject IV	Compulsory	Offered from core courses list	3
Subject V	Compulsory	Offered from core courses list	3
Subject VI	Compulsory	Offered from elective courses list	3
Semester III-VIII			
Subject VII	Compulsory	Offered from core courses list	3
Subject VIII	Compulsory	Offered from elective courses list	3
CET-7002	Compulsory	Thesis	6
Note: Semester Extension from 5th-8th semester will be required from AS&RB.			

DIRECTORATES

Registrar
Prof. Dr. Khizar-ul-Haq
Contact: 05827-961037
E-mail: registrar@must.edu.pk

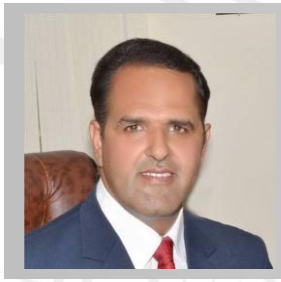
Core Functions Performed by office of the Registrar:

1) There shall be a Registrar of the University to be appointed by the Senate on the recommendation of the Vice-Chancellor, on such terms and conditions as may be prescribed.
2) The experience as well as the professional and academic qualifications necessary for appointment to the post of the Registrar shall be as may be prescribed.
3) The Registrar shall be a full-time officer of the University and shall,

a. be the administrative head of the secretariat of the University and be responsible for the provision of secretariat support to the Authorities of the University;
b. be the custodian of the common seal and the academic records of the University;
c. maintain a register of registered graduates in the prescribed manner;
d. supervise the process of election, appointment or nomination of members to the various authorities and other bodies in the prescribed manner; *and*
e. perform such other duties as may be prescribed.

4) The term of office of the Registrar shall be a renewable each after a period of three years:

Provided that the Senate may, on the advice of the Vice Chancellor, terminate the appointment of the Registrar on grounds of inefficiency or misconduct in accordance with prescribed procedure.



Treasurer/Chief Financial Officer
Prof. Dr. Muhammad Khalique
Tel.: 5827-961035
E-mail: treasurer@must.edu.pk

Core Functions Performed by Treasurer:

1) There shall be a Treasurer of the University to be appointed by the Senate on the recommendation of the Vice Chancellor, on such terms and conditions as may be prescribed.
2) The experience and the professional and academic qualifications necessary for appointment to the post of the Treasurer shall be as may be prescribed.
3) The Treasurer shall be the chief financial officer of the University and shall,-

a. Manage the assets, liabilities, receipts, expenditures, funds and investments of the University;
b. Prepare the annual and revised budget estimates of the University and present them to the Syndicate or a committee thereof for approval and incorporation in the budget to be presented to the Senate;
c. Ensure that the funds of the University are expended on the purposes for which they are provided;
d. Have the accounts of the University audited annually so as to be available for submission to the Senate within six months of the close of the financial year, and
e. Perform such other duties as may be prescribed.

4) The term of office of the Treasurer shall be a renewable each after a period of three years:

Provided that the Senate may, on the advice of the Vice Chancellor, terminate the appointment of the Treasurer on grounds of inefficiency or misconduct in accordance with prescribed procedure.

Controller of Examinations

Mr. Kamran Hameed
Phone: 05827-961038
E-mail: controller@must.edu.pk

Office of the Controller of Examinations is one of the most important Departments at Mirpur University of Science and Technology (MUST), Mirpur AJK.

Core Functions Performed by the Office of the Controller of Examinations:

1) All matters concerned with the conduction of examinations.
2) Preparation of final result notification(s) and display grade reports to students on CMS.
3) Arrangements for the timely issuance/provision of the examination materials, instructing the supervisory staff and holding their meetings as and when required.
4) Postponement or cancellation of examination, in part or in whole, in the event of malpractices or if the circumstances so warrant after approval of the Vice Chancellor.
5) Appointments of unfair means committee with the prior approval of the Vice Chancellor in relation to examination
6) matters for carrying out investigation and convene meeting and issue notices thereof.
7) Bringing into the notice of the Vice Chancellor all cases of infringement of rules of examinations with full report for disposal.
8) Maintaining over all examinations record of the students.
9) Ensuring and maintain strict secrecy of all information regarding the examinations.
10) Issuance of transcripts to Under-Graduate and Post- Graduate students. Keep record of student's results and ensure departmental secrecy.
11) Exercising such other powers and perform such other duties as may be prescribed or assigned to him, by the Vice Chancellor.
12) Issuance of degrees to Under-Graduate and Post-Graduate students.

DIRECTOR STUDENTS' AFFAIRS

Dr. Muhammad Altaf
Tel: +92-5827-961045
Fax: +92-5827-961045
Email: dsa@must.edu.pk

The directorate students 'affairs serve as a liaison between students, faculty and administration. The primary function of the Directorate is to organize extra-curricular activities for students and to nurture their intellectual, literary and artistic capabilities that usually remain untapped in a typical classroom environment. The Directorate also works to promote respect amongst students for dignified and disciplined.

