NUTECH

UNIVERSITY FOR INDUSTRY

PROSPECTUS 2025-2026

QUAID E AZAM

Muhammad Ali Jinnah

“ Develop a sound sense of discipline, character, initiative and a solid academic background. You must devote yourself whole-heartedly to your studies, for that is your first obligation to yourselves, your parents and to the State. You must learn to obey for only then you can learn to command. ”

(Islamia College, Peshawar - 12th April, 1948)

DISCLAIMER

The NUTECH prospectus gives required information to prospective students wishing to apply for admission in National University of Technology (NUTECH). It describes in outline, the courses and facilities offered by the University. Effort is made to ensure that the information provided in the prospectus is accurate and up-to-date. However, the University does not accept liability for any inaccuracy or change outside reasonable control of the University. The University intends to provide the courses and facilities described in the prospectus, but reserves the right to withdraw or make alterations to these courses or facilities if found necessary, without any prior notice. Likewise, fees for the programs commencing are provisional and subject to change.

WELCOME
TO NUTECH

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Rector Message

NUTECH is envisioned to be an internationally acclaimed research driven technology university destined to produce national and international industry leaders of character in the coming years. Being a bastion of learning and scholarship, NUTECH is the **'University for Industry'** with the motto **"Leading to Progress and Excellence"**. Among the many distinguished features the salients of NUTECH are the technology driven innovative teaching, learning and industrial research based applied sciences, engineering, technology and skills education system, world class qualified faculty, curriculum of the level of world's top ranking technology universities, strong academia-industry linkages as per best international practices. It has introduced emerging technologies based industrial research programs, with 'Outside Classroom' learning opportunities, industrial leadership programs, technology based student learning communities, technology focused research groups based culture for the accumulation and creation of new knowledge frontiers, engineering and technology inspired career acceleration opportunities for future industry leaders and innovative research opportunities programs to develop technologies for the society and industry. NUTECH learning systems promote sciences, engineering, technology and skills based knowledge ecosystem to inspire the youth as promising entrepreneurs of tomorrow. We are poised to introduce innovative minds of science and engineering as technology creators, developers and managers for the industrial enterprises of today and tomorrow. Joining NUTECH as a student is like embarking on a journey of promising future yet sustainable in cherishing technological emblem. Team NUTECH is a scholarly enterprise imparting scholarly knowledge and nurturing versatility, confidence, leadership and uniqueness in diverse competing global technologies through world-class education in applied sciences, engineering technologies, other areas of scholarship, professional certifications, technical and professional vocational skills. NUTECH is an objective-oriented and industry-focused university, committing to steer industry and transform national economy by opening new knowledge corridors for the society and humanity. Through its unique NUTECH skills development framework (NSDF), the university is poised to transform the prevalent education standards of technology implementers and diploma associates and convert them into most productive workforce facilitating national industrial growth and prosperity for Pakistan. NUTECH has planned impressive state-of-the-art and futuristic departments, labs, research centers etc. and offers promising and impressive programs of engineering and technology. We warmly welcome all who aspire to become part of NUTECH community as active members of **"Science, Engineering, Technology and Skills Family"** in Pakistan.

Lt Gen Moazzam Ejaz, HI (M), (Retd)
Civil Engineer

Who to Contact

Admission Office
For any query regarding Admission
admission@nutech.edu.pk, 051-5463983, 0330 9310005, ext: 129

Treasurer Office
For any query regarding Fee & all Financial Matters
treasurer.office@nutech.edu.pk, 051-5476768, ex 184

Registrar Office
For any query about Rules & Regulations, Accreditation & Affiliation
registrar.office@nutech.edu.pk, 051-5476768, ex 123

Exam Office
For any query about Exam, Scholarships & NUTECH Entry Test
exam.office@nutech.edu.pk, 051-5470259, ex 170

DoU Office
For any query about the matters pertaining to Academic Regulations & Programs of Studies
dou.office@nutech.edu.pk, 051-5476809, ex 195

DSL Office
For any assistance about Student Affairs including their Campus Activities
dsl@nutech.edu.pk, 051-5476809, ex 161

NSDD Office
For any query about conventional and Hi-Tech, National/International Certificate and Diploma
nsdd.office@nutech.edu.pk, 051-5476809, ex 156

Vision
Mission

Vision

To be a world-class technology driven research university committed to best serve society and industry through purposeful education, research and innovation.

Mission

To advance knowledge and educate students in applied sciences, engineering, technologies, technical and professional education and skills, and other areas of scholarship so as to grow knowledge economy and develop leaders, professionals and skilled workforce embodied with the spirit of discovery, innovation, entrepreneurship, social responsibilities and ethical practices to best serve the society and industry.

Core Values

University for Industry

- Academic Excellence

- Equity, Diversity & Inclusion

- Integrity & Ethics

- Technology & Skills

- Research & Innovation

- Student Focused

Introduction

- NUTECH is federally chartered university (February 2018) and administered by Ministry of Science and Technology. It is established as an independent degree awarding institution to address the challenges posed by rapid advances in science, engineering, technologies and technical professional Skills.
- It is the University for meeting national and international industrial challenges of existing, emerging & future technologies. In line with top ranking engineering and technology universities, NUTECH will prepare engineers and technologists for creating industry specific systems, solutions and their implementation by imparting finest technical knowledge for skills optimization through best international practices.

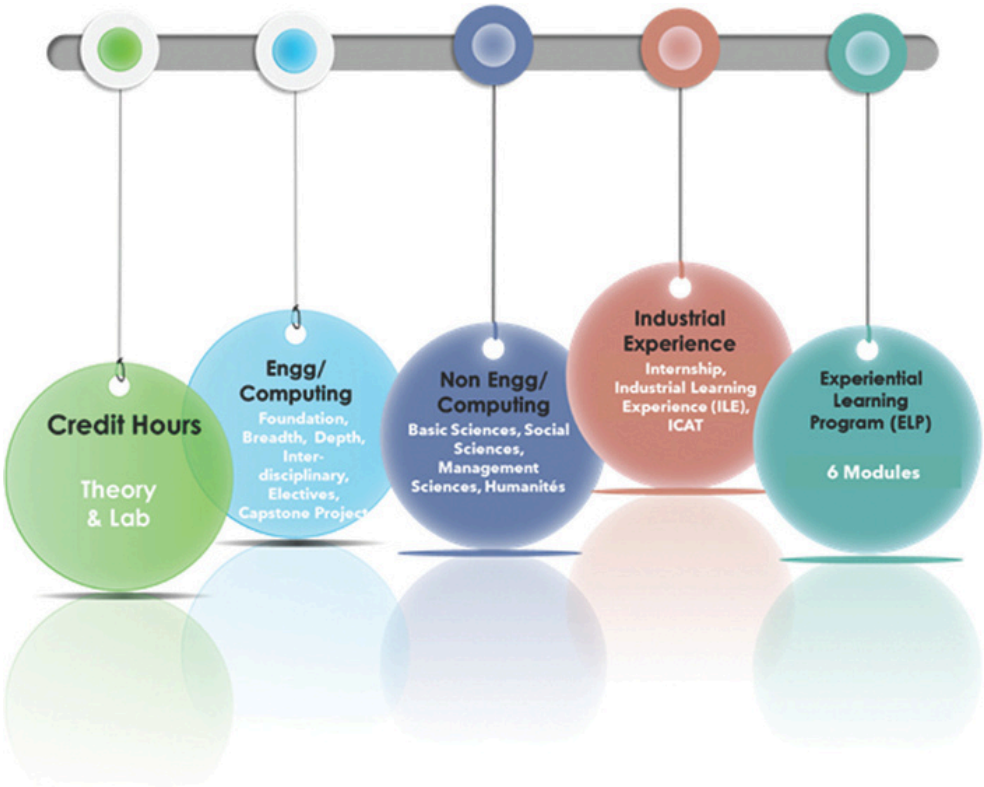
Difference NUTECH will Make

- We believe that professional competence is best fostered by coupling classroom teaching & research with practical lab and industrial projects while focusing attention on real-world problems.
- At NUTECH, innovation is the “Way of Life” and a guiding principle.
- NUTECH offers academic courses in all disciplines with direct relevance to their implementation at the relevant industries.
- NUTECH introduces a culture of undergraduate technology research communities in line with best international practices at the world’s top ranking technology universities.
- On campus interdisciplinary composite technology research groups provide the foundation for innovative learning and technology driven research at NUTECH.
- To remain abreast with best international practices, NUTECH believes in global connectivity from the outset through possible collaborations for joint research avenues and progression.
- Curricula is aligned to the world’s top ranking engineering and technology universities in USA and Europe.
- NUTECH curricula is integrated with creative social sciences to produce genuine and unique industry leaders of engineering and technology.
- Very strong link between academia and industry as the performance outcomes of students and faculty will be gauged on the basis of resolution of industrial problems through projects.
- NUTECH has technology research labs and innovation center at the departmental level to effectively cater for industrial needs through strong university-industry linkages.
- Unique outside classroom learning programs on the lines of advance global academic institutions.
- Career counseling by expert team provided to students for planning their careers and seeking scholarships.
- Focus on personality development.

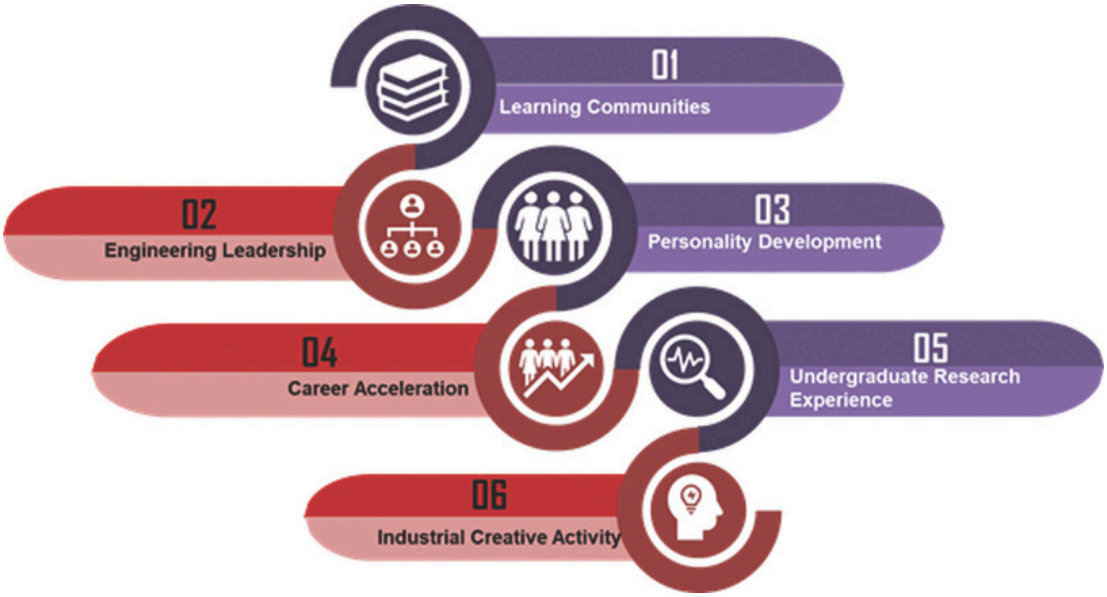
Salient Aspects of UG Education

The design of undergraduate programs at NUTECH helps students acquire the knowledge, intellectual abilities, skills and values needed to meet the challenges of professional and personal life. The undergraduate education at NUTECH comprises: regular subjects, experiential learning programs and personality development.

Academic Structure



Experiential Learning Programs



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- **ILEP.** The Industrial Learning Experience Program (ILEP) gives students an opportunity to see how the theory being taught in class is put to use in industry. During most of the semesters, students will be given industrial class in the industry. The on-campus portion of this program includes outside preparation focused on studying similar industrial processes/practices being used/followed in international industry, preparation of a report and discussion and presentation during a seminar.
- **ICAT.** Industrial and Creative Activity Term (ICAT) is a four-week term during which faculty and students, free from the rigors of regularly scheduled classes, engage in industry-focused design/development projects and technology driven innovative/creative activities. Students and faculty are also free to set their own personal learning and teaching goals based on personal interests.
- **NLCP.** In the first year, students can deepen their understanding of sciences and humanities and their relationships with engineering and technology as part of NUTECH Learning Communities Program (NLCP). The Sciences and Sociology community (S2) focuse on integration of disciplines, and teaching sciences and humanities within the broader human framework. The Collaborative Learning Community (CLC) creates an academic environment where students develop an in-depth and broader understanding of the applied sciences and how these relate to their daily life. The Media, Arts, Science and Technology (MAST) Community is a home to research where students learn how research is carried out and how media, art and technology is used to enhance communication and expression. Finally, GeoTech is a learning community for NUTECH freshmen to comprehend and solve complex real-world problems.
- **NCAP.** During the second year, students will continue their studies with subjects meeting various University requirements and beginning subjects in departmental programs, and will also focus on development of interpersonal and intrapersonal skills related to employment in industry as part of NUTECH Career Acceleration Program (NCAP). It is a unique career booster for students aimed at industrial skills development, professional mentoring, and academia-industry networking. Program ranges from career basics - professional résumés and cover letters, networking, job search, and interview skills - to essential workplace competencies such as communication, negotiation, presentations, problem-solving, team development and project management, and everything needed to acquire an internship.
- **NELP.** In the third and fourth years, students will be required to focus on departmental programs. In addition, in the third and fourth years, students will have the opportunity to participate in NUTECH Engineering Leadership Program (NELP), and develop teamworking and teams-leading skills and leadership abilities by going through rigorous leadership exercises in courses, labs and through interactions with industrial leaders. NELP supplements NUTECH's technical education with the leadership skills that prepare students for effective careers in engineering and technology fields.

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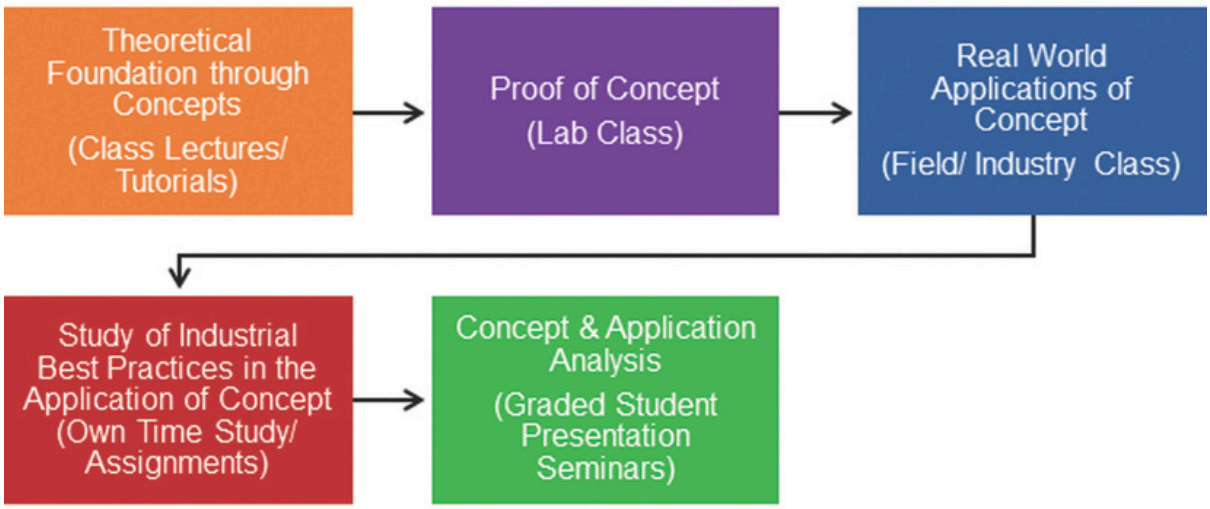
- **UREP.** In third and fourth years, undergraduate students will have the opportunity to join faculty and graduate students in research projects through the Undergraduate Research Experience Program (UREP). As members of research groups, students will collaborate with faculty and graduate students on industry focused research.
- **Personality Development.** The wholesome purpose of NUTECH undergrad programs is personality development of students to face the challenges of the real world. This is achieved by integration of studies with Outside Class Learning Experience (OCLE). The concept of OCLE revolves around extra-curricular & co-curricular activities which also means a lot of fun in the campus life.

Industrial Liaison Academic System

The success of NUTECH Industrial Liaison Program (NILP) depends primarily on the faculty based Industrial Liaison Office (ILO) with its components spreading over the departments and technology labs of the university. The office arranges sponsored projects from industry/ companies. All the components of ILO work closely with a portfolio of industries/ companies, staying abreast of their needs and responding to specific requests through Undergraduate Research Experience Program.

5 Step UG Learning Cycle



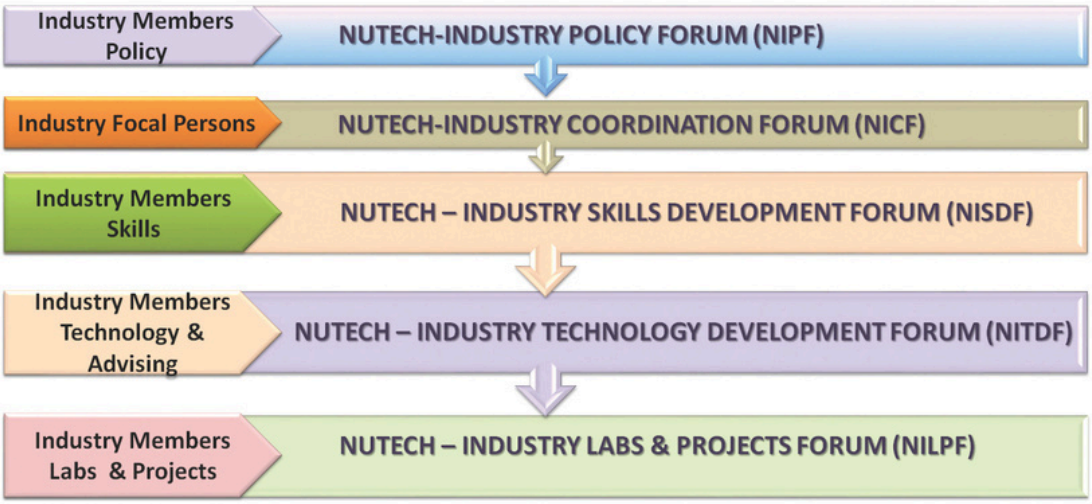
Industrial Learning Experience (ILE) Program

- Help students comprehend application of taught concepts in industry.
- Instructor teaches industrial processes relevant to theory.
- Students are taught relevant industrial systems and processes .
- Students undertake technology/industry focused projects to develop creative & innovative thinking abilities.
- ILE course is mapped with concepts being taught in that particular semester.
- For each semester project, departments/teachers identify relevant industry & industrial process based on subjects being offered in that semester.
- Departments ensure coordination & faculty orientation/ training with relevant industry before commencement of semester.

NUTECH Departmental Industry Advisory Committees

- Curriculum Alignment with Industry Needs.
- Industry Students Projects Designing.
- Industry focused Faculty Research Work.
- Industry Advice based Academic System.

Industry Collaboration System



NUTECH Technology Labs (NUTL)

Labs in NUTECH are a separate entity to support evidence based learning and research work at UG & PG levels. The teaching labs under NUTL are:-

Civil Engineering	Concrete Lab
	Geotechnical Engineering Lab
	Transportation Engineering Lab
	Mechanics of Material Lab
	Hydraulics & Fluids Lab
	Engineering Survey Lab
	Environmental Engineering Lab
Mechanical Engineering	Heat Transfer and RAC Lab
	Thermodynamics Lab
	Fluid Mechanics Lab
	Workshop / Manufacturing Process Lab
	IC Engines and Power Plants Lab
	Measurement and Instrumentation / Dynamics and Controls Lab
	Engineering Mechanics Lab
	Mechanics of Materials Lab
	Mechanics of Machines/Mechanical Vibrations Lab
	Engineering Drawing Lab
Electrical Engineering	Circuit and Electronics Lab
	Control and Instrumentation Lab
	Power System and Machine Lab
	Embedded Systems Lab
	Microwave and Communication Lab
	Design Project Lab
Computer Engineering	Digital and Embedded Systems Lab
	Communications, Networks, and IOT Lab
	CEN Design Lab
	Electronics and DLD Lab
	AI Robotics and Controls Lab
Information Technology	General Purpose Computer Labs 1
	Software Engineering Lab
	Database Lab
Applied Sciences & Humanities Labs	Physics Lab
	Chemistry Lab

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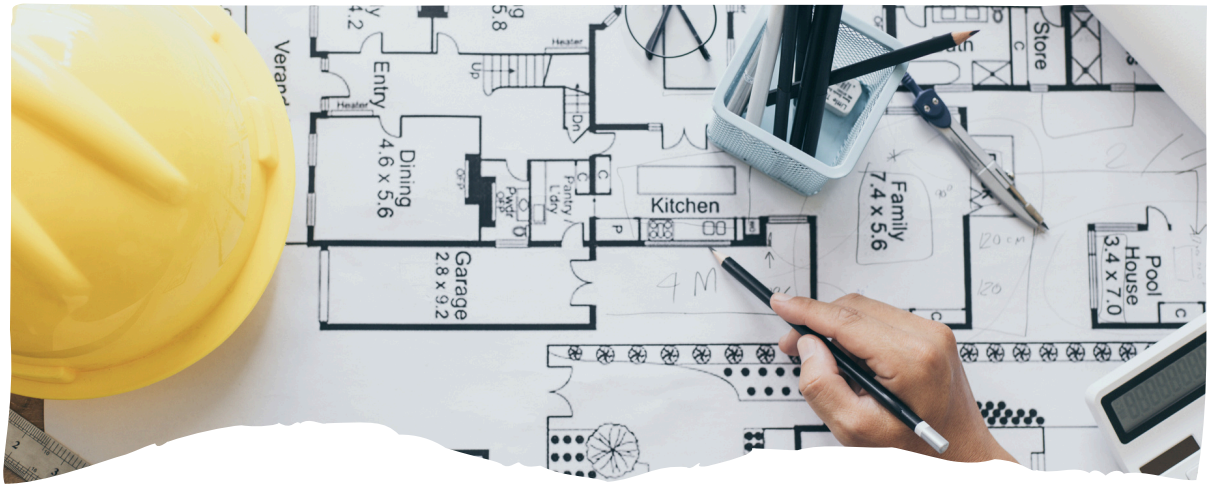
- NUTECH Undergraduate Technology labs (NUTL) is a unique concept derived from world's leading technology universities like MIT. Under this arrangement, all the labs in a university join hands to make a collective resource to further research and development along with fulfilling academic requirements.
- National University of Technology (NUTECH) is established to create, develop and promote technologies for the industry, hence the university laboratories have been developed on the lines of leading universities around the world. NUTECH is also designed to do applied industry focused research and generate solutions, which is only possible through a dynamic and vibrant academic, research and intellectual support infrastructure based system of technology labs. Therefore, the technology labs have been designed to provide intellectual, academic & research support to industry for the resolution of their technology driven problems. The system will set standards of technology based practical knowledge acquisition involving industry, national scientific labs and research setups. The system will act as a catalyst towards the promotion of the concept of NUTECH as "University for Industry". For the same purposes, state of the art equipment has been selected and has been made available in NUTECH Labs.

Main Achievements

In a very short span of time NUTECH has establish stat of the art undergrad teaching labs of four engineering programs, Civil engineering technology program, Computer sciences and Artificial Intelligence program. Supporting labs of basic sciences are also fully functional. Equipment of more than one billion have been commissioned in custom build labs.

NATIONAL QUALIFICATION FRAMEWORK

Bachelor of Science Civil Engineering (4 Years)



"The mission of the undergraduate civil engineering program is to produce technically sound and innovative graduates, industrial leaders, useful members of society, and entrepreneurs of character to address current and future challenges of industry and society"

Program Educational Objectives (PEOs)

- **PEO-1:** To apply knowledge and skills to provide sustainable solutions to challenging engineering problems in industry and academia.
- **PEO-2:** Pursue lifelong learning, continual professional development and sustainable growth of the society.
- **PEO-3:** To manage engineering and social problems effectively and innovatively, while adhering to work ethics and social values.

Program Learning Outcomes (PLOs)

- **Engineering Knowledge:** An ability to apply knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.
- **Problem Analysis:** An ability to identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.
- **Design and 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.
- **Investigations:** An ability to investigate complex engineering problems in a methodical way including literature survey, design and conduct of experiments, analysis and interpretation of experimental data, and synthesis of information to derive valid conclusions.

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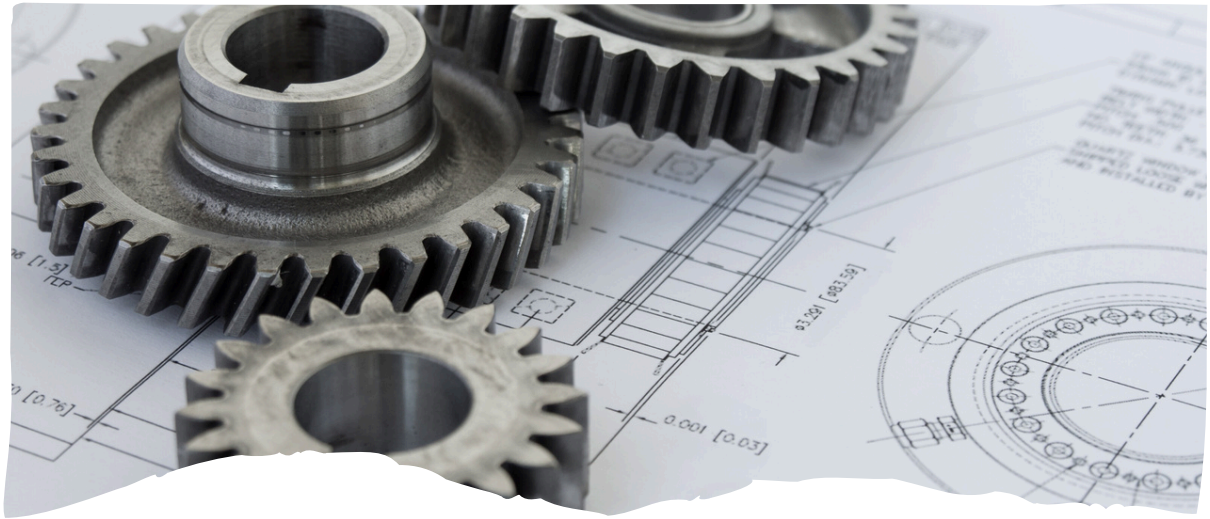
- **Modern Tool Usage:** An ability to create, select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modeling, to complex engineering activities, with an understanding of the limitations.
- **Engineer and Society:** An ability to apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practice and solution to complex engineering problems.
- **Environment and Sustainability:** An ability to understand the impact of professional engineering solutions in societal and environmental contexts and demonstrate knowledge of and need for sustainable development.
- **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice.
- **Individual and Teamwork:** An ability to work effectively as an individual or in a team, on multifaceted and /or multidisciplinary settings.
- **Communication:** An ability to communicate effectively, orally as well as in writing, on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
- **Project Management:** An ability to demonstrate management skills and apply engineering principles to one's own work, as a member and/or leader in a team, to manage projects in a multidisciplinary environment.
- **Lifelong Learning:** An ability to recognize the need for, and have the preparation and ability to engage in, independent and life-long learning in the broadest context of technological change.

Curriculum of BS CE

Semester- I			Semester- II		
Course Code	Course Title	Credits	Course Code	Course Title	Credits
CE1108	Civil Engineering Materials	2-0	CE1114	Engineering Surveying	2-0
CE1109	Civil Engineering Materials Lab	0-1	CE1115	Engineering Surveying Lab	0-1
CE1118	Engineering Mechanics	2-0	CE1116	Mechanics of Solids I	2-0
CE1119	Engineering Mechanics Lab	0-1	CE1117	Mechanics of Solids I Lab	0-1
CE1120	Engineering Drawing Lab	0-2	CE1202	Geology for Engineers	2-0
MATH1110	Quantitative Reasoning - I	3-0	MATH1111	Quantitative Reasoning - II	3-0
PHY1110	Applied Physics and Electro-Mechanical Fundamentals	2-0	HU1019	Expository Writing	2-0
PHY1111	Applied Physics and Electro-Mechanical Fundamentals Lab	0-1	ICT1001	Applications of ICT	2-0
IS1003	Islamic Studies/ Ethics	2-0	ICT1002	Applications of ICT Lab	0-1
HU1016	Functional English	2-0	ICP1001	Ideology and Constitution of Pakistan	2-0
	Total	13-5		Total	15-3
Semester- III			Semester- IV		
Course Code	Course Title	Credits	Course Code	Course Title	Credits
CE2118	Civil Engineering Drawing and Graphics	1-0	CE2123	Transportation Engineering Fundamentals	1-0
CE2119	Civil Engineering Drawing and Graphics Lab	0-2	CE2124	Fluid Mechanics	2-0
CE2107	Structural Analysis I	3-0	CE2125	Fluid Mechanics Lab	0-1
CE2120	Computer Programming	1-0	CE2126	Soil Mechanics	2-0
CE2121	Computer Programming Lab	0-1	CE2127	Soil Mechanics Lab	0-1
CE2216	Advanced Engineering Survey	1-0	CE2210	Reinforced Concrete Design I	3-0
CE2217	Advanced Engineering Survey Lab	0-2	CE2211	Reinforced Concrete Design I Lab	0-1
CE2312	Mechanics of Solid II	2-0	CE2215	Structural Analysis II	3-0
CE2313	Mechanics of Solid II LAB	0-1	MATH2111	Applied Mathematics	3-0
MATH2110	Advanced Calculus	3-0	QT1001	Translation of The Holy Quran	1-0
	Total	11-6		Total	15-3
Semester- V			Semester- VI		
Course Code	Course Title	Credits	Course Code	Course Title	Credits
CE3101	Artificial Intelligence and Machine Learning Lab	0-1	CE3214	Occupational Health and Safety	1-0
CE3211	Advanced Fluid Mechanics	2-0	CE3217	Environmental Engineering	2-0
CE3212	Advanced Fluid Mechanics Lab	0-1	CE3218	Environmental Engineering Lab	0-1
CE3213	Highway and Traffic Engineering	2-0	CE3219	Quantity & Cost Estimation	2-0
CE3301	Geotechnical Engineering	2-0	CE3220	Quantity & Cost Estimation Lab	0-1
CE3302	Geotechnical Engineering Lab	0-1	CE3221	Engineering Hydrology	2-0
CE3304	Reinforced Concrete Design II	3-0	CE3222	Engineering Hydrology Lab	0-1
CE3305	Reinforced Concrete Design II Lab	0-1	CE3223	Modelling & Simulation	1-0
MATH3503	Numerical Analysis	2-0	CE3224	Modelling & Simulation Lab	0-1
MATH3504	Numerical Analysis Lab	0-1	CE3306	Pavement Analysis and Design	2-0
SS2003	Civics and Community Engagement	2-0	CE3307	Pavement Design & Analysis Lab	0-1
CEILE1001	Industrial Learning Experience 1	0-0	MGT3301	Construction Project Management	2-0
			CEILE1002	Industrial Learning Experience 2	0-0
	Total	13-5		Total	12-5
Semester- VII			Semester- VIII		
Course Code	Course Title	Credits	Course Code	Course Title	Credits
CE4202	Construction Engineering	2-0	CE4203	Architecture and Town Planning	2-0
CE4204	Geo Informatics Engineering	1-0	CE4206	Building Information Modelling Lab	0-1
CE4205	Geo Informatics Engineering Lab	0-1	CE4314	Irrigation Engineering	2-0
CE4302	Steel Structures	2-0	CE4315	Irrigation Engineering Lab	0-1
CE4308	Hydraulics Engineering	2-0	CE4316	Earthquake Engineering	1-0
CE4309	Hydraulics Engineering Lab	0-1	CE4317	Earthquake Engineering Lab	0-1
CE4312	Foundation Engineering	2-0	CE4318	Capstone Project II	0-3
CE4313	Capstone Project I	0-3	MGT3101	Entrepreneurship	2-0
SS4110	Engineering Economics and Financial Management (Social Science Elective)	2-0	HU4110	Professional Ethics (Arts and Humanities Elective)	2-0
	Total	11-5		Total	9-6

Bachelor of Science Mechanical Engineering (4 Years)



The Department of Mechanical Engineering is a well-established department of the Faculty of Engineering offering a BS degree in Mechanical Engineering. The department started its BS Mechanical Engineering program in Fall 2018. The curriculum of BS Mechanical Engineering was developed in line with the best international practices and National Curriculum Revision Committee (NCRC) guidelines. The Outcome Based Education (OBE) was implemented at BS Mechanical Engineering program from the start. This program has been particularly designed to meet the requirements of modern Mechanical Engineering skills for the industry, through its state-of-the-art laboratories, well designed curriculum, best teaching practices and the learning communities.

Program Educational Objectives (PEOs)

- **PEO 1:** To Apply knowledge and skills to provide sustainable solutions to challenging engineering problems in industry and academia
- **PEO 2:** Pursue lifelong learning, continual professional development, and sustainable growth of the society
- **PEO 3:** To Manage engineering and social problems effectively and innovatively while adhering to work ethics and social values

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.

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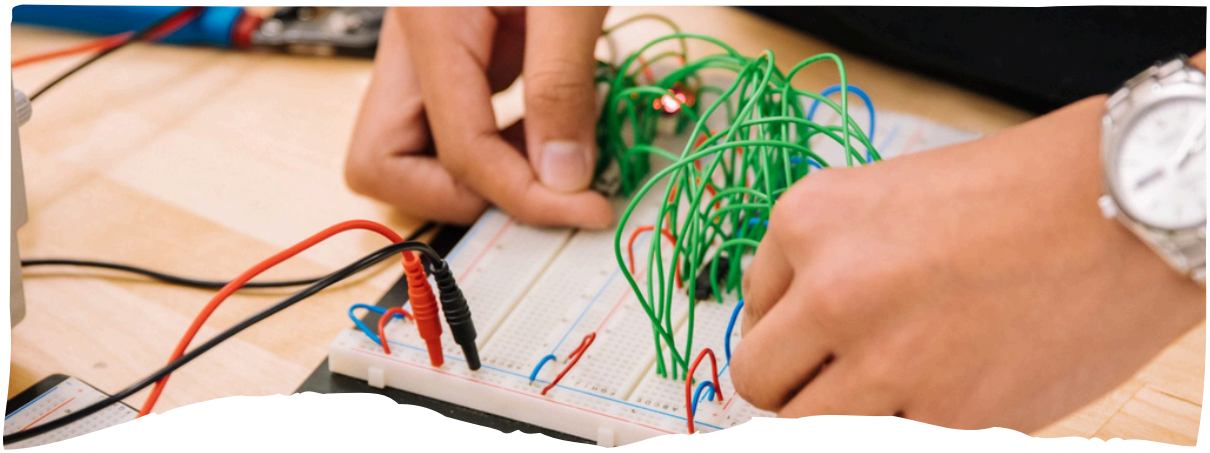
- **PLO-2 Problem Analysis:** Identify, formulate, conduct research literature, and analyze complex Engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.
- PLO-3 Design/Development of Solutions: An ability to design solutions 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.

Curriculum of BS ME

Course Code	Course Title	Credits	Course Code	Course Title	Credits
Semester- I			**Semester- II**		
IS1003 /SS1010	Islamic Studies / Ethics	2	MATH2307	Linear Algebra & Differential Equations	3
MATH1103	Calculus & Analytical Geometry	3	QT1001/ SS1011	Translation of The Holy Quran/ Becoming Humane	1
HU1017	Functional English	3	ICP1001	Ideology and Constitution of Pakistan	2
PHY1301	Applied Physics	2	AHXXXX	Arts & Humanities Elective	2
CHE1007	Applied Chemistry	2	ME1101	Thermodynamics-I	3
ICT1001	Applications of ICT	2	ME1204	Workshop Practice-II	1
ICT1002	Applications of ICT Lab	1	ME1205	Computer Aided Drawing	1
ME1201	Workshop Practice-I	1	ME1206	Engineering Mechanics-I (Statics)	2
ME1202	Engineering Drawing & Graphics	1	ME1206	Engineering Mechanics-I (Statics)	2
ME1203	Engineering Drawing & Graphics Lab	1			
	Total	**18**		**Total**	**17**
Semester- III			**Semester- IV**		
MATH1202	Complex Variables & Transforms	3	ME2105	Fluid Mechanics-II	3
ME2102	Thermodynamics-II	3	ME2106	Fluid Mechanics Lab	1
ME2103	Thermodynamics Lab	1	ME2209	Mechanics of Materials-II	3
ME2104	Fluid Mechanics-I	3	ME2210	Mechanics of Materials Lab	1
ME2208	Mechanics of Materials-I	2	ME2211	Machine Design-I	2
ME2301	Engineering Mechanics-II (Dynamics)	3	ME2303	Measurement & Instrumentation	2
ME2302	Engineering Mechanics Lab	1	ME2402	Electronics Engineering	2
ME2401	Electrical Engineering	2	ME2403	Electrical & Electronics Engineering Lab	1
			ME2404	Computer Systems and Programming	2
			ME2405	Computer Systems and Programming Lab	1
	Total	**18**		**Total**	**18**
Semester- V			**Semester- VI**		
MATH3503	Numerical Analysis	2	MATH3509	Probability and Stochastic	3
MATH3504	Numerical Analysis Lab	1	SS2003	Civics and Community Engagement	2
HU1019	Expository Writing	2	SSXXXX	Social Sciences Elective	2
HU1020	Expository Writing Lab	1	MGT1002	Engineering Project Management	2
ME3107	Heat & Mass Transfer	3	ME3214	Manufacturing Processes	2
ME3212	Machine Design-II	2	ME3215	Manufacturing Processes Lab	1
ME3213	Mechanics of Machines	3	ME3216	Reverse Engineering and Inspection Techniques	2
ME3304	Control Engineering	2	ME3217	Reverse Engineering and Inspection Techniques Lab	1
ME3305	Control & MI Lab	1	ME3406	Applied Artificial Intelligence & Machine Learning	2
			ME3407	Applied Artificial Intelligence & Machine Learning Lab	1
	Total	**17**		**Total**	**18**
Semester- VII			**Semester- VIII**		
ME4108	Refrigeration & Air Conditioning	3	MGT1001	Entrepreneurship	2
ME4109	RAC & HMT Lab	1	ME4110	Renewable Energy Technology	2
ME4218	Finite Element Methods	2	ME4111	Internal Combustion Engines	2
ME4219	Finite Element Methods Lab	1	ME4112	Internal Combustion Engines Lab	1
ME4220	Final Year Design Project-I	3	ME4221	Final Year Design Project-II	3
ME4306	Mechanical Vibrations	3	ME4408	Occupational Health & Safety	1
ME4307	Mechanisms & Mechanical Vibrations Lab	1	ME4XXX	Technical Elective-II	3
ME4XXX	Technical Elective-I	3			
	Total	**17**		**Total**	**14**

Bachelor of Science Electrical Engineering (4 Years)



The mission of the undergraduate electrical engineering program is to produce technically sound and innovative graduates, industrial leaders and entrepreneurs of character and vision who can address current and future industrial challenges.