Behaviour so that they become responsible and respectable members of the honoured community of scientists, engineers, architects, and planners. The student's affairs office provides assistance to the students in all possible way. It leads, directs and administers overall functions of student counselling, hostel residence, student societies and discipline. The important function of student affairs office is to enhance the quality of student life both in and outside the campus

Facilities

Transport

A large fleet of vehicles are available to provide morning/evening commuting facilities to the main point in the Mirpur City. Transport facility is also available for students studying at Bhimber Campus. Besides pick and drop facility, transport is also provided to students for their study and recreational trips on recommendations of respective Deans of the Faculties.

Cafeteria and Shopping Complex

Aesthetically designed cafeteria and shopping complex have been constructed in the central wings of the campus. Shopping complex will offer the following services:

- Stationery Shop
- Book Shop
- Photoshop
- Cellular Shop
- Washer ma

Medical/First Aid Facilities:

Dispensary for students to provide them first aid is available in the main campus. In addition to Dispensary a fully equipped ambulance to handle any emergency round the clock is also available for evacuation to the nearest hospital.

Counselling and Career Advisory:

Counselling and career advisory provides primary mental health services to all MUST students, and Faculties. MUST is the only university in the AJ&K offering this counselling services to discuss their personal and academic concerns with competent counsellors, without any hesitations.

- Azad Jammu & Kashmir Government is very generous in sanctioning Zakat scholarships. Majority of students is getting full benefit of this facility.

Guardian Council

MUST is an organization which is not only teaching and tutoring students but also reshaping their minds to become sophisticated and responsible representatives of our society. We believe that work and integrity are not to be compromised. We ourselves determine our level of excellence. A guardian council in each department has been established to have complete information about following attributes of the students:

- Economic Situation
- Health Factor
- Psychological Problems
- Studies Report
- Interaction with other students
- Participation in Class

Students Societies

Students are offered ample opportunities to acquire and polish various social and professional skills. For this purpose, vibrant societies exist at MUST.

Under the supervision of Director Students' Affairs such as:

- Society of Computer Science & Information Technology (SOCIT)
- American Society of Mechanical Engineering MUST (ASME MUST)
- Society of Civil Engineering MUST (SCEM)
- Society of Electrical Technology (SET)
- MUST ORION
- MUST Computing Society (MCS)
- Society of Power Engineering (SOPE)
- Society of Sciences (SOS)
- ASHREE MUST
- MUST Arts & Décor Society (MADS)
- MUST Debating Society
- DHANAK Magazine Society MUST
- MUST Literary Society(MLS)
- Society for Women Engineers (SWE)
- AAINA Arts and Dramatic Society
- Youth Parliament MUST Chapter
- Irfan Shaheed Blood Donation Society
- Seerat Society MUST
- State Youth Assembly MUST Chapter
- ARFA KAREEM Computing Society
- Society of LAW (SOL)
- Student Development Circle (SDC)
- Girls Scholar Society Environmental Protection Society
- Student Welfare Society
- Disaster and Crisis Management Society
- Sports Society

ALI AHMED SHAH CENTRAL LIBRARY

Chief Librarian
Dr. Syed Zakir Hussain Bukhari
Tel.: +92 5827961053
E-mail: chieflibrarian@must.edu.pk

I welcome you on behalf of the Ali Ahmed Shah Central Library, the hub of research, a place for lifelong learning, discovery and innovation. Offering access to a multitude of resources, the Ahmed Shah Central Library aspires to provide high quality services to the educational community of MUST Mirpur. The top priorities of the central library is to development of learning spaces and extension of physical facilities, progression in services, and development of collections vital for learning and research. The real aim is to create Central Library services that are convenient and efficient for students and academic staff. The bottom line is to enrich students learning experience and enable research and scholarship in both formats(traditional and electronic).The Library staff is competent and always be there to provide timely response to your academic and research information needs. We want to help you meet your research and learning goals, and trust that the resources, facilities and services we provide will prove helpful to you. I urge you to visit and use the library and hope that you will consider it your educational partner and source of quality learning during your time at MUST University.

Introduction

With the inception of the UAJK in 1980, the College of Engineering and Technology, the College of Home Economics, Institute of Islamic Studies and Central Library were established. Central Library has the 23000 collections of books. The library has a rich and diverse collection of materials, especially in terms of the breadth and depth of coverage. The collection is ideally suited to encourage and support both scholarly pursuits and practical research activities. The Ali Ahmed Shah Library has a variety of material including Computer Science, Engineering, Mathematics, Management Sciences, and Earth Science, Social Sciences, General books, Fictions, Pakistan Study and Reference books. About 10 serial publications and 6 newspapers are on the subscription list. The Ali Ahmed Shah Central Library also offers the Book Bank services to the users and having a collection of 3400 books. Campus wide access to more than 22,000 electronic journals and more than 40,000 e-books is available through the HECs National Digital Library Program. Central Library has a new state of art building, having a sitting capacity of 400 students at time, and offers

automatic accessibility of resources with RFID system which is unique feature in the AJK. The library has also been equipped with all the latest Information Communication Technologies (ICTs) such as computers, multimedia, digital cameras, photocopier and high-speed internet connectivity to facilitate the faculty and students.