Program Educational Objectives (PEOs)

- **PEO-1:** To apply knowledge and skills to provide sustainable solutions to challenging engineering problems in industry and academia.
- **PEO-2:** Pursue lifelong learning, Continued professional development, and sustainable growth of the society.
- **PEO-3:** To manage engineering and social problems effectively and innovatively while adhering to work ethics and social values.

Program Learning Outcomes (PLOs)

- **PLO-01:** Engineering Knowledge: Apply knowledge of mathematics, natural science, engineering fundamentals and Engineering specialization to the solution of complex engineering problems.
- **PLO-02:** 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-03:** 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.

Cont...

- **PLO-04:** 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-05:** 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-06:** 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-07:** 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-08:** 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-09:** 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.

Curriculum of BS EE

Semester- I			Semester- II		
Course Code	Course Title	Credits	Course Code	Course Title	Credits
PHY1301	Applied Physics	2-0	HU1021	Functional English	3-0
PHY1302	Applied Physics Lab	0-1	MATH2304	Differential Equations	3-0
ICT1001	Applications of ICT	2-0	EE1015	Electrical Workshop Practice Lab	0-1
ICT1002	Applications of ICT Lab	0-1	EE1003	Computer Programming	3-0
IDE1001	Occupational Health and Safety	1-0	EE1004	Computer Programming Lab	0-1
IS1003/xxxxx	Islamic Studies/ Ethics	2-0	PS1001	Ideology and Constitution of Pakistan	2-0
EE1201	Linear Circuit Analysis	3-0	EE2203	Electronic Devices and Circuits	3-0
EE1202	Linear Circuit Analysis Lab	0-1	EE2204	Electronic Devices and Circuits Lab	0-1
MATH1103	Calculus and Analytical Geometry	3-0	QT1001/ SSC 1101	Translation of the Holy Quran / Being Humane	1-0
EE1013	Engineering Drawing	0-1			
	Total	13-4		Total	15-3
Semester- III			**Semester- IV**		
Course Code	Course Title	Credits	Course Code	Course Title	Credits
MATH1202	Complex Variables and Transform	3-0	SSXXXX	Social Sciences Elective	2-0
EE1001	Digital Logic Design	3-0	MATH2202	Linear Algebra	3-0
EE1002	Digital Logic Design Lab	0-1	HUXXXXX	Art and Humanities elective	2-0
EE2005	Data Structures and Algorithms	3-0	EE2009	Probability Methods in Engineering	3-0
EE2006	Data Structures and Algorithms Lab	0-1	EE2401	Signals and Systems	3-0
EE2205	Electrical Network Analysis	3-0	EE2402	Signals and Systems Lab	0-1
EE2206	Electrical Network Analysis Lab	0-1	EE2501	Electromagnetic Field Theory	3-0
MATH3505	Numerical Analysis	2-0			
MATH3506	Numerical Analysis Lab	0-1			
	Total	14-4		Total	16-1
Semester- V			**Semester- VI**		
Course Code	Course Title	Credits	Course Code	Course Title	Credits
EE3601	Electrical Machines	3-0	EE3403	Digital Signal Processing	3-0
EE3602	Electrical Machines Lab	0-1	EE3404	Digital Signal Processing Lab	0-1
EE2016	Microprocessors and Interfacing	3-0	EE3301	Linear Control Systems	3-0
EE2017	Microprocessors and Interfacing Lab	0-1	EE3302	Linear Control Systems Lab	0-1
EE3101	Communication Systems Engineering	3-0	EE4620	Power Distribution and Utilization	3-0
EE3102	Communication Systems Engineering Lab	0-1	EE4621	Power Distribution and Utilization Lab	0-1
SS2003	Civics and Community Engagement	2-0	EE4211	Electronic Circuit Design	3-0
XXXXXX	MDEE	3-0	EE4212	Electronic Circuit Design Lab	0-1
	Total	14-3		Total	12-4
Semester- VII			**Semester- VIII**		
Course Code	Course Title	Credits	Course Code	Course Title	Credits
HU1018	Expository Writing	3-0	MGT1001	Entrepreneurship	2-0
MGT1002	Engineering Project Management	2-0	EEXXXX	Flexible Engg/Non Engg II	3-0/1
EE4614	Power Electronics	3-0	EEXXXX	Flexible Engg/Non Engg III	3-0
EE4615	Power Electronics Lab	0-1	EE4129	Computer Communication Networks	3-0
EEXXXXX	Flexible Engg/Non Engg I	3-0/1	EE4099	Capstone Project II	0-4
EE4608	Power System Analysis	3-0			
EE4098	Capstone Project I	0-2			
	Total	14-3/4		Total	11-4/5

* IDEE Courses: The student may take multidisciplinary courses from other departments after approval from the department (academic advisor). In addition, the EE stream courses of multidisciplinary nature can also be taken as IDEE courses.

** Depth Elective Courses: The courses will be offered from following concentration streams.

1. Communication Systems and Networks
2. System on Chip
3. Autonomous Systems
4. Smart Systems
5. Electrical Power Systems

Bachelor of Science Computer Engineering (4 Years)

The mission of the department of Computer Engineering is to educate, prepare and inspire students to excel as professionals and to lead technology innovation and integration in the field of Computer Engineering to serve the society and industry.

Program Educational Objectives (PEOs)

- **PEO 1:** To apply Computer Engineering knowledge and skills to provide sustainable solutions to engineering problems in industry and academia
- **PEO 2:** To pursue continuous professional development, lifelong learning and contribute to the sustainable growth of society
- **PEO 3:** To manage technical problems in Computer Engineering and related domains effectively and innovatively while adhering to 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 (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 (WK-5).

Cont...

- **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 (WK-8).
- **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 (WK-2 and WK-6).
- **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 (WK-1, WK-5, and WK-7).
- **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 (WK-9).
- **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 (WK-9).
- **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 (WK-1 and WK-9).
- **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 (WK-2 and WK-5).
- **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 (WK-8 and WK-9).

Curriculum of BS CEN

Semester- I			Semester- II		
Course Code	Course Title	Credits	Course Code	Course Title	Credits
MATH1103	Calculus and Analytical Geometry	3	MATH2201	Linear Algebra	2
IS1003	Islamic Studies / Ethics	2	CEN1010	Circuit Analysis	3
ICT1001	Applications of ICT	2	CEN1011	Circuit Analysis Lab	1
ICT1002	Applications of ICT Lab	1	CEN1008	Computer Programming	3
PHY1301	Applied Physics	2	CEN1009	Computer Programming Lab	1
PHY1302	Applied Physics Lab	1	HU1019	Expository Writing	2
CEN1006	Computer Engineering Workshop	1	MATH3901	Discrete Structures	3
CEN1007	Occupational Health and Safety	1	ICP1001	Ideology and Constitution of Pakistan	2
HU1016	Functional English	2	QT1001	Translation of the Holy Quran1	1
SS2003	Civics and Community Engagement	2			
	Total	17		Total	18
Semester- III			Semester- IV		
CEN2001	Object Oriented Programming	3	MATH2304	Differential Equations	3
CEN2002	Object Oriented Programming Lab	1	CEN2010	Signals and Systems	3
CEN2006	Digital Logic Design	3	CEN2011	Signals and Systems Lab	1
CEN2007	Digital Logic Design Lab	1	CEN2014	Computer Organization and Architecture	3
CEN2008	Electronic Devices and Circuits	3	CEN2015	Computer Organization and Architecture Lab	1
CEN2009	Electronic Devices and Circuits Lab	1	CEN2018	Data Structures and Algorithms	3
SS2004	Social Science Elective I Engg. Economics	2	CEN2019	Data Structures and Algorithms Lab	1
MATH1202	Complex Variables and Transforms	3	MGT1004 OR MGT1002	Management Science Elective – I (Engg. Management OR Engg. Project Management)	2
	Total	17		Total	17
Semester- V			Semester- VI		
CEN3001	Microprocessors and Interfacing	3	CEN3005	Operating Systems	3
CEN3002	Microprocessors and Interfacing Lab	1	CEN3006	Operating Systems Lab	1
CEN3003	Digital Signal Processing	3	CEN3009	Software Engineering	3
CEN3004	Digital Signal Processing Lab	1	MATH3503	Numerical Analysis	2
CENXXXX	Multi- Disciplinary Engineering Elective I	2/3	MATH3504	Numerical Analysis Lab	1
CENXXXX	Multi- Disciplinary Engineering Elective I Lab	1/0	CENXXXX	Computer Engineering Depth Elective-I	3
CEN3007	Computer Communication and Networks	3	CENXXXX	Computer Engineering Depth Elective -I Lab	1
CEN3008	Computer Communication and Networks Lab	1	CENXXXX	Computer Engineering Depth Elective-II	3
MATH2501	Probability and Statistics	3	CENXXXX	Computer Engineering Depth Elective -II Lab	1
CENILE1001	Industrial Learning Experience 1	0	CENILE1002	Industrial Learning Experience 2	0
			XXXX	Community Service	0
	Total	18		Total	18
Semester- VII			Semester- VIII		
CENXXXX	Computer Engineering Depth Elective-III	3	XXXX	Arts and humanities Elective	1
CENXXXX	Computer Engineering Depth Elective-III Lab	1	MGT1001	Management Science Elective - II (Entrepreneurship)	2
CEN4001	Digital System Design	3	CENXXXX	Computer Engineering Depth Elective-V	3
CEN4002	Digital System Design Lab	1	CENXXXX	Computer Engineering Depth Elective -V Lab	1
CENXXXX	Computer Engineering Depth Elective-IV	3	CENXXXX	Multi- Disciplinary Engineering Elective II	2
CENXXXX	Computer Engineering Depth Elective-IV Lab	1	CENXXXX	Multi- Disciplinary Engineering Elective II Lab	1
CEN4098	Capstone Project-I	2	CEN4099	Capstone Project-II	4
CEN3010	Database Management Systems	3			
CEN3011	Database Management Systems Lab	1			
	Total	18		Total	14

Bachelor of Science Computer Science (4 years)

"Computer Science department aims to produce Leaders of Progress and Excellence through the fusion of academic excellence with personal character. Students not only develop expertise in the chosen field but are also given opportunities for broad learning to become intellectual leaders, problem solvers, responsible and useful members of the society. The department has devised the curriculum that is based on the concept of Learning by Doing to provide every undergraduate student with outstanding education grounded in basic, applied and social sciences."

Program Educational Objectives (PEOs)

- **PEO 1:** Enter in the computing profession or related fields in prominent organizations or working as a technopreneur.
- **PEO 2:** Become medium level experts able to creatively apply their expertise to resolution of technical problems.
- **PEO 3:** Earn reputation as a professional, sensitive to the environmental, social, safety and economic context and possess a strong commitment to ethical practices.
- **PEO 4:** Attain a junior leadership position and be acknowledged as a valuable team member able to communicate effectively.
- **PEO 5:** Continued their professional development and physical well-being.

Program Learning Outcomes (PLOs)

- **Academic Education:** Completion of an accredited program of study designed to prepare graduates as computing professionals.

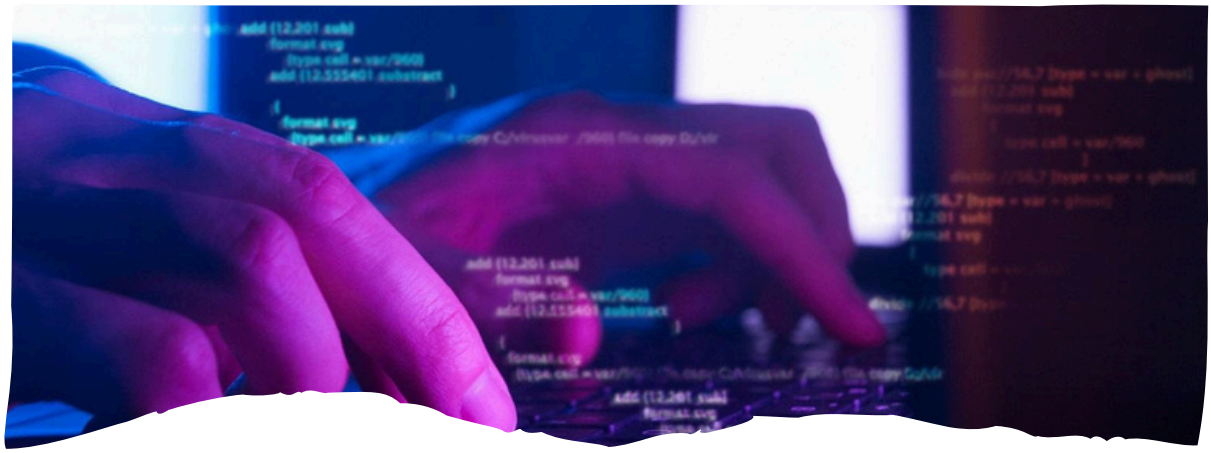
Cont...

- **Knowledge for Solving Computing Problems:** Apply knowledge of computing fundamentals, knowledge of a computing specialization, and mathematics, science, and domain knowledge appropriate for the computing specialization to the abstraction and conceptualization of computing models from defined problems and requirements.
- **Problem Analysis:** Identify, formulate, research literature, and solve complex computing problems reaching substantiated conclusions using fundamental principles of mathematics, computing sciences, and relevant domain disciplines.
- **Design / Development of Solutions:** Design and evaluate solutions for complex computing problems, and design and evaluate systems, components, or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.
- **Modern Tool Usage:** Create, select, adapt and apply appropriate techniques, resources, and modern computing tools to complex computing activities, with an understanding of the limitations.
- **Individual and Teamwork:** Function effectively as an individual and as a member or leader in diverse teams and in multi-disciplinary settings.
- **Communication:** Communicate effectively with the computing community and with society at large about complex computing activities by being able to comprehend and write effective reports, design documentation, make effective presentations, and give and understand clear instructions.
- **Computing Professionalism and Society:** Understand and assess societal, health, safety, legal, and cultural issues within local and global contexts, and the consequential responsibilities relevant to professional computing practice.
- **Ethics:** Understand and commit to professional ethics, responsibilities, and norms of professional computing practice.
- **Life-long Learning:** Recognize the need, and have the ability, to engage in independent learning for continual development as a computing professional.

Curriculum of BS CS

Semester- I			Semester- II		
Course Code	**Course Title**	**Credits**	**Course Code**	**Course Title**	**Credits**
CS120	Programming Fundamentals	3-0	CS160	Database Systems	3-0
CS121	Programming Fundamentals Lab	0-1	CS161	Database Systems Lab	0-1
GE100	Application of Information & Communication Technologies	2-0	CS122	Object Oriented Programming	3-0
GE101	Application of Information & Communication Technologies Lab	0-1	CS123	Object Oriented Programming Lab	0-1
GE120	Discrete Structures	3-0	CS130	Digital Logic Design	2-0
GE121	Calculus and Analytic Geometry	3-0	CS131	Digital Logic Design Lab	0-1
GE110	Functional English	3-0	MT100	Multivariable Calculus	3-0
			MT110	Linear Algebra	3-0
	Total	**14-2**		**Total**	**14-3**
Semester- III			**Semester- IV**		
CS280	Artificial Intelligence	2-0	CS230	Computer Organization and Assembly Language	2-0
CS281	Artificial Intelligence Lab	0-1	CS231	Computer Organization and Assembly Language Lab	0-1
CS210	Data Structures	3-0	CS212	Theory of Automata	3-0
CS211	Data Structures lab	0-1	CS260	Advance Database Management Systems	2-0
CS290	Information Security	2-0	CS261	Advance Database Management Systems Lab	0-1
CS291	Information Security Lab	0-1	GE250	Applied Physics	2-0
CS270	Computer Networks	2-0	GE251	Applied Physics Lab	0-1
CS271	Computer Networks Lab	0-1	GE111	Expository Writing	3-0
CS250	Software Engineering	3-0	GE230	Islamic Studies	2-0
MT220	Probability & Statistics	3-0			
	Total	**15-4**		**Total**	**14-3**
Semester- V			**Semester- VI**		
CS330	Operating Systems	2-0	CS310	Compiler Construction	2-0
CS331	Operating Systems Lab	0-1	CS311	Compiler Construction Lab	0-1
CS340	HCI & Computer Graphics	2-0	CS370	Parallel & Distributed Computing	2-0
CS341	HCI & Computer Graphics Lab	0-1	CS371	Parallel & Distributed Computing Lab	0-1
CS332	Computer Architecture	2-0	CSXXX	Elective III	2-1
CS333	Computer Architecture Lab	0-1	CSXXX	Elective IV	2-1
CSXXX	Elective I	2-1	CSXXX	Elective V	2-1
CSXXX	Elective II	2-1	CSXXX	Elective VI	2-1
GE240	Introduction to Management	2-0			
	Total	**12-5**		**Total**	**12-6**
Semester- VII			**Semester- VIII**		
CS400	Final Year Project - I	0-2	CS401	Final Year Project - II	0-4
CS410	Analysis of Algorithms	3-0	GE430	Ideology and Constitution of Pakistan	2-0
EW400	Technical & Business Writing	3-0	GE431	Professional Practices	2-0
GE470	Entrepreneurship	2-0	GE460	Civics and Community Engagement	2-0
CSXXX	Elective VII	2-1			
SS400	Introduction to Marketing	3-0			
	Total	**13-3**		**Total**	**6-4**

Bachelor of Science in Software Engineering (4 years)



The primary mission of Bachelor of Science in Software Engineering program is the education of students who can define, design, develop, deliver and maintain high quality software systems within resource constraints; and to prepare students for careers as software engineers in industry and research.