Vision Statement

- The Central Library, as the primary information provider to the university community, will provide leadership in information policy development, information technology application and information research.
- The Ali Ahmed Shah Central Library will maintain an excellent collection that is notable for the depth and breadth of its holdings.
- The Central Library will enhance access to knowledge, promote scholarly communication and provide information to the academic community in support of research and instructional programs.
- Library user's fraternity will benefit from inclusive and outstanding instruction, outreach and public services including access to user-friendly information systems.
- The campus community will recognize library staff for their expertise, technological competence, solid traditional library skills and as leaders in information management.
- The Central Library's physical facilities will accommodate and protect exiting collection and archives and provide room for long term planned growth, securing space that is conducive to study, research and exploration of new technologies.

Mission

- The mission of the University Library is to support academic and scholarly needs of our users, in their core academic and research requirements through utilizing the best possible resources and extend this service to the community beyond the Mirpur University of Science and Technology, as far as possible.

Objectives

- To involve in regional, state and national efforts of library cooperation, thereby ensuring that students, faculty and staff have access to the broader universe of information.
- To provide high quality materials both print and electronic, that supports the curriculum and research.
- To support students, faculty and staff in identifying, locating, retrieving and interpreting information in all of its formats.
- To provide training of information literacy to students to become self-reliant information seekers and lifelong learners
- To offer services to off-campus and distance learning students that are comparable to services offered to on-campus students.
- To provide right information to right user in right format at right time.

Services

Services include two types of services; technical services and reader services in almost every type of library.

Technical Services

Technical services are very important in any type of the library. These services are helpful in searching and retrieving the book from the library. Technical service includes:

Acquisition

Acquisition department of library works for acquiring the material by students, faculty and staff of MUST. It deals with all types of content requested for library to meet the academic and research needs of MUST students, faculty and staff.

Accessioning and Classification

The Ali Ahmed Shah Central Library executes the technical services including acquisition of material, accessioning of materials, adopted the DDC 23rd edition, allotment of subject heading via Sears List of Subject Headings and entering books in CMS.

Future Program

- Creation of new Reference Section
- Deployment of E-library collection of MUST
- MUST Library Mobile App
- Establishment of discussion rooms for students and faculty
- Implementation of RFID Tag and RFID Gate.
- Implementation of KOHA software Deployment of computerize issuance to the students, faculty, and staff

ADVANCED STUDIES & RESEARCH BOARD (ASRB)

Director
Engr. Dr. Anzar Mahmood
Tel: +92-5827-961116
Email: director.asrb@must.edu.pk

Responsibilities

Office of the Advanced Studies & Research Board (AS&RB) is performing the following Functions and duties at the Mirpur University of Science & Technology (MUST):

- Monitor the academic and research progress of graduate students.
- Maintain and update the files of graduate students.
- Maintain and update academic regulations for graduate programs.
- Scrutinize the synopses of theses, coursework programs, and supervisors for M.Phil.
- Scholars and supervisory committees of PhD students manage their approval through the board.
- Scrutinize the theses of postgraduate students to ensure their proper format as laid down by the university.
- Streamline the latest developments within post-graduate degree programs of the university.
- Keep liaison with other universities, research organizations and the HEC for updates.
- Prepare agenda and conduct meetings of AS&RB.
- Execute the policies and decisions of AS&RB.
- Scrutinize all incentive cases for Publication and Theses Supervision of faculty members.
- Monitoring and holding of the University Graduate Admission Test (UGAT) as per the latest HEC Policies. For details, please visit MUST, UGAT portal at https://ugat.must.edu.pk

NETWORK AND TELECOMMUNICATION CENTER (NTC)

Director
Imtiaz Ahmad Bhat
Tel:+92-5827-960096
Email: director.ntc@must.edu.pk

Recognizing the critical role of technological advancement, the Network and Telecommunication Centre (NTC) was established as a dedicated department in June 2010. The creation of the NTC was intended to significantly improve and expand network and telecommunication services for the university. Located at MUST, Mirpur, the NTC is composed of a team of highly skilled and professional members who are responsible for delivering IT, computing, corporate training, and consultancy services. These services extend beyond the MUST campus to also benefit public and private organizations.

Mission Statement

Our mission is to provide innovative, reliable, and integrated IT solutions and support. We are dedicated to meeting the needs of users at MUST, Mirpur, by delivering ethical, dependable, and high-quality solutions that offer strategic value.

Areas of Activity/Services

In today's technology-driven world, network and telecommunication services are essential for the smooth operation of any organization. These services enable both local and global connectivity and communication. NTC offers a wide range of facilities and services, including:

- Network design, installation, performance monitoring, troubleshooting, and maintenance
- Development, deployment, and maintenance of the MUST ERP system
- Creation and management of an in-house developed admission management system
- Development and maintenance of the SEET and UGAT Portals
- Installation, troubleshooting, and maintenance of Telecom Exchange systems
- System installation, activation, troubleshooting, and maintenance
- Design, development, and maintenance of the university website
- In-house software development
- Provision of internet services

- Training and technical support for the Online Learning Management System for faculty at MUST, Mirpur, as well as affiliated colleges
- Fiber connectivity between the Jerri-Kas campus and the data center at the city campus
- Technical support for event management at MUST, Mirpur
- In-house printing system for staff and student ID cards