Program Educational Objectives (PEOs)

By four years after graduation, graduates of software engineering program will have:

- **PEO 1:** Entered in the software engineering and computing profession or related fields in prominent organizations or working as a technopreneur.
- **PEO 2:** Become medium level experts able to creatively apply their expertise of science, engineering and technology to the solution of technical problems.
- **PEO 3:** Earned a reputation as a professional, sensitive to the environmental, social, safety and economic context and possess a strong commitment to ethical practices.
- **PEO 4:** Attained a junior leadership position and be acknowledged as a valuable team member able to communicate effectively.
- **PEO 5:** Continued their professional development and physical well-being.

Program Learning Outcomes (PLOs)

Program outcomes are the narrower statements that describe what students are expected to know and be able to do by the time of graduation. These relate to the knowledge, skills and attitude that the students acquire while progressing through the program. PLO's of UG program are as under:

Cont...

- **Academic Education:** Completion of an accredited program of study designed to prepare graduates as computing professionals.

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

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

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

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

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

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

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

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

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

Curriculum of BS SE

Semester- I			Semester- II		
Course Code	**Course Title**	**Credits**	**Course Code**	**Course Title**	**Credits**
CS120	Programming Fundamentals	3-0	CS160	Database Systems	3-0
CS121	Programming Fundamentals Lab	0-1	CS161	Database Systems Lab	0-1
GE100	Application of Information & Communication Technologies	2-0	CS122	Object Oriented Programming	3-0
GE101	Application of Information & Communication Technologies Lab	0-1	CS123	Object Oriented Programming Lab	0-1
GE120	Discrete Structures	3-0	CS130	Digital Logic Design	2-0
GE121	Calculus and Analytic Geometry	3-0	CS131	Digital Logic Design Lab	0-1
GE110	Functional English	3-0	MT100	Multivariable Calculus	3-0
			MT110	Linear Algebra	3-0
	Total	**14-2**		**Total**	**14-3**
Semester- III			**Semester- IV**		
CS280	Artificial Intelligence	2-0	CS230	Computer Organization and Assembly Language	2-0
CS281	Artificial Intelligence Lab	0-1	CS231	Computer Organization and Assembly Language Lab	0-1
CS210	Data Structures	3-0	CS252	Software Design & Architecture	3-0
CS211	Data Structures lab	0-1	CS254	Software Construction & Development	2-0
CS290	Information Security	2-0	CS255	Software Construction & Development Lab	0-1
CS291	Information Security Lab	0-1	GE250	Applied Physics	2-0
CS270	Computer Networks	2-0	GE251	Applied Physics Lab	0-1
CS271	Computer Networks Lab	0-1	GE111	Expository Writing	3-0
CS250	Software Engineering	3-0	GE230	Islamic Studies	2-0
MT220	Probability & Statistics	3-0			
	Total	**15-4**		**Total**	**14-3**
Semester- V			**Semester- VI**		
CS330	Operating Systems	2-0	CS352	Software Project Management	2-0
CS331	Operating Systems Lab	0-1	CS353	Software Project Management Lab	0-1
CS354	Software Quality Engineering	2-0	CS370	Parallel & Distributed Computing	2-0
CS355	Software Quality Engineering Lab	0-1	CS371	Parallel & Distributed Computing Lab	0-1
CS356	Software Requirement Engineering	2-0	CSXXX	Elective III	2-1
CS357	Software Requirement Engineering Lab	0-1	CSXXX	Elective IV	2-1
CSXXX	Elective I	2-1	CSXXX	Elective V	2-1
CSXXX	Elective II	2-1	CSXXX	Elective VI	2-1
GE240	Introduction to Management	2-0			
	Total	**12-5**		**Total**	**12-6**
Semester- VII			**Semester- VIII**		
CS400	Final Year Project - I	0-2	CS401	Final Year Project - II	0-4
CS410	Analysis of Algorithms	3-0	GE430	Ideology and Constitution of Pakistan	2-0
EW400	Technical & Business Writing	3-0	GE431	Professional Practices	2-0
GE470	Entrepreneurship	2-0	GE460	Civics and Community Engagement	2-0
CSXXX	Elective VII	2-1			
SS400	Introduction to Marketing	3-0			
	Total	**13-3**		**Total**	**6-4**

Bachelor of Science Artificial Intelligence (4 years)

The mission of the Artificial Intelligence program is to produce technically sound and innovative graduates, industrial leaders and entrepreneurs of character and vision who can address current and future industrial technology challenges.

Program Educational Objectives (PEOs)

By four years after graduation, graduates of artificial intelligence program will have:

- **PEO 1:** Entered in the artificial intelligence and computing profession or related fields in prominent organizations or working as a technopreneur.
- **PEO 2:** Become medium level experts able to creatively apply their expertise of science, engineering and technology to the solution of technical problems.
- **PEO 3:** Earned a reputation as a professional, sensitive to the environmental, social, safety and economic context and possess a strong commitment to ethical practices.
- **PEO 4:** Attained a junior leadership position and be acknowledged as a valuable team member able to communicate effectively.
- **PEO 5:** Continued their professional development and physical well-being.

Program Learning Outcomes (PLOs)

Program outcomes are the narrower statements that describe what students are expected to know and be able to do by the time of graduation. These relate to the knowledge, skills and attitude that the students acquire while progressing through the program. PLO's of UG program are as under:

Cont...

- **PLO 1:** Academic Education: Completion of an accredited program of study designed to prepare graduates as computing professionals.
- **PLO 2:** Knowledge for Solving Computing Problems: Apply knowledge of computing fundamentals, knowledge of a computing specialization, and mathematics, science, and domain knowledge appropriate for the computing specialization to the abstraction and conceptualization of computing models from defined problems and requirements.
- **PLO 3:** Problem Analysis: Identify, formulate, research literature, and solve complex computing problems reaching substantiated conclusions using fundamental principles of mathematics, computing sciences, and relevant domain disciplines.
- **PLO 4:** Design / Development of Solutions: Design and evaluate solutions for complex computing problems, and design and evaluate systems, components, or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.
- **PLO 5:** Modern Tool Usage: Create, select, adapt and apply appropriate techniques, resources, and modern computing tools to complex computing activities, with an understanding of the limitations.
- **PLO 6:** Individual and Teamwork: Function effectively as an individual and as a member or leader in diverse teams and in multi-disciplinary settings.
- **PLO 7:** Communication: Communicate effectively with the computing community and with society at large about complex computing activities by being able to comprehend and write effective reports, design documentation, make effective presentations, and give and understand clear instructions.
- **PLO 8:** Computing Professionalism and Society: Understand and assess societal, health, safety, legal, and cultural issues within local and global contexts, and the consequential responsibilities relevant to professional computing practice.
- **PLO 9:** Ethics: Understand and commit to professional ethics, responsibilities, and norms of professional computing practice.
- **PLO 10:** Life-long Learning: Recognize the need, and have the ability, to engage in independent learning for continual development as a computing professional.

Curriculum of BS AI

Semester- I			Semester- II		
Course Code	**Course Title**	**Credits**	**Course Code**	**Course Title**	**Credits**
CS120	Programming Fundamentals	3-0	CS160	Database Systems	3-0
CS121	Programming Fundamentals Lab	0-1	CS161	Database Systems Lab	0-1
GE100	Application of Information & Communication Technologies	2-0	CS122	Object Oriented Programming	3-0
GE101	Application of Information & Communication Technologies Lab	0-1	CS123	Object Oriented Programming Lab	0-1
GE120	Discrete Structures	3-0	CS130	Digital Logic Design	2-0
GE121	Calculus and Analytic Geometry	3-0	CS131	Digital Logic Design Lab	0-1
GE110	Functional English	3-0	MT100	Multivariable Calculus	3-0
			MT110	Linear Algebra	3-0
	Total	**14-2**		**Total**	**14-3**
Semester- III			**Semester- IV**		
CS280	Artificial Intelligence	2-0	CS230	Computer Organization and Assembly Language	2-0
CS281	Artificial Intelligence Lab	0-1	CS231	Computer Organization and Assembly Language Lab	0-1
CS210	Data Structures	3-0	CS282	Programming for AI	2-0
CS211	Data Structures lab	0-1	CS283	Programming for AI Lab	0-1
CS290	Information Security	2-0	CS284	Machine Learning	2-0
CS291	Information Security Lab	0-1	CS285	Machine Learning Lab	0-1
CS270	Computer Networks	2-0	GE250	Applied Physics	2-0
CS271	Computer Networks Lab	0-1	GE251	Applied Physics Lab	0-1
CS250	Software Engineering	3-0	GE111	Expository Writing	3-0
MT220	Probability & Statistics	3-0	GE230	Islamic Studies	2-0
	Total	**15-4**		**Total**	**13-4**
Semester- V			**Semester- VI**		
CS330	Operating Systems	2-0	CS384	Computer Vision	2-0
CS331	Operating Systems Lab	0-1	CS385	Computer Vision Lab	0-1
CS380	Artificial Neural Networks & Deep Learning	2-0	CS370	Parallel & Distributed Computing	2-0
CS381	Artificial Neural Networks & Deep Learning Lab	0-1	CS371	Parallel & Distributed Computing Lab	0-1
CS382	Knowledge Representation & Reasoning	2-0	CSXXX	Elective III	2-1
CS383	Knowledge Representation & Reasoning Lab	0-1	CSXXX	Elective IV	2-1
CSXXX	Elective I	2-1	CSXXX	Elective V	2-1
CSXXX	Elective II	2-1	CSXXX	Elective VI	2-1
GE240	Introduction to Management	2-0			
	Total	**12-5**		**Total**	**12-6**
Semester- VII			**Semester- VIII**		
CS400	Final Year Project - I	0-2	CS401	Final Year Project - II	0-4
CS410	Analysis of Algorithms	3-0	GE430	Ideology and Constitution of Pakistan	2-0
EW400	Technical & Business Writing	3-0	GE431	Professional Practices	2-0
GE470	Entrepreneurship	2-0	GE460	Civics and Community Engagement	2-0
CSXXX	Elective VII	2-1			
SS400	Introduction to Marketing	3-0			
	Total	**13-3**		**Total**	**6-4**

Bachelor of Science Cyber Security (4 years)

The Bachelor of Science Cyber Security BS (CybSec) program intends to produce skilled professionals to understand the processes that impact information security, safeguarding information assets, collection and preservation of digital evidences, analysis of data, and identification and fixing of security vulnerabilities. The program will equip students with the fundamental knowledge of computer science that forms the technical foundation of the field, with an essential focus on experiential learning through laboratory exercises in the security courses. This degree is a state-of-the-art course with a perfect blend of Cyber Security that is designed to set the graduates up for immediate industry success by combining and leveraging today's cutting-edge technology with real-world scenarios.

Program Educational Objectives (PEOs)

By four years after graduation, graduates of cyber security program will have:

- **PEO 1:** Entered in the cyber security and computing profession or related fields in prominent organizations or working as a technopreneur.
- **PEO 2:** Become medium level experts able to creatively apply their expertise of science, engineering and technology to the solution of technical problems.
- **PEO 3:** Earned a reputation as a professional, sensitive to the environmental, social, safety and economic context and possess a strong commitment to ethical practices.
- **PEO 4:** Attained a junior leadership position and be acknowledged as a valuable team member able to communicate effectively.
- **PEO 5:** Continued their professional development and physical well-being.

Program Learning Outcomes (PLOs)

Program outcomes are the narrower statements that describe what students are expected to know and be able to do by the time of graduation. These relate to the knowledge, skills and attitude that the students acquire while progressing through the program. PLO's of UG program are as under:

- **Academic Education:** Completion of an accredited program of study designed to prepare graduates as computing professionals.
- **Knowledge for Solving Computing Problems:** Apply knowledge of computing fundamentals, knowledge of a computing specialization, and mathematics, science, and domain knowledge appropriate for the computing specialization to the abstraction and conceptualization of computing models from defined problems and requirements.
- **Problem Analysis:** Identify, formulate, research literature, and solve complex computing problems reaching substantiated conclusions using fundamental principles of mathematics, computing sciences, and relevant domain disciplines.
- **Design / Development of Solutions:** Design and evaluate solutions for complex computing problems, and design and evaluate systems, components, or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.
- **Modern Tool Usage:** Create, select, adapt and apply appropriate techniques, resources, and modern computing tools to complex computing activities, with an understanding of the limitations.
- **Individual and Teamwork:** Function effectively as an individual and as a member or leader in diverse teams and in multi-disciplinary settings.
- **Communication:** Communicate effectively with the computing community and with society at large about complex computing activities by being able to comprehend and write effective reports, design documentation, make effective presentations, and give and understand clear instructions.
- **Computing Professionalism and Society:** Understand and assess societal, health, safety, legal, and cultural issues within local and global contexts, and the consequential responsibilities relevant to professional computing practice.
- **Ethics:** Understand and commit to professional ethics, responsibilities, and norms of professional computing practice.
- **Life-long Learning:** Recognize the need, and have the ability, to engage in independent learning for continual development as a computing professional.

Curriculum of BS CY

Sr.	Subject	Credit Hours	Sr.	Subject	Credit Hours
Semester 1			**Semester 2**		
1	Programming Fundamentals	3+1	1	Database Systems	3+1
2	Application of Information & Communication Technologies	2+1	2	Object Oriented Programming	3+1
3	Discrete Structures	3+0	3	Digital Logic Design	2+1
4	Calculus and Analytic Geometry	3+0	4	Multivariable Calculus	3+0
5	Functional English	3+0	5	Linear Algebra	3+0
Total		16	**Total**		17
Semester 3			**Semester 4**		
1	Artificial Intelligence	2+1	1	Computer Organization and Assembly Language	2+1
2	Data Structures	3+1	2	Cyber Security	2+1
3	Information Security	2+1	3	Information Assurance	2+1
4	Computer Networks	2+1	4	Applied Physics	2+1
5	Software Engineering	3+0	5	Expository Writing	3+0
6	Probability & Statistics	3+0	6	Islamic Studies	2+0
Total		19	**Total**		17
Semester 5			**Semester 6**		
1	Operating Systems	2+1	1	Digital Forensics	2+1
2	Network Security	2+1	2	Parallel & Distributed Computing	2+1
3	Secure Software Design and Development	2+1	3	Domain Elective 3	2+1
4	Domain Elective 1	2+1	4	Domain Elective 4	2+1
5	Domain Elective 2	2+1	5	Domain Elective 5	2+1
6	General Education Requirement	2+0	6	Domain Elective 6	2+1
Total		17	**Total**		18
Semester 7			**Semester 8**		
1	Final Year Project - I	0+2	1	Final Year Project - II	0+4
2	Analysis of Algorithms	3+0	2	Ideology and Constitution of Pakistan	2+0
3	Technical & Business Writing	3+0	3	Professional Practices	2+0
4	Entrepreneurship	3+0	4	Civics and Community Engagement	2+0
5	Domain Elective 7	2+1	**Total**		10
6	Elective Supporting Course	3+0			
Total		16			

Bachelor of Science Information Technology (4 years)

The Bachelor of Science in Information Technology (BS IT) is a comprehensive degree program that combines theoretical knowledge and practical skills in the field of information technology. Students enrolled in the program undergo a core curriculum covering computer science fundamentals, mathematics, and programming, after which they can choose specialized tracks such as network administration, cybersecurity, software development, or database management. The curriculum typically includes courses in programming, database management, networking, cybersecurity, systems analysis, and IT project management. Emphasis is placed on developing essential professional and communication skills. Additionally, students often participate in internships or capstone projects to gain hands-on experience in real-world IT environments. Upon graduation, BSIT degree holders are well-prepared for diverse careers in areas such as software development, network administration, and cybersecurity, or they may choose to pursue further education in specialized IT fields.

Program Educational Objectives (PEOs)

By four years after graduation, graduates of Information Technology program will have:

- **PEO 1:** Entered in the information technology and computing profession or related fields in prominent organizations or working as a technopreneur.
- **PEO 2:** Become medium level experts able to creatively apply their expertise of science, engineering and technology to the solution of technical problems.
- **PEO 3:** Earned a reputation as a professional, sensitive to the environmental, social, safety and economic context and possess a strong commitment to ethical practices.
- **PEO 4:** Attained a junior leadership position and be acknowledged as a valuable team member able to communicate effectively.
- **PEO 5:** Continued their professional development and physical well-being.

Program Learning Outcomes (PLOs)

Program outcomes are the narrower statements that describe what students are expected to know and be able to do by the time of graduation. These relate to the knowledge, skills and attitude that the students acquire while progressing through the program. PLO's of UG program are as under:

- **Academic Education:** Completion of an accredited program of study designed to prepare graduates as computing professionals.
- **Knowledge for Solving Computing Problems:** Apply knowledge of computing fundamentals, knowledge of a computing specialization, and mathematics, science, and domain knowledge appropriate for the computing specialization to the abstraction and conceptualization of computing models from defined problems and requirements.
- **Problem Analysis:** Identify, formulate, research literature, and solve complex computing problems reaching substantiated conclusions using fundamental principles of mathematics, computing sciences, and relevant domain disciplines.
- **Design / Development of Solutions:** Design and evaluate solutions for complex computing problems, and design and evaluate systems, components, or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.
- **Modern Tool Usage:** Create, select, adapt and apply appropriate techniques, resources, and modern computing tools to complex computing activities, with an understanding of the limitations.
- **Individual and Teamwork:** Function effectively as an individual and as a member or leader in diverse teams and in multi-disciplinary settings.
- **Communication:** Communicate effectively with the computing community and with society at large about complex computing activities by being able to comprehend and write effective reports, design documentation, make effective presentations, and give and understand clear instructions.
- **Computing Professionalism and Society:** Understand and assess societal, health, safety, legal, and cultural issues within local and global contexts, and the consequential responsibilities relevant to professional computing practice.
- **Ethics:** Understand and commit to professional ethics, responsibilities, and norms of professional computing practice.
- **Life-long Learning:** Recognize the need, and have the ability, to engage in independent learning for continual development as a computing professional.

Curriculum of BS IT

Sr. No.	Subject	Credit Hours	Sr. No.	Subject	Credit Hours
Semester 1			Semester 2		
1	Programming Fundamentals	3+1	1	Database Systems	3+1
2	Application of Information & Communication Technologies	2+1	2	Object Oriented Programming	3+1
3	Discrete Structures	3+0	3	Digital Logic Design	2+1
4	Calculus and Analytic Geometry	3+0	4	Multivariable Calculus	3+0
5	Functional English	3+0	5	Linear Algebra	3+0
Total		16	Total		17
Semester 3			Semester 4		
1	Artificial Intelligence	2+1	1	Computer Organization and Assembly Language	2+1
2	Data Structures	3+1	2	Web Technologies	2+1
3	Information Security	2+1	3	Cyber Security	2+1
4	Computer Networks	2+1	4	Applied Physics	2+1
5	Software Engineering	3+0	5	Expository Writing	3+0
6	Probability & Statistics	3+0	6	Islamic Studies	2+0
Total		19	Total		17
Semester 5			Semester 6		
1	Operating Systems	2+1	1	(Information Technology Infrastructure	2+1
2	DB Administration & Management	2+1	2	Parallel & Distributed Computing	2+1
3	System & Network Administration	2+1	3	Domain Elective 3	2+1
4	Domain Elective 1	2+1	4	Domain Elective 4	2+1
5	Domain Elective 2	2+1	5	Domain Elective 5	2+1
6	General Education Requirement	2+0	6	Domain Elective 6	2+1
Total		17	Total		18
Semester 7			Semester 8		
1	Final Year Project - I	0+2	1	Final Year Project - II	0+4
2	Analysis of Algorithms	3+0	2	Ideology and Constitution of Pakistan	2+0
3	Technical & Business Writing	3+0	3	Professional Practices	2+0
4	Entrepreneurship	3+0	4	Civics and Community Engagement	2+0
5	Domain Elective 7	2+1	Total		10
6	Elective Supporting Course	3+0			
Total		16			

Bachelor of Engineering Technology (Civil) - 4 Years

BET (Civil) cooperative model is a unique program aimed to producing engineering technologists having requisite applied knowledge, hands on experience of construction industry, distinction and excellence in civil technologies management, research and technology services in the construction industry.

Program Educational Objectives (PEOs)

After 3 - 5 years of graduation, BET (Civil) graduate will be able to:

- **PEO1:** Apply knowledge and skills to provide sustainable solutions to challenging engineering problems in industry and academia.
- **PEO2:** Engage in lifelong learning, embrace technological advancements, and demonstrate sustainable growth and professional development in a rapidly changing engineering landscape.
- **PEO3:** Effectively communicate, collaborate, and lead multidisciplinary teams to address engineering technology challenges and provide solutions while considering ethical, societal, cultural, and environmental aspects.

Program Learning Outcomes (PLOs)

- **Engineering Technology Knowledge:** An ability to apply knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.
- **Problem Analysis:** An ability to identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.

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- **Design and 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.
- **Investigations:** An ability to investigate complex engineering problems in a methodical way including literature survey, design and conduct of experiments, analysis and interpretation of experimental data, and synthesis of information to derive valid conclusions.
- **Modern Tool Usage (SA5):** 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.
- **The Engineering Technologist and Society (SA6):** 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.
- **Environment and Sustainability (SA7):** 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.
- **Ethics (SA8):** Understand and commit to professional ethics and responsibilities and norms of engineering technology practice.
- Individual and Team Work (SA9): An ability to function effectively as an individual, and as a member or leader in diverse teams.
- **Communication (SA10):** 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.
- **Project Management (SA11):** 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.
- **Lifelong Learning (SA12):** An ability to recognize the need for, and have the ability to engage in independent and life-long learning in specialist engineering technologies.

Curriculum of BET (Civil)

Semester- I			Semester- II		
Course Code	Course Title	Credits	Course Code	Course Title	Credits
BETNS1001	Applied Mathematics-I	3-0	BETCE1110	Applied Mechanics	3-0
BETCE1102	Materials for Infrastructure Engineering Tech	2-0	BETCE1111	Applied Mechanics Lab	0-1
BETCE1103	Materials for Infrastructure Engineering Tech Lab	0-1	BETCE1112	Surveying	2-0
BETCE1204	Transportation Engineering	2-0	BETCE1113	Surveying Lab	0-2
BETCE1205	Transportation Engineering Lab	0-1	BETCE1114	Drawing and CAD	1-0
BETCE1210	Construction Machinery	1-0	BETCE1115	Drawing and CAD Lab	0-2
BETNS1211	Construction Machinery Lab	0-2	BETCE1316	Transportation Infrastructure	2-0
BETHU1018	English Exposition	3-0	BETCE1317	Transportation Infrastructure Lab	0-1
BETCS2018	Computer Fundamentals Lab	0-1	BETHU4003	Communication Skills & Technical Writing	2-0
	Total	11-5		Total	10-6

Industrial Year 1		
Course Code	Course Title	Credits
BETCE1319	Transportation Infrastructure Construction Industry	4

Semester- III			Semester- IV		
Course Code	Course Title	Credits	Course Code	Course Title	Credits
BETCE2211	Non-Structural Infrastructure Components	2-0	BETCE2309	Civil and Substructure	2-0
BETCE2212	Non-Structural Infrastructure Components Lab	0-1	BETCE2310	Civil and Substructure Lab	0-1
BETCE2203	Basics of Structural Design	3-0	BETCE2201	Residential Buildings	2-0
BETCE2104	Geotechnical Engineering	2-0	BETCE2202	Residential Buildings Lab	0-1
BETCE2105	Geotechnical Engineering Lab	0-1	BETCE2213	Sustainable Development	2-0
BETCE2106	Concrete Technology	2-0	BETHU2014	Islamic Studies	2-0
BETCE2107	Concrete Technology Lab	0-1	BETCE2215	Building Regulations Studies	2-0
BETNS2008	Applied Mathematics II		BETCE2316	Pre-stressed and Precast Concrete	2-0
			BETCE2317	Introduction to steel structures	2-0
	Total	12-3		Total	14-2

Industrial Year 2		
Course Code	Course Title	Credits
BETCE2319	Building Construction Industry	4

Semester- V			Semester- VI		
Course Code	Course Title	Credits	Course Code	Course Title	Credits
BETCE3201	Environmental Engineering	2-0	BETCE 3308	Irrigation and Hydraulic Structures	2-0
BETCE3202	Environmental Engineering Lab	0-1	BETCE 3309	Irrigation and Hydraulic Structures Lab	0-2
BETHU3003	Pakistan Studies	2-0	BETMS 3110	Entrepreneurship	2-0
BETCE3304	Special Infrastructure	3-0	BETCE3311	Quantity Surveying and Cost Estimation	2-0
BETCE3005	Urban Development Studies	3-0	BETCE3312	Quantity Surveying and Cost Estimation Lab	0-2
BETCE3106	Fluid Mechanics	2-0	BETMS3213	Occupational Health and safety	1-0
BETCE3107	Fluid Mechanics Lab	0-1	BETCE3214	Tunneling and Underground Space technology	3-0
	Total	12-2		Total	10-4

Industrial Year 3		
Course Code	Course Title	Credits
BETCE3315	Special Infrastructure Construction Industry	4

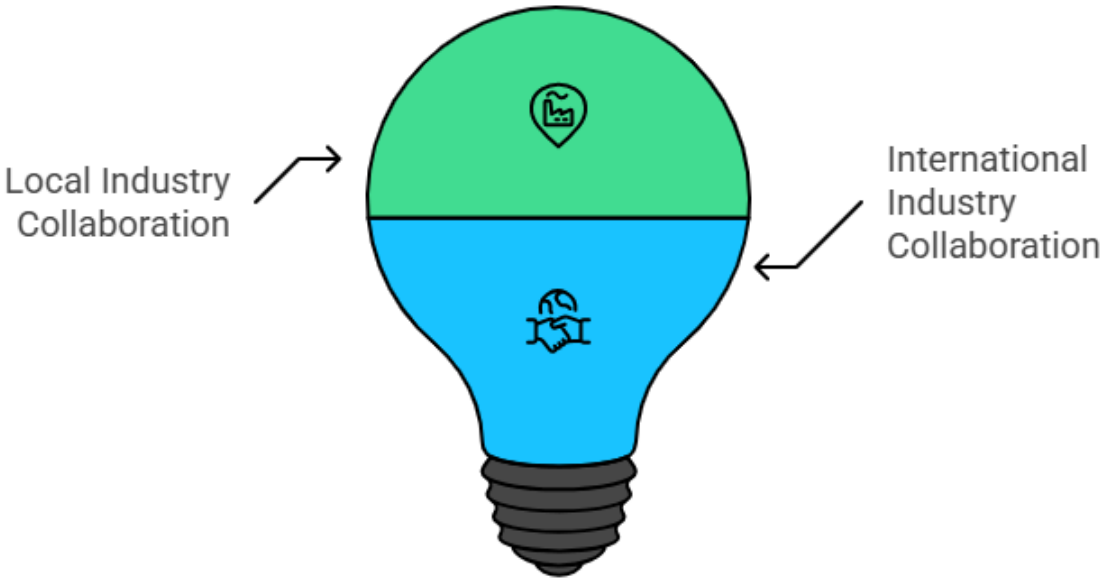
Semester- VII			Semester- VIII		
Course Code	Course Title	Credits	Course Code	Course Title	Credits
BETMS4001	Project Economics	3-0	BETMS4207	Project Management	2-0
BETMS4202	Bidding and Contract Management	2-0	BETMS4208	Project Management Lab	0-2
BETNS3001	Numerical Methods and Linear Algebra	2-0	BETHU4009	Professional Ethics	2-0
BETNS3002	Numerical Methods and Linear Algebra Lab	0-1	BETMS4210	Construction Risk Management	2-0
BETCE4304	Building Information Modelling	1-0	BETCE4311	Elective	2-2
BETCE4305	Building Information Modelling Lab	0-2	BETCE4312	Final Year Project-II	0-3
BETCE4306	Final Year Project-I	0-3			
	Total	8-6		Total	8-7

Industrial Year 4		
Course Code	Course Title	Credits
BETCE4313	Project Management Industry	4

NUTECH

Designed To Be

‘Hands-on’ problems solver University of local and international industry



UG Degree Programs, Credit Hours & Seats in Various Disciplines

Serial	Degree Title	Credit Hour
1	Bachelor of Science Civil Engineering (BS CE)	137
2	Bachelor of Science Mechanical Engineering (BS ME)	137
3	Bachelor of Science Electrical Engineering (BS EE)	137
4	Bachelor of Science Computer Engineering (BS CEN)	137
5	Bachelor of Science in Computer Science (BS CS)	138
6	Bachelor of Science in Software Engineering (BS SE)	130
7	Bachelor of Science in Artificial Intelligence (BS AI)	136
8	Bachelor of Science in Cyber Security (BS CY)	130
9	Bachelor of Science in Information Technology (BS IT)	130
10	Bachelor of Engineering Technology (Civil) – BET (Civil)	136

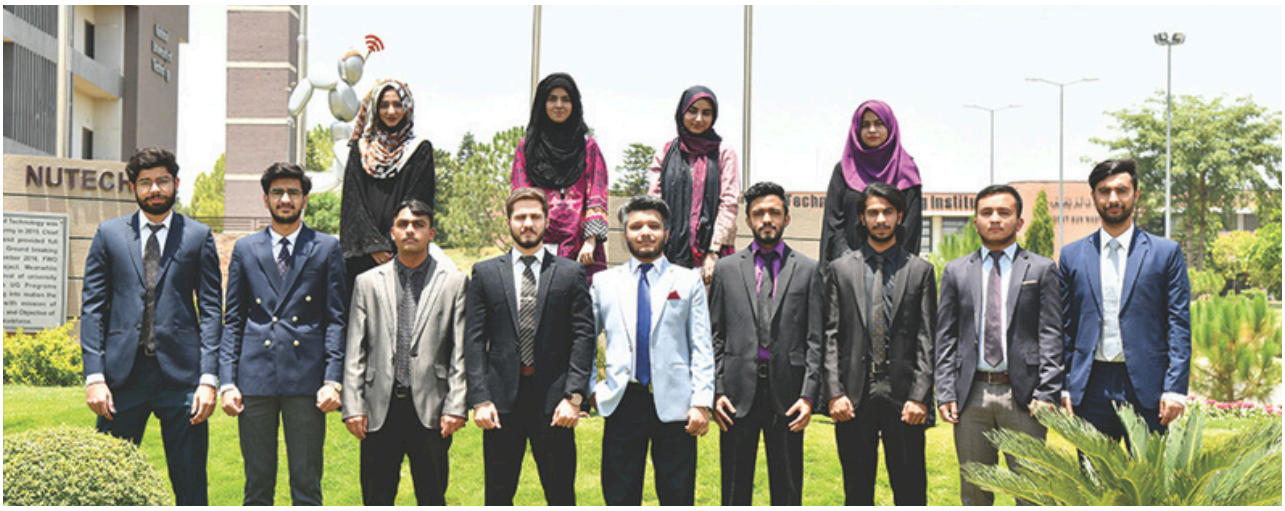
Admissions

- NUTECH provides **equal educational opportunities** to all qualified prospective students regardless of economic or social background.
- The University **does not discriminate on the basis of race, colour, religion, marital status, beliefs, age, national origin and physical or mental disability** (provided the doctor provides the candidates with a certificate to under go the mental / physical robustness enough to take on rigours during degree program).
- NUTECH admits students for the fall term each year (classes commence in September).
- Candidates are encouraged to submit their applications as early as possible and are responsible for ensuring that all admission credentials are submitted on time.
- Application will not be reviewed until all materials have been received.
- Each programme is designed to initially enroll up to 50 students, and subsequently up to 100 students (after necessary approval from the accreditation bodies).
- Applicants are offered admission on a competitive basis, with those meeting NUTECH's selective admission criteria receiving first offers. The University **encourages female students** to join the university.

Schedule of Admissions

- Ads in Newspapers during online registration of each NUET.
- Online Registration through website and depositing registration and application processing fee in designated branches of bank as per instructions given on website (www.nutech.edu.pk).
- Applicants can appear in Nutech Entry Test for the admission or SAT score card be uploaded by international/ expatriate students by given date (before last date for submission of applications).
- Four Series of NUTECH Entry Test will be conducted, computer-based at NUTECH Islamabad and Paper-based for last NUET at other centers also (Peshawar, Lahore, Multan, Karachi, GB, and Quetta).
- Display of 1st merit list and issue of provisional admission offer letter by 1st week of August.
- Display of second merit in second week of August and display of final merit list by 4th week of August.
- Start of classes in 1st week of September.
- Deposit of admission and tuition fee before given dates for each merit list.
- Deposit of academic credentials by students and its verification will be carried out from 1st week of September onwards.

Life at Campus



Life at Campus

Eligibility Criteria of UG Programs

Students of FSc (Pre-Eng, Pre-Med), ICS, HSSC with Math, DAE, A-Level, and Equivalent can Apply:

UG / BS Programs	SSC/O Level/ Equivalent	HSSC/ A Level/ Equivalent	Qualification	NUTECH Entry Test
BS Civil Engineering (BS CE) **BS Mechanical Engineering (BS ME)** **BS Electrical Engineering (BS EE)** **BS Computer Engineering (BS CEN)**	60% Marks	60% Marks	FSc Pre-Engineering/Pre-Medical with Additional Math or Condensed Mathematics/ICS or equivalent with a combination of Math, Physics & Computer Science/ DAE (relevant discipline)	As a mandatory requirement
BS Computer Science (BS CS) **BS Software Engineering (BS SE)** **BS Artificial Intelligence (BS AI)** **BS Cyber Security (BS CY)** **BS Information Technology (BS IT)**	60% Marks	50% Marks	FSc Pre-Engineering/Pre-Medical/ICS with any combination of Math/HSSC level of Mathematics with a combination of any other subjects/DAE (All Disciplines)	
Bachelor of Engineering Technology (Civil), BET (Civil)	50% Marks	50% Marks	FSc Pre-Engineering/Pre-Medical /ICS/DAE (Civil)	

Entrance Exam

- National candidates have to appear in NUTECH Entry Test (NUET) for Undergraduate Programs. The test will be computer-based at NUTECH Islamabad and Paper-based at other centers (Peshawar, Lahore, Multan, Karachi, GB, and Quetta etc.). NUET is a mandatory requirement for National Students. Merit calculation will be based on the highest marks obtained by the candidates against the seats available in each degree program.

- The candidates will be tested as per their last qualification (which makes them eligible for programs). The syllabus of the Entry Test will include questions from subjects Math, Physics, Chemistry/Computer science, and English / reasoning taught at SSC / Equivalence and HSSC/DAE / equivalence levels in all the boards of Pakistan.

- The Distribution of the paper will be as under:
  - Math (standard as per programs) - 40%
  - Physics (“) - 30%
  - Chemistry/Computer Science (“) - 20%
  - English / reasoning (“) - 10%

Cont...

Candidate will be tested as per his previous qualification as under: -

- FSc (Pre Engg) will be tested for Math, Physics, Chemistry, and English.
- FSc (Pre Medical) will be tested for physics, Chemistry, Gen Arithmetics, and English.
- DAE (Any Discipline) will be tested primarily from DAE Syllabus.
- ICS will be tested for Math, Physics, Computer, and English.
- HSSC with Maths (General Group) will be tested for Math, Physics, Computer, and English.

Merit Criteria

Admissions shall be granted on the basis of merit determined by combining the weighted marks. The weightage criteria for the undergraduate degree programs shall be as given below:

- NUTECH Entry Test / SAT subject test (for international / expatriate students) - **70%**
- HSSC/A-Level/Equivalent Examination or HSSC Part-I / A-1 (in case final result is awaited) - **20%**
- SSC/O-Level/Equivalent Examination - **10%**

Requisite Documents

Applicants offered admission will submit following documents in orignal along with four attested photocopies of each :

- Detailed Mark Sheets of matriculation or equivalent.
- Intermediate or equivalent examination certificate by IBCC.
- Migration Certificate, if applicable.
- Provisional Certificate, if applicable.
- Undertaking on Stamp Paper to abide by the rules and regulations of
- NUTECH. Sample available on website.
- Computerized National Identity Card or 'B' Form.
- Two thumb size (1" x 1") and four passport size photographs attested from back side.
- All applicants who will be provisionally offered admission would be required to provide Medical Certificate of a Government hospital or registered medical practitioner before joining the university.

Admission Ineligibility Criteria

Applicants are ineligible to apply under following conditions or circumstances:

- Applicants securing less than 60% marks in SSC / O-Level (IBCC Equivalence Certificate) will not be eligible for any of the undergraduate programs (It's 50% for Technology programs).
- Likewise those attaining less than 60% marks in HSSC / A-Level (IBCC Equivalence Certificate) would also be ineligible for engineering. (It's 50% for CS, SE, AI & Technology programs).
- Applicants from Cambridge stream or equivalence exam, not in possession of equivalent certificate of IBCC for O & A-Levels or equivalent foreign qualification cannot apply.
- Those applicants who failed or did not appear in any of subject in HSSC Part-I & II or A1 & A2 level or equivalent examination would render themselves ineligible.
- For DAE qualification, admission application of students awaiting final result will not be accepted on the basis of Hope or Provisional Certificate.
- Applicants who has been expelled in the past from any university on disciplinary / moral grounds will not qualify for admission.
- Involvement in criminal proceedings will be subject to security clearance from police / concerned authorities.
- NUET (NUTECH Entry Test) or SAT Subject (Math Level-II) score card be submitted with application form. Late submission shall not be entertained.

Note: Candidates must check eligibility criteria before submitting their online application forms to confirm that they are academically eligible for admission into the program of their choice.