HEC Special Projects with NTC Coordination

1. **Pakistan Educational Research Network (PERN)**
   PERN is a national research and education network in Pakistan that connects premier educational and research institutions across the country. It fosters collaborative research, knowledge sharing, resource sharing, and distance learning by utilizing intranet and internet resources. The current bandwidth of PERN has been increased from 160 Mbps to 365 Mbps to meet the requirements of all departments. This network also supports the Virtual Education Project of Pakistan (VEPP), offering courses taught by renowned professors from around the globe.
2. **Digital Library Access**
   The HEC National Digital Library (DL) program provides researchers within public and private universities in Pakistan, as well as non-profit research and development organizations, with access to international scholarly literature through online platforms. This program includes access to high-quality, peer-reviewed journals, databases, articles, and e-books across various disciplines. Over 75,000 electronic resources are available through the Digital Library Program. The NTC team at MUST coordinates with the chief librarian to ensure seamless access to these digital resources for all faculty members and students.
3. **CISCO Academy/Short Courses**
   MUST is a registered CISCO Academy offering courses such as CCNA, CCNA Security, and CCNP. Certified instructors teach and train students using the latest curriculum provided by Cisco, with hands-on practice on network devices.
4. **Microsoft Testing Centre/Academy**
   MUST is a registered Microsoft Academy and Certified Testing Center for the Microsoft Office Specialist (MOS) program. A significant number of MOS tests have been conducted at MUST, Mirpur.
5. **HEC Smart Universities Project including SMART Classroom**
   The NTC team has implemented the HEC Smart University Wi-Fi and Surveillance Solution at MUST, Mirpur, which includes:
   - 24/7 wireless connectivity
   - User-based internet access via Active Directory Service
   - SMART Classroom established in Central Library Building and MIT Building Jharikass

Strengthening of Existing Facilities/Milestones Achieved

- PERN bandwidth enhanced from 160 Mbps to 365 Mbps in city campus
- 10 Mbps Backup link from SCO
- 100 Mbps from Sky telecom in JariKass Campus.

- 100% campus-wide wireless (Wi-Fi) internet access
- Ruckus Wi-Fi internet solution installed at the Bhimber campus
- Internet connectivity provided in the girls' hostel at Bhimber campus
- Academic procedures automated through the implementation of a Campus Management System (CMS)
- Development and deployment of an online admission system
- In-house printing system for staff and student ID cards
- Development and launch of an alumni website including the registration of alumni.
- Helpdesk facility for complaint management and ticketing
- Automation of HR and payroll processes at MUST
- Support for Turnitin Services to Faculty and Students

Public-Private Projects and Civic Engagements

- Provided turnkey solution for driving license printing for Mirpur, Bhimber, and Kotli
- Technical support and consultancy provided to the Board of Intermediate and Secondary Education (BISE) Mirpur AJ&K NTC
- ERP (Enterprise Resource Planning) development and deployment for KORT
- Software/application co-location and technical support for HealthCare4All (NGO)
- Technical support provided to the President Secretariat, Muzaffarabad (AK)
- Card printing services for Mirpur Chamber of Commerce & Industries
- Service card printing for the Department of Inland Revenue (Excise & Taxation Department) AJK
- Website management and hosting for the Nomination Board (Higher Education, Muzaffarabad)
- MOU with DHQ Mirpur for Hospital Information Management System and consultancy
- Technical support and consultancy provided to Bhimber University

OFFICES OF RESEARCH, INNOVATION & COMMERCIALIZATION (ORIC)

Director
Prof. Dr. Faisal Riaz
E-mail: directororic@must.edu.pk
Tel:+92-5827-961114

Introduction

HEC aims to develop and sustain a dynamic and internationally competitive research sector in Pakistan that makes a major contribution to economic prosperity, national well-being and the expansion of knowledge. Promotion of Research is one of the core strategic aims of HEC. Through the initiatives launched by HEC the quality & research output emanating from the universities and institutions in country have shown tremendous improvements. In pursuit of this end HEC has started working to organize the research activities under one umbrella by establishing the Office of Research, Innovation and Commercialization (ORIC). In pursuance of the direction of HEC the university took the policy decision to establish this important office by issuing a notification No. Registrar/6328-68/2011 dated: 01-06-2011.

The minimum criteria for the establishment of ORIC have been completed in April 2013 with the aim of linking university research directly with educational, social and economic priorities of MUST and its broader community.

Objectives/Mission

The mission of ORIC is to develop, expand, chance and manage the university's research programs and to link research activities directly to the educational, social and economic process of the university and its broader community. The office is also responsible for assuring that the quality of research reflect the highest international standards and advances the stature of the university, among the world's best research institutions.

In pursuit of this mission, the Office of Research has the responsibility of guaranteeing that all research programs and policies reflect the core values of academic freedom, professional integrity and ethical conduct and full compliance with all policies, legal requirements and operational standards of the university.

Facilities

Offices of Research, Innovation & Commercialization (ORIC) is divided into the following categories to facilitate MUST.

Research Operations

ORIC is promoting development of public-private partnerships:-

- Identify research grant opportunities for faculty to apply.
- Facilitate faculty to apply for research grants.
- Research administration, budgeting and auditing.
- Accounting and human resources management.
- Maintenance of facilities and equipment.

- Implementation of research contracts and human resources.
- Legal, administrative and financial management support of research grants

Research Development

ORIC is developing programs and activities that will:-

- Increase funding for research from all public and private sources.
- University internal funding for small projects.
- Establish and maintain excellent relationships with donors and stakeholders.
- Oversee proposal development and submission.
- Support commercialization, licensing, etc. of university research products.