Cancellation of Admission

- Admission of Applicants will stand cancelled on provision of any false information/credentials.
- Applicants found guilty of suppression or misrepresentation of material facts at any stage will lose admission or continuity of degree program.
- If Applicants fails to submit requisite mandatory documents within stipulated time to university authorities will have to forego his/her admission.
- Applicants who fail to join within 15 days of commencement of programs even with fee paid will lose their admission.
- Admission of a student who is unable to attend any lecture during first four weeks after the start of the semester will stand cancelled automatically without any notification.

Rejection of Application

The university reserves the right to reject any application without assigning any reason.

Salient Aspects of Admissions

- Degree program will be offered based on merit and in order of preference given in the application form.
- Applicants will be allowed to change their preference of degree program once only after approval of concerned authority. However, application for change of preference after display of third or final merit list will not be allowed.
- Applicants will be given a choice to change the degree program on merit basis, in case of dropouts on vacant seats in other programs after joining their preferred program.
- Upon the display of merit list of the successful applicants, they will be required to confirm their willingness to enroll by depositing the prescribed fee challan along with all other academic credentials.
- Admission will only be considered complete if the payment of all dues within specified dates is confirmed to the Admission Office of NUTECH.
- If an applicant fails to confirm his/her enrolment within the notified period or by due date, his/her admission will stand cancelled forthwith and the seat will be offered to the next candidate on the waiting list after further display of fresh merit list.
- Confirmation of admission will be made after verification of original documents from concerned authorities and deposit of dues by candidate.
- Applicants submitting provisional certificate for awaited result of HSSC part-II or A-level/foreign exam will be given confirmation of admission if they fulfill requirement of merit as per eligibility criteria of the program admitted for.
- Applicants who have applied/re-appeared in examinations for improvement of grades shall not be considered for admission under the category of result awaiting candidates and their most immediate notified result shall be counted in the preparation of merit list.
- Students of A-level are to submit affirmation for depositing the equivalence certificate issued by IBCC within 20 days of the start of classes.
- Mandatory Welcome and Orientation session will be held at NUTECH for all freshman to acquaint them with campus life, policies and facilities being offered by the university.

Scholarships

- NUTECH offers Talent, Need based, and Merit based scholarships for deserving students (obtaining 3.75 SGPA and above) as per university policy. Need based Scholarships are offered by NGO’s are also available on NUTECH website as per the terms & conditions and time lines.

Dress Code for Students

As part of grooming we encourage students to follow the dress code as:

Girls.

- Female students are supposed to wear graceful Pakistani dress compatible with the social norms. Tights are not allowed. Decency and simplicity are desirable.

Boys.

Summer:

- Monday : Collar Shirt , dress pants (with shirt tucked in) and dress shoes (neck tie optional)
- Tuesday to Thursday : Collar shirt , dress pants or blue/black jeans (with shirt tucked in) and dress shoes.
- Friday : Collar Shirt ,dress pants or blue/black jeans (with shirt tucked in) and dress shoes (neck tie optional) or decent Shalwar Qameez and dress shoes.

Winter:

- Monday : Lounge suite/decent combination of coat , pants and dress shirt with neck tie and dress shoes.
- Tuesday to Thursday : Collar shirt ,dress pants or blue/black jeans (with shirt tucked in), coat (or jacket) and dress shoes.
- Friday : Collar shirt , dress pants or blue/black jeans (with shirt tucked in), coat (or jacket) and dress shoes (neck tie optional) or decent Shalwar Qameez, coat/ waist coat and dress shoes.

Fee Structure

Fee structure constitutes an essential facet of any university. It affords education which is economical enough to attract talented students to contribute for progress of the country from all classes of society. NUTECH fee structure for undergraduate programs is appended below, it does not include transport, accommodation, messing, ID card, library, graduation fee and other miscellaneous heads.

Type of Fee	PKR (RS)	USD($)
Application Processing Fee (at the time of Registration & Non Refundable)	2,500	100
Admission Fee (one-time & Non-Refundable)	30,000	1100
Security Deposit (one-time & Refundable)	10,000	500
Misc. Charges	7,500	300
Semester Fee for BET(Civil) only (per Semester)	92,500	3000
Semester Fee for other UG programs (per Semester)	138,000	3000

Note: *Fee is subject to revision by university authority from time to time.*

Fee Refund Policy

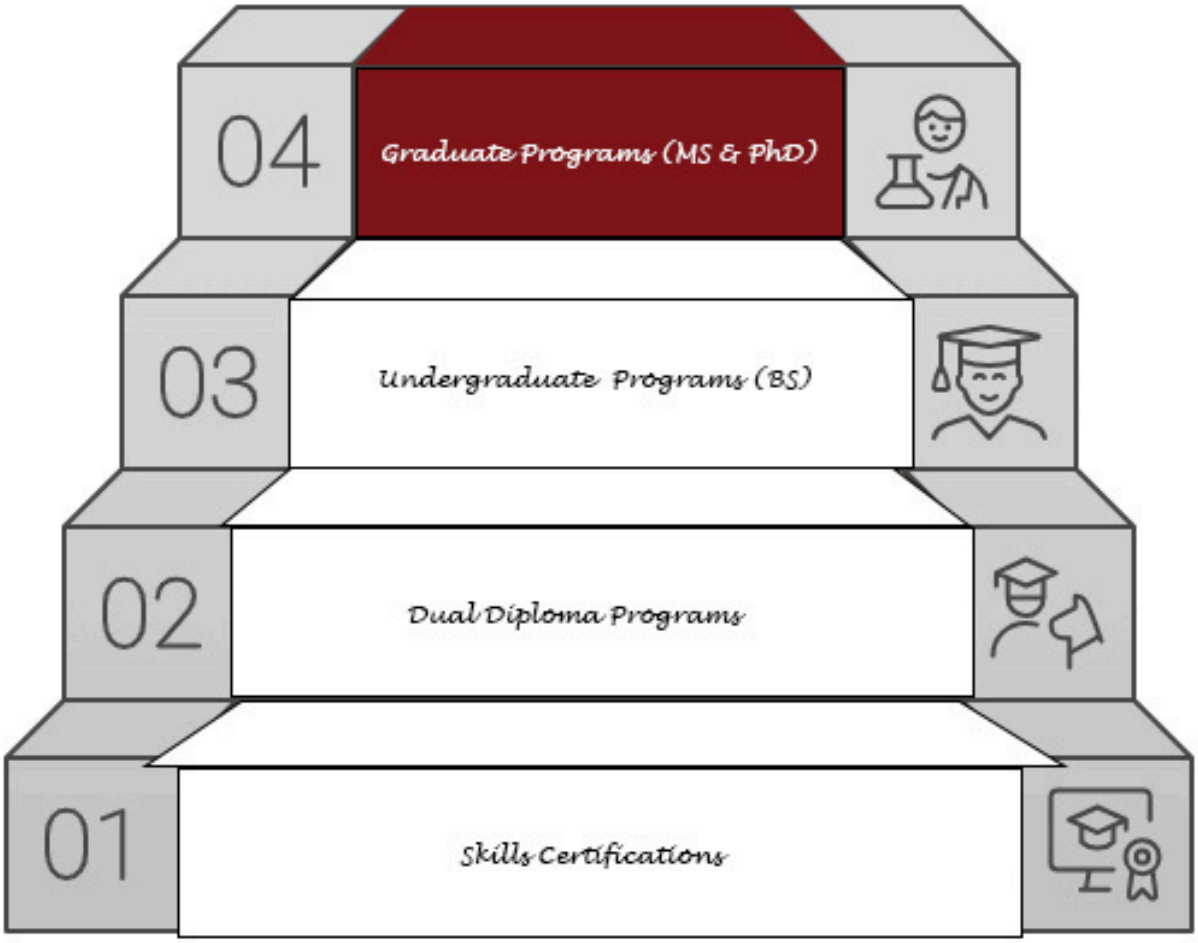
Refund of fee policy is subject to revision from time to time and will be implemented as under:

a	Upto 10th Day from Start of Semester	100% fee refund less registration and admission processing fee
b	Upto 15th Day from Start of Semester	80% fee refund less registration and admission processing fee
c	Upto 20th Day from Start of Semester	60% fee refund less registration and admission processing fee
d	Upto 30th Day from Start of Semester	50% fee refund less admission processing fee and registration fee
e	31st day onward from Start of Semester	No refund of any kind of fee will be made less security deposit
f	Laboratory Fee:	The laboratory fee is 100% refundable minus (-) the days a student has availed of that facility(es).
Note: Welcome and Orientation days are included in start of semester classes. Timeline shall be calculated continuously, covering both weekdays and weekend. The refund application will be processed within 15 working days from receiving the application.		

Hostel Charges

Ser.	Type of Fee	PKR (Rs)	Remarks
a	Hostel Rent (Boys)	10,000	Per Semester
b	Hostel Rent (Girls)	13,000	Per Month
c	Hostel Rent Security (Boys & Girls)	10,000	One time Refundable
d	Messing Security (Boys & Girls)	8,000	One time Refundable
e	Messing Charges (Boys & Girls)	8,000	Per Month For two meals
f	Laundry Charges (Boys Only)	1,200	Per Month
Bedding items will be brought by the candidates themselves.			

NATIONAL QUALIFICATION FRAMEWORK



MS Degree Programs

Serial	Degree Title
1	Master of Science Civil Engineering (MS CE)
2	Master of Science Mechanical Engineering (MS ME)
3	Master of Science Computer Engineering (MS CEN)
4	Master of Science Artificial Intelligence Engineering (MSAIE)
5	Master of Science Computer Science (MS CS)
6	Master of Science Artificial Intelligence (MS AI)
7	Master of Science Software Engineering (MS SE)
8	Master of Science Climate Change and Environmental Informatics (MSCCEI)

Eligibility Criteria (MS)

- Sixteen years of schooling or 4 year education after HSSC/FSc/Grade 12/equivalent will be required for admission in the MS with a minimum CGPA of 2.0 (on a scale of 4.0).
- HEC / PEC (as applicable) recognized Bachelors/Masters degree following test results are required:
  - NTS GAT, ETC HAT & GRE General (with a minimum 50% cumulative score for admission in MS) as an eligibility condition for admission or test of the equivalent level at the University (when conducted).

The type of degree requirements is different for different programs. For example MS in CS is open to take candidates having BS is different majors. However, for admission in MS in CE, Bachelors in Civil Engineering is required.

Merit Criteria (MS)

Entrance test conducted by NTS/NUTECH and/or other HEC approved test will be considered and following weighted marks will be considered:

- Undergraduate CGPA: 30%
- Written Exam (GAT etc): 50%
- Interview: 20 %

Fee structure (MS)

Type of Fee	Rs
Application Processing Fee (At the time of Registration only)	2,000
Admission Fee (One Time only)	10,000
Security (One Time & Refundable)	10,000
Semester Fee (Per Semester)	83,000

Note: *Fee is subject to revision by university authority from time to time.*

Master of Science Civil Engineering (MS CE)

- To reinforce and augment the knowledge of having an undergraduate degree in Civil Engineering to meet challenges, demands and expectations of global society.
- To enhance the associated analytical and problem-solving skills of graduates in a range of key sub-disciplines of Civil Engineering along with the entrepreneurial skills.
- To develop the ability to apply this knowledge in applied research and engineering design as an effective professional engineer

Program Learning Outcomes (PLOs)

The graduates will be able to:

- Demonstrate in-depth knowledge of a particular subject area and broad inter disciplinary knowledge of other areas in civil engineering.
- Plan and conduct applied research that addresses specific questions of significance in a particular area in civil engineering.
- Apply analytical and conceptual skills to solve civil engineering problems both individually and as a part of team using innovative techniques to build an effective relationship between theory, research and practice.
- Exhibit research communications, collaboration and mentoring skills in the roles as professional team members and team leaders.
- Enter the workforce for planning, designing, organizing, developing, managing, and maintaining civil engineering projects.

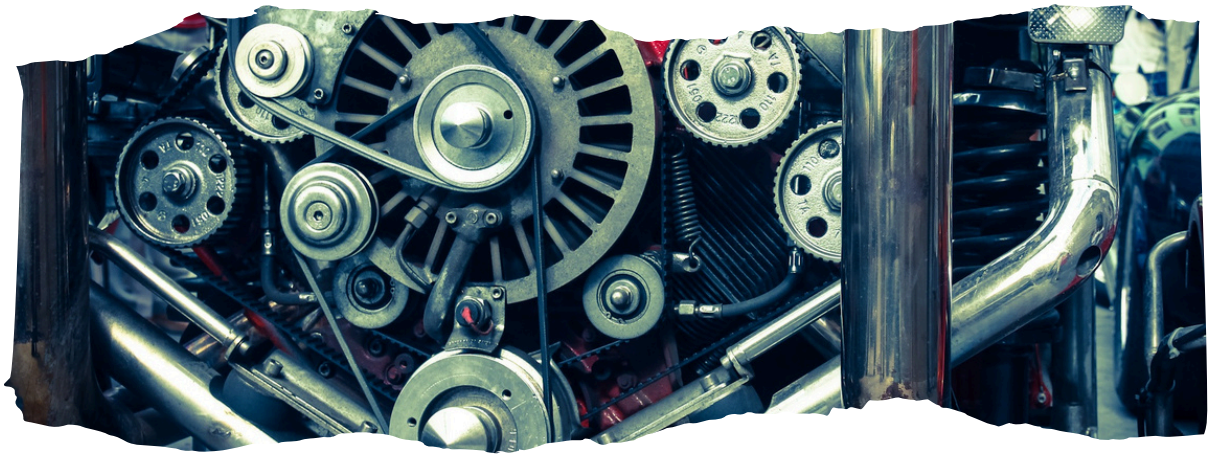
MS CE Curriculum

Semester- I		
Course Code	**Course Title**	**Credits**
CE-6xxx	Core Course - I	3(3-0)
CE-6xxx	Core Course - II	3(3-0)
CE-7xxx	Elective Course - I	3(3-0)
RM-6000	Research Methodology	-
	Total	**09**
Semester-II		
CE-6xxx	Core Course – III	3(3-0)
CE-6xxx	Core Course – IV	3(3-0)
CE-7xxx	Elective Course – II	3(3-0)
CE-7xxx	Elective Course - III	3(3-0)
	Total	**12**
Semester- III		
CE-7xxx	Elective Course-IV	3(3-0)
CE-8999/CE7xxx	Research Thesis/Two Elective Courses	6(0-6)/6(6-0)
	Total	**03+06=09**
	Total Credit Hours	**30**

Program Structure

Core Courses			
Course Title	**Credits**	**Course Title**	**Credits**
Advanced Soil Mechanics	3	Advanced Concrete Technology	3
Transportation Planning and Engineering	3	Research Methodology	-
Hydraulic Structures	3		
Elective Courses			
Advanced Structural Analysis	3	Soil Dynamics	3
Advanced Reinforced Concrete	3	Design of Tunnel & Underground Structures	3
Properties of Structural Materials	3	Tunnel Construction Methods	3
Prestressed Concrete	3	Pavement Analysis and Design	3
Bridge Engineering	3	Traffic Engineering and Management	3
Structural Dynamics	3	Railway Engineering	3
Advanced Steel Structures	3	Geometric Design and Highway Safety	3
Finite Element Method	3	Traffic Impact and Safety Studies	3
Advanced Solid Mechanics	3	Hydropower Engineering	3
Foundation Engineering	3	Irrigation Engineering and Practices	3
Deep Foundations	3	Groundwater Engineering	3
Geotechnical Investigations	3	Application of RS and GIS	3
Soil Improvement Techniques	3	Advance Open Channel Hydraulics	3
Rock Mechanics	3	Soil Erosion and Watershed	3
Earth Retaining Structures	3	Applied Hydrology	3

Master of Science in Mechanical Engineering (MS ME)



Vision

The vision of our graduate Mechanical Engineering program is to develop engineers with exceptional professional and leadership skills. These graduates will excel in tackling professional and research challenges in Mechanical Engineering and related fields, leveraging an interdisciplinary and innovative approach to address global issues. Our aim is to prepare individuals capable of competing and contributing on a global scale.

Mission

The mission of the graduate Mechanical Engineering program is to cultivate technically proficient, innovative graduates who excel as industry leaders, valuable contributors to society, and ethical entrepreneurs. The program is committed to preparing individuals to address the evolving challenges of industry and society with integrity and ingenuity.

Program Learning Outcomes (PLOs)

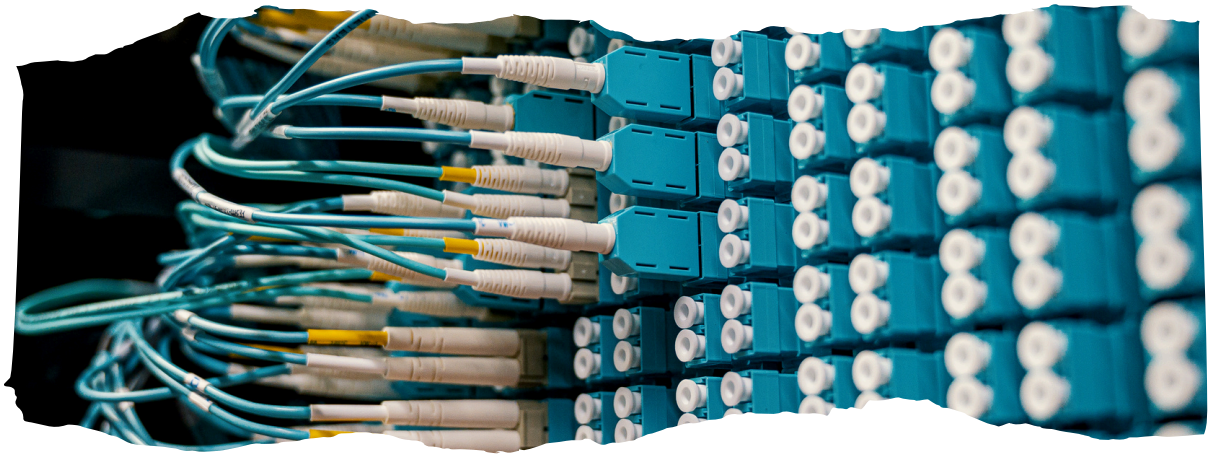
The graduate will be able to:

- Demonstrate in - depth knowledge of a particular subject area and broad inter disciplinary knowledge of other areas in Mechanical Engineering.
- Plan and conduct applied research that addresses specific questions of significance in a particular area in Mechanical Engineering.
- Apply analytical and conceptual skills to solve Mechanical Engineering problems both individually and as a part of team using innovative techniques to develop an effective relationship between theory, research and practice.
- Exhibit research communication, collaboration and mentoring skills in the role of as a professional team members and team leaders.
- Enter the workforce for planning, organizing, developing, managing, and maintaining Mechanical Engineering projects.

Curriculum (MS ME)

Semester - I		
Course Code	**Course Title**	**Credits**
ME-xxxx	Core Course - I	3(3-0)
ME-xxxx	Core Course - I	3(3-0)
ME-xxxx	Elective Course - I	3(3-0)
RM -xxxx	Research Methodology	1(1-0)
	Total	**10-0**
Semester - II		
ME-xxxx	Core Course - III	3(3-0)
ME-xxxx	Core Course - IV	3(3-0)
ME-xxxx	Elective Course - II	3(3-0)
ME -xxxx	Elective Course - III	3(3-0)
	Total	**12-0**
Semester - III		
ME-xxxx	Core Course - V	3(3-0)
ME-xxxx	Research thesis/ Two Elective Courses	6(0-6)
	Total	**3 + 6 =9**

MS Computer Engineering (MS CEN)



Master of Science Computer Engineering (MSCEN) at NUTECH prepares students for advanced study, research, and industrial practice in the field of computer engineering. The industry- oriented curriculum of MS Computer Engineering provides the right blend of core courses and electives which are grouped into following areas: Data Science and Systems, AI, Robotics and Computer vision, Cyber physical systems, Hardware systems etc., and optional Thesis.

Our Master of Science Computer Engineering degree program will prepare the students for the following careers:

- AI/Machine Learning Research Engineer
- Data Scientist/ Analyst
- Network Engineer
- Computer Vision Engineer
- IoT Engineer
- Robotics Engineer
- Embedded Systems Engineer
- Cybersecurity Analyst
- Software Developer

Program Educational Objectives (PEOs)

The educational objectives of MS CEN program are stated below:

- To apply theoretical, practical knowledge and provide innovative solutions of complex engineering problems in Computer Engineering and allied domains.
- To demonstrate satisfactory interpersonal skills as an individual and in a team with the help of effective oral and written communication.
- To pursue continual professional development, lifelong learning and sustainable growth of the society.

Program Learning Outcomes (PLOs)

The MS CEN program prepares students to attain the educational objectives by ensuring that the student should be:

- Able to understand theoretical and practical knowledge in Computer Engineering and allied domains.
- Able to do research and provide innovative solutions of complex engineering problems using state-of-the-art methodologies.
- Able to demonstrate satisfactory interpersonal skills with the help of effective oral and written communication.

Curriculum (MS CEN)

Semester I		
Course Code	**Course Title**	**Credits**
CEN-XXXX	Core Course-I	3 (3-0)
CEN-XXXX	Core Course-II	3 (3-0)
RM-XXXX	Research Methodology (1 contact hour -noncredit)	-
CEN-XXXX	Elective-I	3 (3-0)
	Total	**9**
Semester II		
Course Code	**Course Title**	**Credits**
CEN-XXXX	Core Course-III	3 (3-0)
CEN-XXXX	Elective-II	3 (3-0)
CEN-XXXX	Elective-III	3 (3-0)
CEN-XXXX	Elective-IV	3 (3-0)
	Total	**12**
Semester III		
Course Code	**Course Title**	**Credits**
CEN-XXXX	Elective-V	3 (3-0)
CEN-XXXX	Thesis	6(0-6)
	Total	**9**
	Grand Total	**30**

MS Artificial Intelligence Engineering (MS AIE)

Program Educational Objectives

The educational objectives of MS AIE program are stated as below:

- **Innovative Problem-Solving:** Graduates will demonstrate the ability to apply advanced AI techniques and tools to design and implement innovative solutions for complex real-world problems across various industries.
- **Leadership and Collaboration:** Graduates will exhibit leadership in AI-driven projects and work collaboratively in multidisciplinary teams, effectively communicating AI concepts and solutions to both technical and non-technical stakeholders.
- **Lifelong Learning and Research:** Graduates will engage in continuous learning and contribute to the advancement of AI through research and development, staying abreast of emerging trends and technologies in Artificial Intelligence and related fields.

Learning Outcomes

The MS AIE program prepares students to attain the educational objectives by ensuring that the student should be:

- Able to understand theoretical and practical knowledge of both AI and Engineering and allied domains.
- Able to do research and provide innovative solutions of complex engineering problems using state-of-the-art methodologies.
- Able to demonstrate satisfactory interpersonal skills with the help of effective oral and written communication.
- Able to engage in continuous learning and conduct research that advances the field of AI, while staying informed about emerging trends and technologies in AI and related domains.

Curriculum (MS AIE)

Semester I Courses	Cr Hrs
Core Course-I	3
Core Course-II	3
Applied Programming in Python (1 contact hour -noncredit)	-
Research Methodology (1 contact hour -noncredit)	-
Elective-I	3
Total	**9**
Semester II Courses	**Cr Hrs**
Core Course-III	3
Elective-II	3
Elective-III	3
Elective-IV	3
Total	**12**
Semester III Courses	**Cr Hrs**
Elective-V	3
Thesis	6
Total	**9**

Program Structure

Core Courses					
Ser	**Course Title**	**Cr.Hr.**	**Ser**	**Course Title**	**Cr.Hr.**
1	Tools and Techniques for AI Engineering	3	4	Trustworthy AI Engineering	3
2	Machine Learning for Engineers	3	5	GPU Programming	3
3	Deep learning for Engineers	3	6	Advanced Algorithms Analysis & Design	3
Elective Courses					
Artificial Intelligence and Machine Learning			**Software Engineering and Development**		
1	Hardware Architectures for AI	**3**		Advanced Software Engineering	**3**
2	Reinforcement Learning	**3**	**18**	Game Design and Development	**3**
3	Computer Vision	**3**	**Robotics, Automation and Control**		
4	Natural Language Processing	**3**	**19**	Robotics	**3**
5	Intelligent Systems	**3**	**20**	Industrial Automation	**3**
Data Science and Analytics			**21**	System Identification, Modeling and Simulation	**3**
6	Data Engineering and Analytics	**3**	**22**	Fault Diagnostics and Prognostics	**3**
7	Data Mining	**3**	**23**	Virtual Reality	**3**
8	Advanced Database Management Systems	**3**	**24**	**Entrepreneurship**: A New Venture	**3**
High- Performance and Distribute Computing			**25**	**Case Studies and Projects**	**3**
9	Multi-core Computing	**3**	**26**	**Special topics in AI Engineering Like:**	
10	Parallel and Distributed Computing	**3**		AI for Energy Systems	**3**
11	Cloud and Distributed Computing	**3**		Autonomous Vehicles	**3**
Cybersecurity and Emerging Technologies				AI in Healthcare	**3**
12	Cyber Security	**3**		Wearables and Physical Computing	**3**
13	Blockchain	**3**		Wireless and Mobile Health	**3**
Embedded Systems and IoT				Industry 4.0	
14	Internet of things	**3**		Data Science and Advance topics	**3**
15	Cyber Physical Systems	**3**		Artificial Intelligence Engineering	**3**
16	Edge Computing	**3**		(transportation, smart cities, Manufacturing, etc.)	
				Biomedical Engineering	**3**
				Climate Change and Solutions	**3**
				Building Information Modeling	**3**
				Advance Python and Web	**3**
				Prototyping	**3**

Master of Science Computer Science (MS CS) - 2 Years

Program Objectives

A postgraduate study in Computer Science provides intensive preparation in the concepts and techniques related to the design, programming, and application of computing systems. Undergraduate students will be provided with a deep understanding of both advanced and important current issues in computer science. The graduated students will be able to

1. Create, share, and apply knowledge in Computer Science, including interdisciplinary areas and the entrepreneurial skills, that extend the scope of CS and benefit humanity;
2. Be successful and effective problem-solvers and life-long learners who will contribute positively to the economic well-being of society.
3. Contribute to applied scientific research in the emerging field of various technologies.

In addition, students will demonstrate knowledge and understanding of professional ethics and responsible behavior.

Program Learning Outcomes (PLOs)

The graduates will be able to:

- Demonstrate in-depth knowledge of a particular subject area and broad knowledge of other areas in Computer Science.
- Plan and conduct applied research that addresses specific questions of significance in a particular subject area in Computer Science.
- Exhibit good understanding of and the ability to follow professional ethics in research, teaching, and professional service, including global culture awareness and environment impact.

Cont...

- Exhibit technical communication, collaboration and mentoring skills in the roles as team members and team leaders in research and development in computing fields.
- Enter the workforce for effective planning, designing, organizing, developing, managing and maintaining informatics systems.

MS CS Curriculum

Semester- I		
Course Code	**Course Title**	**Credits**
CS-xxxx	Core Course - I	3(3-0)
CS-xxxx	Core Course - II	3(3-0)
CS-xxxx	Core Course - III	3(3-0)
RM6000	Research Methodology	-
	Total	**9**
Semester-II		
CS-xxxx	Core Course – IV	3(3-0)
CS-xxxx	Elective Course – I	3(3-0)
CS-xxxx	Elective Course – II	3(3-0)
CS-xxxx	Elective Course – III	3(3-0)
	Total	**12**
Semester- III		
CS-xxxx	Elective Course-IV	3(3-0)
CS8999	Research Thesis	6(0-6)
	Total	**9**
	Total Credit Hours	**30**

Master of Science Artificial Intelligence (MS AI) - 2 Years

Program Objectives

The primary objective of a Master of Science Artificial Intelligence program is to equip students with the advanced knowledge, skills, and expertise necessary to excel in the rapidly evolving field of AI. Through rigorous coursework and research opportunities, students gain a deep understanding of core AI concepts, algorithms, and methodologies. MSAI program will prepare students for diverse career opportunities in industry, academia, government, and research institutions as AI engineers, data scientists, AI researchers, consultants, or entrepreneurs.

Program Learning Outcomes (PLOs)

The graduates will be able to:

- Comprehend knowledge and understanding of core concepts, theories, and techniques in artificial intelligence.
- Analyze complex problems and develop innovative AI solutions to address real-world challenges across various domains and industries.
- Develop research capabilities to conduct independent research, contribute to the advancement of AI knowledge, and publish findings in academic journals or present at conferences.

MS AI Curriculum

Semester- I		
Course Code	**Course Title**	**Credits**
CS-xxxx	Core Course - I	3(3-0)
CS-xxxx	Core Course - II	3(3-0)
CS-xxxx	Core Course - III	3(3-0)
RM6000	Research Methodology	-
	Total	**9**
Semester-II		
CS-xxxx	Core Course – IV	3(3-0)
CS-xxxx	Elective Course – I	3(3-0)
CS-xxxx	Elective Course – II	3(3-0)
CS-xxxx	Elective Course – III	3(3-0)
	Total	**12**
Semester- III		
CS-xxxx	Elective Course-IV	3(3-0)
CS8999	Research Thesis	6(0-6)
	Total	**9**
	Total Credit Hours	**30**

Master of Science Software Engineering (MS SE) - 2 Years

Program Objectives

The core objective of a Master of Science Software Engineering program is to provide students with advanced knowledge and skills in software development, including programming languages, software architecture, design patterns, and development methodologies. MSSE program is a combination of coursework and research and will prepare students to contribute to the advancement of software engineering knowledge through research projects, thesis work, or collaborations with industry partners.

Program Learning Outcomes (PLOs)

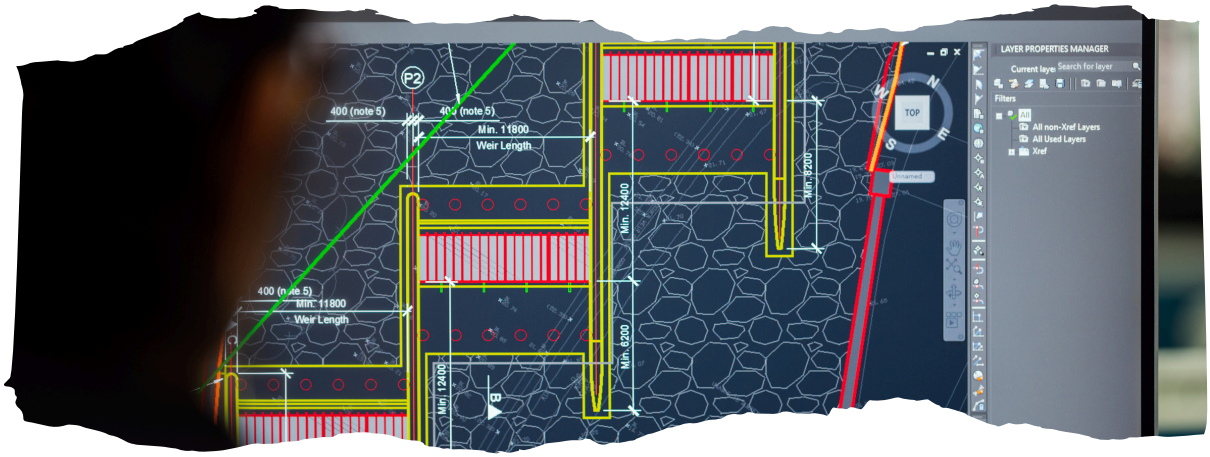
The graduates will be able to:

- Understand the fundamental principles and best practices of software engineering, such as requirements engineering, software testing, software maintenance, and project management.
- Identify, analyze, and address complex software issues, optimizing system performance and reliability.
- Develop professionalism in software engineering practice, including issues related to privacy, security, intellectual property, and social responsibility.
- Develop research capabilities to conduct independent research, contribute to the advancement of software engineering knowledge, and publish findings in academic journals or present at conferences.

MS SE Curriculum

Semester- I		
Course Code	**Course Title**	**Credits**
CS-xxxx	Core Course - I	3(3-0)
CS-xxxx	Core Course - II	3(3-0)
CS-xxxx	Core Course - III	3(3-0)
RM6000	Research Methodology	-
	Total	**9**
Semester-II		
CS-xxxx	Core Course – IV	3(3-0)
CS-xxxx	Elective Course – I	3(3-0)
CS-xxxx	Elective Course – II	3(3-0)
CS-xxxx	Elective Course – III	3(3-0)
	Total	**12**
Semester- III		
CS-xxxx	Elective Course-IV	3(3-0)
CS8999	Research Thesis	6(0-6)
	Total	**9**
	Total Credit Hours	**30**

PhD in Computer Engineering (PhD CEN)



Introduction

The Department of Computer Engineering at NUTECH proposes a PhD program in Computer Engineering to drive cutting-edge research and innovation in the rapidly evolving world of technology. As industries embrace AI, IoT, robotics, Embedded systems and high-performance computing, the demand for visionary researchers and problem-solvers continues to grow.

This program will empower scholars to push the boundaries of knowledge in fields such as applied Artificial Intelligence and Machine Learning, Computer Vision, Robotic and Automation, Natural Language Processing, Embedded Systems, Digital Twins, and Renewable Energy & Green Computing. Through applied research, interdisciplinary collaboration, and industry engagement, graduates will pioneer solutions that shape the future of computing.

Program Educational Objectives (PEOs)

The educational objectives of PhD CEN program are stated as below:

- **Research Excellence:** Develop scholars with the capability to conduct high-quality research in key areas of Computer Engineering.
- **Industry Impact:** Foster innovation and provide solutions to industry challenges through applied research.
- **Global Competitiveness:** Establish NUTECH as a leading institution in advanced research in Computer Engineering.
- **Human Resource Development:** Prepare a highly skilled workforce to contribute to Pakistan's economic and technological advancement.

Program Learning Outcomes (PLOs):

The learning outcomes of PhD CEN program are stated as below:

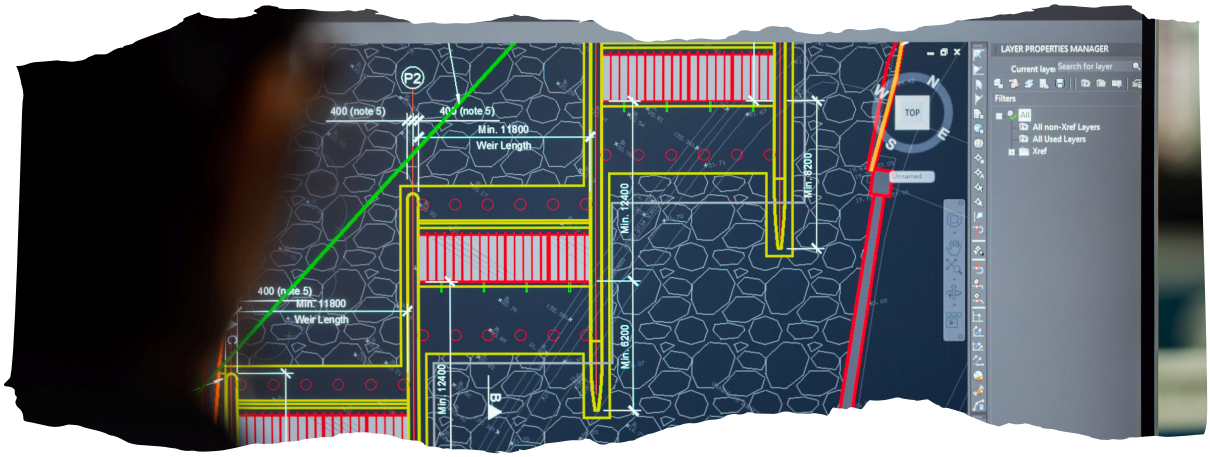
- **Advanced Knowledge and Expertise:** Demonstrate in-depth understanding of theoretical and practical knowledge in core and emerging areas of Computer Engineering.
- **Research Proficiency:** Conduct high-quality, independent research to develop innovative solutions for complex engineering problems.
- **Industry-Centered Innovation**: Translate research outcomes into practical applications, addressing local and global industry challenges.
- **Global and Interdisciplinary Competence:** Engage with international research communities and integrate knowledge from interdisciplinary domains to enhance problem-solving capabilities.