University – Industrial Linkages

ORIC is developing links with several industries of AJK & Pakistan.

- To support the university research initiatives.
- Link the university's research community with the needs and priorities of the corporate sector.
- Develop opportunities for applied research and explore opportunities for technology transfer.
- Commercialization of university research.
- To follow-up of commercialization process of research products.

Contact Office of Research, Innovation and Commercialization (ORIC) for assistance and guidance on the following research related activities;

- Funding Opportunities
- Presentation of Research Work
- Organizing a Seminar, Workshop and Seminar etc.
- Patenting the Research Work
- Industrial Linkages, Commercialization of Research.

Potential Donors (National and International):

- Higher Education Commission (www.hec.gov.pk)
- Pakistan Science Foundation (www.psf.gov.pk)
- National ICT R&D Fund (http://www.ictrdf.org.pk)
- Pak-US Joint Academic & Research Program (http://publisher.hec.gov.pk/www.hec.gov.pk/pakus-rd)
- TWAS-COMSTECH Joint Research Grants (http://twas.ictp.it/prog/grants/)
- Human Frontier Science Program (www.hfsp.org)
- International Foundation for Science (http://www.ifs.se)
- Australian Agency for International Development (AusAID) (http://www.ausaid.gov.au)
- East WEST center (www.eastwestcenter.org)
- European Research Council (ERC) (http://erc.europa.eu)
- EU Funding and Grants (http://ec.europa.eu/index_en.htm)
- International Development Research Center (http://www.idrc.ca)
- Japan International Cooperation Agency (JICA) (http://www.jica.go.jp)
- Sigma Xi – The Scientific Research Society

QUALITY ENHANCEMENT CELL

Director
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Impact of Quality Assurance in the University

Quality is the bench-mark through which an institution can guarantee with confidence and certainty that the standards of its educational provision are being maintained and enhanced. The Quality Enhancement Cell (QEC) has been working in the university since the establishment of the university. The Quality of the degree programs is ascertained through the set criteria and measurable standards. Mirpur University of Science and Technology (MUST), Mirpur is moving ahead on the path of tremendous progress in the higher learning sector using human and financial resources. In order to facilitate access and enhance the quality programs, self-assessment system is implemented in the University. The process is directed at rising and elevating the quality of education compatible to the international standards. The Mirpur University of Science and Technology (MUST), Mirpur is a student focused University with quality consciousness. All the stake-holders including students, teachers and staff are committed to achieve academic excellence.

Mirpur University of Science and Technology (MUST) is committed to implement e-learning programs in accordance to the provision provided by HEC COVID-19 guidance with pledge of quality assurance. QEC is dedicated to providing all education seekers an equal opportunity to access quality education from tertiary to higher education level through online learning. QEC is focused to develop a standard mechanism of online learning, for providing affordable and flexible educational opportunities that may open doors for all learners to broaden their horizon.

QEC Vision

''Quality Education for Societal and National Development through Innovation, Facilitation and Accountability''

QEC Mission

''To Focus on Modern Trends of Globalization in Teaching, Learning and Research for Sustainable Academic Development through Auto-corrected Procedure for Quality Improvement in the MUST''

Mirpur University of Science and Technology (MUST) Retains W-Category in the HEC's University Quality Guide 2018

Mirpur University of Science and Technology (MUST), Mirpur retains W-Category (85- 100%) by securing 88.40% in the Pakistan's most widely read university ranking. This league table is made up of seven indicators including Quality Assurance, Teaching and

Research, Student-staff ratios, SAR report completion, Civic Engagements, Awareness Seminars/ Workshops and Membership of International Bodies around the globe. The result is the latest HEC-QAA league table success for MUST. It is worthwhile to mention here that this is the fourth
Consecutive year MUST has featured in the W-Category in this guide, which ranks Universities across Pakistan.

Membership of Networks of Quality Assurance

QEC-MUST is actively participating in its role to enhance the quality of education at a higher level. In this regard, QEC has membership of national and international networks. Currently, Director QEC is an Executive member of Pakistan's largest network of quality assurance in higher education named PNQAHE.

Membership of Network

Name of Agency	Location	Membership Status
AQPN	China	Under process
INQAAHE	Netherland Hague	Active
AQAAIW	Malaysia	Under process
Tallories Network	USA	Active
PNQAHE	Pakistan	Active

Accreditation of Programs from Relevant Councils

Name of Degree Programs	Faculty Name	Accreditation Council/ Body
B.Sc. Electrical Engineering	Engineering	Pakistan Engineering Council (PEC)
B.Sc. Civil Engineering	Engineering	Pakistan Engineering Council (PEC)
B.Sc. Mechanical Engineering	Engineering	Pakistan Engineering Council (PEC)
B.Sc. Software Engineering	Engineering	Pakistan Engineering Council (PEC)
B.Sc. Computer Systems Engineering	Engineering	Pakistan Engineering Council (PEC)
B.Sc. Electrical Engineering	Engineering	Pakistan Engineering Council (PEC)
Bachelor/ Master of Business Administration	Arts	National Business Education Accreditation Council (NBEAC)
Law	Arts	Pakistan Bar Council (PBC Azad Kashmir Bar Council
Computer Science & Information Technology	Science	National Computing Education Accreditation Council (NCEAC)
AKSON College of Pharmacy Education	Health & Medical Sciences	Pakistan Pharmacy Council (PCP)
Computer Science & Information Technology	Arts	National Accreditation Council for Teaching Education

STUDENTS ASSISTANCE CENTRE (SAC)

Director
Engr. Dr. Naveed Akram
Tel.: +92-5827-961080
E-mail: scholarships@must.edu.pk

Establishment

Student Financial Aid Office (SFAO) was established in compliance with Higher Education Commissions (HEC) directives in February,2013 and the Senate of the University has approved its establishment in its 4th meeting vide notification no. F.2/senate (4-M) i-47/6346-86/2013 dated: 30-07-2013. Due to statutory requirements of the University, the title of Student Financial Aid Office (SFAO) was renamed Student Assistance Centre (SAC) vide order no. R/5208-58/18 dated: 12-03-2018.

Mission

The SAC is primarily established to facilitate and uplift the underprivileged students who intend to achieve academic excellence, but lack of financial resources is one of the greatest roadblocks to follow their dreams. SAC coordinates grants of scholarships received from various national / foreign scholarship awarding agencies for MUST students enrolled in various disciplines and study programs. SAC provides guidance through advisory and counselling services to the students who are in need of scholarships for pursuance of their studies and research programs.

Key Roles

- Execute / implement and operate the financial assistance Scheme(s)/ programs of the Government / HEC / MUST and other donors.
- Establish regular communication flow between the MUST and the students/parents. Co-ordinate with all stake holders regarding the financial assistance /aid programs.
- Establish essential manual and automated processes to award financial assistance in a timely manner to Award financial assistance/Scholarships to qualified students, according to institutional and Govt. requirements.
- Create awareness; build relationships with the society for humanitarian support to higher education. Provide individual student/parent assistance in completing necessary applications and managing personal resources as they are needed to augment financial assistance in covering educational expenses.

Scholarship Opportunities

Following Scholarships are being offered as per donors and MUST policies.

1. **MUST-Merit based Scholarships**

Top 3- position holders or 5% students of each semester/ class are awarded by this scholarship **@ Rs.6,000/- per semester**. More than **300- students** are annually benefited against this program.

2. **MUST-Need Based Scholarships**

50-scholarships are awarded from the academic year 2014 to the **impoverished and needy newly admitted students** of subsidized category in undergraduate programs. The scholarship is awarded according to the principles and procedures laid down by the HEC for Need Based Scholarship programs. The component of the scholarship is fixed **@ Rs. 9,000/- per semester** or as determined by the University from time to time according to the availability of funds. This scholarship is granted for one academic year only maintaining CGPA 2.50.

3. Students-Guardians Insurance Scheme

The University shall **waive-off tuition fee** and grant **Rs.5,000**/- per month **as stipend** to such students whose parents/ guardians passes away (dies) during the educational period of the student provided the student apply for this financial assistance maintaining CGPA 2.50.

4. HEC Need Based Scholarships

70-80 scholarships are being awarded annually to the **impoverished and extremely needy new students admitted under subsidized category** for full duration of undergraduate study program. The component of scholarship is **(i) refund of tuition fee and (ii) Rs. 6000/- per month** as stipend. The detail of this scholarship is available at HEC website link http://www.hec.gov.pk/InsideHEC/Divisions/HRD/Scholarships/NBS/HNBS/Pages/Introduction Objectives.aspx

5. Pakistan Scottish Scholarship Scheme for Young Women

Pak-Scottish Scholarships are awarded to the **young women pursuing postgraduate level studies** and belongs to disadvantaged backgrounds by the Scottish Government through British Council, Islamabad. The detail is available at website www.britishcouncil.pk/scholarships

6. EHSAAS Under-Graduate Scholarship Project

Ehsaas Under-Graduate Scholarship Project is launched by the Prime Minister of Pakistan for the Students who are admitted under Subsidized Category in BS degree programs. The Scholarship was launched in **October 2019** for the first time. Under this program (Phase-I & Phase-II) currently 788 students have been awarded scholarship. The components of this scholarship are Rs. **4,000/- stipend** per month and **tuition fee** waiver for whole degree program. Only newly admitted students of first semester can apply for this scholarship program. For more details please visit www.ehsaas.hec.gov.pk

7. HBL Foundation Scholarship Scheme

70-80 scholarships are being awarded from the academic year 2015 to the **financially challenged and low**-income **students** according to the rules & regulations notified by the University. The component of scholarship is stipend @ **Rs. 10,000/** to **16,000/-** per semester for an academic year. The application form and detail of scholarship is available at University Websites www.must.edu.pk & http://sac.must.edu.pk / HBL University Branch.

8. Laraib Energy Ltd. Scholarship

14- Scholarships are being awarded from the academic year 2018 to the financially challenged and low-income students of Faculty of Engineering and Technology. The component of scholarship is stipend **@ Rs. 35,000/-**for an academic year. The application form

and detail of scholarships is available at University Websites www.must.edu.pk & http://sac.must.edu.pk

9. Institution of Engineers Pakistan-Saudi Arabian Centre (IEP-SAC)

08- Scholarships are being awarded from the academic **year 2018** to the financially challenged and low-income students of Faculty of Engineering. The component of scholarship is stipend @ **Rs. 12,500/-** per semester. The application form and details of scholarship is available at University Websites www.must.edu.pk & http://sac.must.edu.pk

10. National Endowment Scholarships for Talent (NEST)

17- Scholarships are being awarded from the academic **year 2018** to the financially challenged and low-income students of Faculty of Sciences. The component of scholarship is Tuition Fee of two semesters. The application form and detail of scholarship is available at University Websites www.must.edu.pk & http://sac.must.edu.pk

11. Punjab Education Endowment Fund (PEEF)

65- Master Level scholarships are being offered by the Punjab Educational Endowment Fund for the students enrolled in any Master Level program after their BS degree in MUST. The component of this scholarship is payment of tuition fee and hostel charges to awardees @ Rs.120,000/-to 160,000/-during whole course of study. The application form and detail of scholarship is available at University Websites www.must.edu.pk & http://sac.must.edu.pk/PEEF website www.peef.org.pk

12. Haji Muhammad Bashir Scholarship

Haji Muhammad Bashir, a private donor has granted an amount of Rs. 50,000/- for the students of MUST to be selected from waiting list of HBL Foundation Scholarship Scheme. 01-student of regular category from each faculty is being awarded this scholarship @ Rs. 16,666/- for an academic year.

13. Pakistan Engineering Council, Islamabad Scholarships

Pakistan Engineering Council (PEC) offers scholarships to the engineering students of MUST. For details of scholarship visit University Websites www.must.edu.pk & http://sac.must.edu.pk and PEC website www.pec.org.pk

14. Numbers of other Regular Stipends/ Scholarships

The following organization/ trusts and NGOs are directly offering different amount of stipends/ scholarships to the University students regularly. The students are advised to visit the websites/ offices of such organizations and apply directly through concerned HOD's for scholarship.

a. Pakistan Bait-ul-Mall
b. Fouji Foundation
c. Teachers Foundation grant for the children's of Teachers only
d. Benevolent Fund grant for the children's of Government and University employees.
e. Zakat Fund grant of AJK- Pakistan Government
f. AJ&K Council Scholarship Scheme.
g. AJ&K State Talent Scholarship Scheme
h. AJ&K Educational Endowment Found Scheme
i. Gilgit Baltistan council Scholarship Scheme
j. Institute of Electrical Engineers, Pakistan scholarship
k. ASHAI Trust Scholarships
l. Carmudi Scholarship

PROVOST HOSTELS

Dr. Kalim Ul Haq Tariq
Tel & Fax: 05827-961116
Email: provost@must.edu.pk

MUST provide accommodation in well-furnished hostels having all important facilities required for students. Accommodation in hostels is a privilege and cannot be claimed as a matter of right. Residential accommodation is an equal and merit based opportunity. Proper boarding, lodging and mess facilities are available to the residents. All University Hostels are under the direct supervision of the Provost who is assisted by Wardens, Assistant and Hostel Supervisors of each hostel. The Provost serves as overall in-charge of all hostels and sets policy guidelines for the hostel administration.

Name of Hostel	Seats
Iqbal Hostel (City Campus)	201
Abu-Bakar Hostel (City Campus)	171
Quaid-e-Azam Hostel (City Campus)	72
Maryam Girls Hostel (Home Economics Campus)	150
Umer Bin Khitab Boys Hotel (Jarikas Campus)	
Khadija-Tul-Kubra girls' hostel (Jarikas Campus)	

Hostel Allotment Policy

1. The allotments will be made purely on academic merit for the period of one year. Furthermore, the allocation of seats will not be decided on Departmental or Regional basis and cannot be challengeable at any forum.
2. The student whose name will be displayed in first merit list for Hostel allotments, are bound to deposit their Hostel dues within three working days for the confirmation of their allotments otherwise the allotment will be transferred to the next applicant in the merit list.
3. In the Hostel allotments, priority will be given to 1st year students belonging to far long areas.
4. The senior students of the University who are involved in any unlawful activities or any disciplinary action is taken against them, will not be considered for Hostel allotments.

5. Provision of incorrect data may cause rejection of the application.
6. The Hostel residents are not allowed to exchange or sublet their rooms.
7. The Hostel residents are bound to take care of all infrastructures and equipment of the Hostels and are responsible to hand over their rooms in good condition at the time of clearance.
8. The students from the Departments situated at Jarikas can only apply for allotments at the Jarkas' Hostels.
9. The allotments of those residents will be canceled immediately if He/ She is involved in breaching the University / Hostel rules at any stage.

Hostels Rules and Regulations

To maintain conducive learning environment in the university hostels, the Competent Authority has directed for implementation of each of the following disciplinary measures which are defined in the university calendar or practiced by the national and international organizations:

1. According to the university calendar (Volume-II), Hostel accommodation is not a right, but facility provided by the university. It is solely the prerogative of the university to offer accommodation in the hostel.
2. All the students who belong to those areas where the University transport is provided will not be eligible to avail themselves of the hostels facility.
3. The students are responsible to provide a character certificate which is issued by the concerned department before the submission of allotment application.
4. There shall be a complete ban on smoking within hostels' premises ("Prohibition of Smoking and Protection of Non-Smoker's Health Ordinance, 2002").
5. Residents are not allowed to arrange any event, meeting, or celebration within the hostels' premises without prior approval. The residents may seek approval from the concerned warden to conduct any event or meeting in any hall without compromising hostel disciplines, classroom activities, and the glorification of the University. The administrative control of every event shall be the responsibility of the Chief Security officer and the Provost hostels.
6. All types of Regional unions/ Political unions/ Religious unions/ associations/ organizations are banned in the university hostels. Such groups are also not allowed to use social or print media for any event/ news/ activity that can affect National Cyber Security Policy 2021 and results into the defamation of the university.
7. Any resident, if found involved in rigging, protest, boycott of classes or any other unlike student activity, strict disciplinary actions shall be taken against him as mentioned in University Calendar (Volume-II) and the affidavit submitted by students at the time of admission.
8. Residents are not allowed to bring any external person(s) (sibling(s), friend(s) etc.) within the university hostels' premises without the prior permission from the Chief Security Officer and the Provost hostels. Violation of this rule will render the boarder liable for expulsion from the hostel in addition to any penalty which the warden and the provost may deem fit.

9. It is mandatory for all residents to keep the resident's card in the premises of the university hostels all the time. No resident is allowed to enter the hostels without a resident card.
10. Residents are expected to develop the habit of self-discipline. Nothing can make social life truly pleasant except genuine courtesy and mutual consideration.
11. Residents are not allowed to keep with them musical instruments, heaters, stoves, and air conditioners. Any resident found with such appliances have to pay, which the warden and the provost may deem fit.
12. Complaints against the misbehavior of supporting staff may be made to the wardens concerned. Residents are not allowed to use abusive language and physical force against them by themselves.
13. All notices about hostels' policy will be pasted on notice boards and shall be considered as read by the residents. Failure to read a notice shall not be accepted as an excuse for non-compliance with such notices.
14. No advertisement will be made by residents without any prior approval from the concerned warden or the Provost hostels.
15. Residents will have to vacate the university hostels accommodation within one week of the completion of terminal exams. A resident who fails to fulfill the degree requirements within the minimum prescribed time duration, shall not be allowed to reside in the university hostels.
16. Residents shall pay for any damage which is done by them to the furniture and all other facilities provided by the Provost office.
17. Hostels mess shall be managed by the mess committee under the supervision of hostel warden and hostel supervisor. The mess committee will consist of three to five students those are elected on a monthly or quarterly basis. A committee member may lose his right of membership if his conduct is found un-satisfactory with the residents. The mess committee is responsible to follow all the rules which are defined by the concerned warden and supervisor.
18. Strict disciplinary action shall be taken against the resident(s) if found involved directly or indirectly in violation of any of the above measures. Any violation in this regard shall be reported to the concerned Departmental Disciplinary Committee/University Disciplinary Committee (where required). The Provost Hostels is responsible to ensure the implementation of these measures with the coordination of all wardens and the Chief Security Officer.

Hostel Mess

1. Each hostel resident will automatically be considered as a member of the hostel mess.
2. The hostel mess will be monitored by a Mess Committee comprising of Resident students of the hostel appointed by the Warden and Supervisor with the approval of the Provost. The hostel mess shall remain open during the time prescribed for each meal.
3. All the members of the mess shall have their meals in the Dining Hall of the hostel. No meals shall be served in their rooms.
4. Smoking is strictly prohibited in the hostel mess and premises.

Fee Structure for Hostels

Sr. No.	Session	Fee (Per Semester)
04	2024	32890/-

DIRECTORATE OF SPORTS

Director
Mr. Abid Hussain
Tel: +92-5827-961057
E-mail: directos.sports@must.edu.pk

Director Sports who is assisted by a Director Physical Education (Female) is responsible for providing all the sports facilities to students. The Directorate is strongly committed to providing the finest environment possible for performing sports activities and providing all students with opportunity to participate in the sports of their interest. University life is not all work and no play. Sports activities help the students to make new friends. Competitive Sports at the University enjoy a successful profile. The dynamic sports Programs have been prepared with a view to providing the skills and knowledge needed for effective participation in sports activities. The Directorate offers a wide range of competitive, individual and team sports to suit all tastes and interests. The Directorate provides the facilities to take part in different sports activities in the evening on daily basis. The Sports activities carried out throughout the academic year include:

Athletics, Badminton, Football, Hand Ball, Cricket, Volleyball, Hockey, Basketball, Table Tennis, Rovering, Tekking, Mountaineering, Hike and Kabaddi. The Department also organizes/manages the participation of the University teams in All-Pakistan inter-University sports championships in different provinces of Pakistan as well as Azad Kashmir. The students are encouraged to participate in sports of their liking throughout the year. During the academic year sports week has been arranged.

DISCLAIMER

This Prospectus is intended for the guidance of persons applying for admission to the MUST. All reasonable care has been taken to ensure that the information published this prospectus is correct. However, the University provides no guarantee that the information is accurate nor it can be held responsible for any errors or omissions. The Prospectus is not deliberated to be and should not be regarded as a legal binding between the university and applicant/any person. The use and interpretation of information contained herein is to be done by the university only. The University reserves the right to change the information any time in its absolute discretion