Curriculum (PhD CEN)

Semester I Courses	**Cr Hrs**
Course-I	3
Course-II	3
Course-II	3
Total	**9**
Semester II Courses	**Cr Hrs**
Course- IV	3
Course-V	3
Course-VI	3
Total	**9**
Semester III Courses (Onwards)	**Cr Hrs**
Thesis	30
	Total Credit Hours: 48

Ser	Course Title	Cr.Hr.	Ser	Course Title	Cr.Hr.
1	Advanced Computer Architecture	3	22	Human Computer Interface	3
2	Advanced Software Engineering	3	23	Advance digital image processing	3
3	Advanced Computer Network	3	24	Computer Vision	3
4	Advanced Embedded Systems Design	3	25	Robotics	3
5	Advanced Database Management Systems	3	26	Advanced Control Systems	3
6	Advanced Algorithms Analysis & Design	3	27	Intelligent Control Systems	3
7	Advanced Computer Networks	3	28	Industrial Automation and Control	3
8	Advanced Microprocessor Systems	3	29	Virtual reality	3
9	ASIC and FPGA Design	3	30	Game Design and Development	3
10	Artificial Intelligence	3	31	Cyber Physical Systems	3
11	VLSI Principles and Applications	3	32	Fault Diagnosis	3
12	Machine Learning	3	33	Internet of Things	3
13	Hardware Architectures for Machine Learning	3	34	Distributed System	3
14	Machine Learning for Embedded Systems	3	35	Parallel Processing	3
15	Deep Learning		36	Wireless Sensor Networks	3
16	TinyML and Efficient Deep Learning Computing	3	37	Wireless and Digital Communications	3
17	Data Science	3	38	Cloud Computing	3
18	Data Mining		39	Nanotechnology	3
19	Big Data Analytics	3	40	Advanced Topics in Computer	3
20	Modeling and Simulation	3	41	Case Studies and Projects	3
21	Web Technologies	3			

PhD Computer Science (PhDCS)



Program Objectives

The PhD Computer Science program at NUTECH aims to advance cutting-edge research in key domains such as Artificial Intelligence, Cybersecurity, Software Engineering, Data Science, and emerging computing paradigms. The program is designed to strengthen the research ecosystem by fostering collaborations with industry and academia at both national and international levels. It seeks to produce highly skilled scholars equipped with advanced knowledge, critical thinking abilities, and problem-solving expertise to address complex technological challenges. The graduated students will be able to:

- Attain advanced knowledge and skills in computational sciences to address societal and industrial challenges through purposeful education and innovation.
- Foster ethical and impactful innovation by enabling students to conduct original, high-quality research in computer science, translating findings into practical solutions, startups, and technologies that advance knowledge and drive economic and social progress.
- Empower scholars to generate meaningful research contributions, including peer-reviewed publications, conference presentations, and technical reports, to enrich the global academic and professional community.

Learning Outcomes

The educational objectives of PhD CEN program are stated as below:

- Lead and innovate in academia, industry, or entrepreneurship by directing research teams, developing cutting-edge technologies, or teaching at the university level.
- Address real-world challenges by applying advanced computational knowledge and research to solve pressing societal and industrial problems, in alignment with the university's vision of serving society.
- Embody ethical and innovative values by contributing to the global knowledge economy through discovery, responsible innovation, and a commitment to social and ethical

Curriculum (PhD CS)

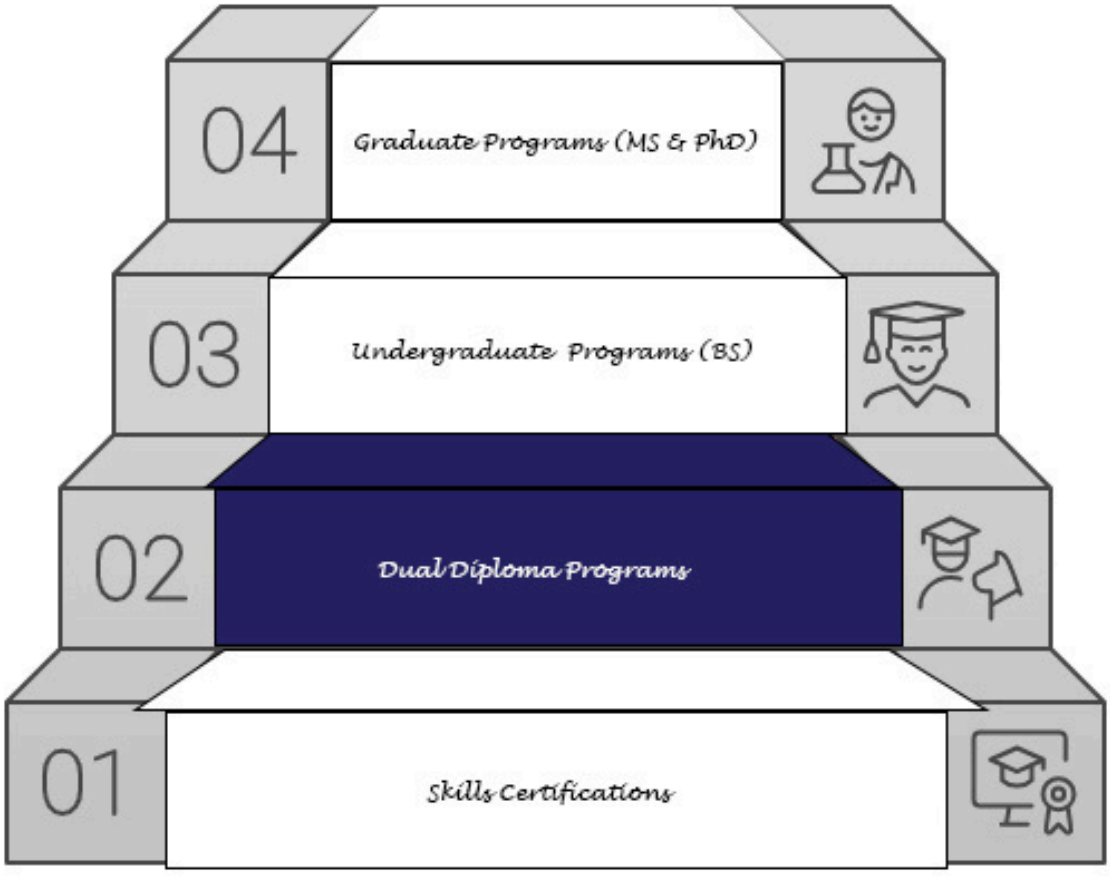
Semester- I		
Course Code	**Course Title**	**Credits**
CSxxx	Elective – I	3
CSxxx	Elective – II	3
CSxxx	Elective – III	3
	Total	**9**
Semester-II		
CSxxx	Elective – I	3
CSxxx	Elective – II	3
CSxxx	Elective – III	3
	Total	**9**
Semester- III (onwards)		
CSxxx	Research Thesis	30
	Total Credit Hours	**48**

Elective Courses

At least six elective courses must be taken from among the available specializations. Specialization courses enable students to develop advanced expertise in their chosen area of specialization. Currently, following specializations are being offered:

Artificial Intelligence • Advanced Topics in Artificial Intelligence • Transfer Learning and Applications • Computer Vision • Knowledge-based AI • Advanced Machine Learning • Natural Language Processing • Pattern Recognition • Medical Image Analysis • Computational Data Analysis • Probabilistic Modelling and Reasoning • Fuzzy Reasoning • Deep Learning and Generative Models	**Databases** • Distributed DBMS • Information Retrieval Techniques • Database System Implementation • Database System Concepts and Design • Object-Oriented Database Models and Systems • Temporal, Spatial, and Active Databases • Parallel and Distributed Database Systems and Applications • Cloud Computing • Data Mining	**Computer Networks** • Advanced Computer Networks • Wireless Networks • Network Security • Network Performance Evaluation • Data Communications • Server & Distributed Systems • Telecommunication Systems • Cyber Security • Data Security & Cryptography • Networks Software Design • Mobile and Pervasive Computing
Software Engineering • Software Development Process • Advanced Topics in Software Engineering • Software Architecture and Design • Software Requirements Analysis and Specification • Software Generation, Testing, and Maintenance • Software Analysis and Testing • Special Topics: Formal Modeling and Analysis of Computing Systems • Machine Learning for Software Engineering	**Data Science** • Statistical and Mathematical Methods for Data Science • Tools and Techniques in Data Science • Web Mining • Knowledge Discovery • Data Mining • High Performance Analytics for Data Science • Knowledge Graphs • Blockchain • Transaction Mining and Fraud Detection • Time Series and Spatial Analysis	**Cybersecurity & Blockchain** • Ethical Hacking & Penetration Testing • Digital Forensics & Incident Response • Blockchain & Cryptocurrency Technologies • Cybersecurity Risk Management • Cryptography & Network Security • IoT Security • Zero Trust Security Architectures

NATIONAL QUALIFICATION FRAMEWORK



Dual Diploma Programs
(2 Years at NUTECH, 1 Year in China)

Programs	No of seats	Admission Requirements	Entry Test & Merit Criteria
Software Technology	25	. 50% in Matric with Science . Valid Passport before Start of Classes . Age Limit. 16 – 21 Years	SSC based Syllabus (English, Mathematics, Physics, Chemistry) Entry Test (50%) SSC/Equivalent (50%)
Big Data Technology	25		
Mechatronics Technology	25		

Fee Structure

Type of Fee	PKR (RS)
Appl Processing Fee (at the time of Registration & Non Refundable)	2,000
Admission Fee (one-time & Non-Refundable)	5,000
Security Deposit (one time & Refundable)	5,000
Monthly Fee (to be paid on quarterly basis)	15,000
At the time of Admission Total fee	**55,000**

DAE Software Technology

The DAE SINO PAK Dual Diploma program is a collaborative effort between Pakistani and Chinese educational institutions, tailored to meet industry demands. With a carefully planned curriculum, students gain a mix of theoretical knowledge and practical skills needed for today's job market. From language and math basics to specialized training in software and database management, graduates are well-prepared for various industries. They emerge as adaptable professionals ready to contribute to both nations' economies and beyond.

The target industries for graduates are software development houses, IT services centers, telecommunications hubs, finance departments, e-commerce marketplace, and manufacturing units. Their skill set encompasses proficiency in programming languages such as Java, SQL, and HTML5, along with expertise in software development, database management, and networking. They become well-equipped to pursue careers as software developers, database administrators, network engineers, project managers, and IT consultants, among others, in both local and global contexts.

Program Learning Outcomes (PLOs)

PLO1 (Foundational Knowledge): Acquire a solid understanding of foundational subjects including Islamiat & Pakistan Studies, English, Chinese Language, Applied Mathematics, Applied Physics, and Applied Chemistry, providing a well-rounded educational background.

PLO2 (Computer Applications Proficiency): Develop proficiency in computer applications and software, including programming languages such as Java, SQL, and HTML5, along with hands-on experience in Android app development and web development.

PLO3 (Database Management Skills): Gain expertise in relational database management systems (RDBMS), including concepts such as database design, SQL programming, and database administration.

PLO4 (Networking and Operating Systems): Understand the principles of computer networks, operating systems, and digital logic design, preparing for roles involving system administration and network management.

PLO5 (Advanced Development Techniques): Explore advanced topics in software development, including machine learning applications, graphic designing, and technic of entrepreneurship principles to foster innovation and adaptability in the software industry.

PLO6 (Project Management and Entrepreneurship): Develop project management skills through project training modules, culminating in the ability to plan, execute, and deliver software projects effectively. Additionally, gain an understanding of entrepreneurship principles to foster innovation and adaptability in the software industry.

PLO7 (Cross-Cultural Competence): Acquire proficiency in Chinese language and understanding of Chinese culture, enhancing cross-cultural communication skills and preparing for opportunities in international collaborations and ventures.

Software Technology Curriculum

Courses: 1st Year (NUTECH, Pakistan)				
Course Code	Course Title	Theory	Practical	Credits
Gen-111	Islamiat & Pakistan Studies-1	1	0	1
Eng-112	English	2	0	2
Chinese-112	Chinese Language-1	2	0	2
Math-123	Applied Mathematics-I	3	0	3
Phy-132	Applied Physics	1	3	2
Chem-132	Applied Chemistry	1	3	2
CIT-112	Computer Application S/W	0	6	2
SWT-112	Introduction to Computer Programming with JAVA	1	3	2
SWT-122	Introduction to database concept and SQL programming	1	3	2
SWT-132	Basics of HTML5 Web Development	1	3	2
	Total	13	21	20
Courses: 2nd Year (NUTECH, Pakistan)				
Gen-211	Islamiat & Pakistan Studies-2	1	0	1
Math-233	Applied Mathematics-2	3	0	3
Mgmt.-211	Business Communication	1	0	1
GenC-212	Chinese Language-2	2	0	2
MgmC-212	Understanding China	2	0	2
CIT-223	Computer Networks	2	3	3
MTR-272	Digital Logic Design	1	3	2
SWT-212	Basics of Android App Development	1	3	2
SWT-223	Web Development w/JAVA	1	6	3
CIT-263	Relational Data-Base Management System	2	3	3
CIVIL-271	Entrepreneurship	1	0	1
SWT-231	Project Training-I	0	3	1
	Total	17	21	24
Courses: 3rd Year (TANG Institute, China)				
GenC-312	Chinese Language-3	1	0	1
Eng.-311	Technical Report Writing	1	0	1
CIT-344	Graphic Designing	2	6	4
CIT-333	Operating System	2	3	3
SWT-312	Advanced HTML 5 Web Development	1	3	2
SWT-322	Advanced Development with JAVA	1	3	2
SWT-332	Machine Learning Applications	1	3	2
SWT-342	Advanced Android App Development	1	3	2
SWT-351	Project Training-I	0	3	1
	Total	10	24	18

Big Data Technology

The DAE SINO PAK Big Data Technology Program represents a pioneering collaboration between Pakistani and Chinese educational institutions, offering a comprehensive curriculum tailored to meet the evolving demands of the data-driven industry. Anchored in a structured study scheme spanning three years, this program equips students with the knowledge and skills necessary to excel in the dynamic field of big data analytics. With a focus on proficiency in programming languages such as Python, SQL, and Java, coupled with hands-on experience in databases, data modeling, and data integration, students develop a strong foundational understanding of big data concepts. The program emphasizes technical expertise in frameworks like Hadoop and Spark, empowering students to analyze large datasets, derive actionable insights, and effectively communicate findings to diverse stakeholders. Furthermore, the curriculum instills principles of data governance, quality assurance, and problem-solving, fostering innovation and adaptability in a rapidly evolving technological landscape. By promoting continuous learning and collaboration, graduates emerge as highly skilled professionals equipped to address complex business challenges and drive innovation in the burgeoning field of big data technology.

The graduates DAE Big Data Technology are highly across private, semi-government, and government sectors, as well as internationally, due to the increasing demand for skilled professionals in areas such as Big Data Analysis, Software Engineering, Database Administration, Web Programming, and more. Graduates are equipped for various roles including Big Data Analyst, Software Engineer, Database Administrator, and Web Programmer, making them highly sought-after assets in industries requiring expertise in monitoring, upgrading, and securing Big Data nodes. Additionally, opportunities extend to roles like Assistant Developer, Junior Database Administrator, and Web Development Supervisor, as well as positions in project management and freelancing platforms like Fiverr and Upwork.

Program Learning Outcomes

- **PLO1 (Fundamental Understanding):** Develop a strong foundational understanding of big data concepts, including databases, data modeling, and data integration, alongside proficiency in programming languages commonly used in big data applications.
- **PLO2 (Technical Expertise)**: Acquire proficiency in big data processing frameworks such as Hadoop and Spark, with the ability to analyze large datasets, derive insights, and present findings effectively using tools like Python and SQL.
- **PLO3 (Data Governance and Quality Assurance):** Understand the importance of data frameworks, policies, and practices to ensure data quality, integrity, and availability, and apply them in real-world scenarios.
- **PLO4 (Problem Solving and Innovation):** Cultivate the ability to identify business problems that can be addressed with big data analytics and develop innovative solutions, demonstrating independent problem-solving skills and creativity.

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- **PLO5 (Communication and Collaboration):** Develop effective communication skills to articulate complex technical concepts to diverse stakeholders, collaborate effectively with team members, and adapt to the rapidly evolving nature of big data technology.
- **PLO6 (Continuous Learning and Adaptation):** Foster a mindset of continuous learning and adaptation to keep pace with advancements in big data technology, enhancing social adaptability and employability in dynamic professional environments.

Big Data Technology Curriculum

Courses: 1st Year (NUTECH, Pakistan)				
Course Code	Course Title	Theory	Practical	Credits
Gen-111	Islamiat & Pakistan Studies	1	0	1
Eng-112	English	2	0	2
GenC-112	Chinese Language-1	2	0	2
Math-123	Applied Mathematics-I	3	0	3
Phy.-132	Applied Physics	1	3	2
Ch.-132	Applied Chemistry	1	3	2
SWT-112	Introduction to Computer Programming with JAVA	1	3	2
SWT-122	Introduction to database concepts and SQL programming	1	3	2
SWT-132	Basics of HTML5 Web Development	1	3	2
BDT-111	Introduction to Big Data	1	0	1
BDT-112	Linux Technology Application	1	3	2
BDT-121	Computer Tool Software Application	0	3	1
	Total	15	21	22
Courses: 2nd Year (NUTECH, Pakistan)				
Gen-211	Islamiat & Pak Studies	1	0	1
Math-233	Applied Mathematics-II	3	0	3
Mgm-211	Business Communication	1	0	1
GenC-212	Chinese Language-2	2	0	2
MgmC-212	Understanding China	2	0	2
SWT-223	Web Development with JAVA	1	6	3
CIVIL-271	Entrepreneurship	1	0	1
BDT-212	Python Programming Basics	1	3	2
BDT-222	Data Structure	1	3	2
BDT-232	Introduction to Distributed Computing in Cloud	1	3	2
BDT-242	Data Management	1	3	2
	Total	15	18	21
Courses: 3rd Year (TANG Institute, China)				
Course Code	Course Title	Theory	Practical	Credits
Gen-311	Islamiat & Pak Studies	1	0	1
BDT-311	Career planning and employment guidance	1	0	1
BDT-313	Big Data Foundation and Application	1	6	3
BDT-312	Data Acquisition Technology	1	3	2
BDT-322	Data Preprocessing Technology	1	3	2
BDT-323	Data Mining Application	1	6	3
BDT-333	Application of Big Data Analysis Technology	1	6	3
BDT-343	Data Visualization Technology and Application	1	6	3
GenC-312	Profession Chinese	2	0	2
	Total	10	30	20

DAE Mechatronics

The DAE Sino-Pak Dual Diploma program in Mechatronics combines Pakistani and Chinese educational strengths, providing students with a focused curriculum spanning three years. Through a blend of theoretical knowledge and practical skills, students develop expertise in interdisciplinary mechatronics principles, including electrical basics, mechanical systems dynamics, and programming proficiency. Graduates emerge equipped with the necessary competencies for success in the global engineering landscape, demonstrating proficiency in project management, communication, and ethical decision-making.

Graduates of this program are highly employable in various industries due to their interdisciplinary skill set and practical experience. With expertise in areas such as electrical and electronics basics, mechanical systems and dynamics, control systems and automation, programming, and project management, graduates are well-equipped to pursue careers in robotics, automation, manufacturing, automotive, aerospace, and beyond. Their ability to apply theoretical knowledge to real-world challenges, coupled with strong communication and teamwork skills, makes them valuable assets to employers seeking innovative solutions and efficient operations.

Program Learning Outcomes

- **PLO1 (Fundamental Understanding):** Graduates will demonstrate a comprehensive understanding of the interdisciplinary nature of mechatronics, integrating principles from mechanical, electrical, and computer engineering.
- **PLO2 (Sensor and Actuator Proficiency):** Students will be proficient in the selection, application, and integration of sensors and actuators, understanding their role in converting physical signals to electrical signals and vice versa.
- **PLO3 (Control Systems Mastery):** Graduates will master the concepts of feedback control systems and their application in automation and robotics, including the design and analysis of PID controllers and stability analysis.
- **PLO4 (Electrical and Electronics Knowledge):** Students will possess a strong foundation in basic electrical circuits, components, and laws, as well as the principles of digital electronics, enabling them to apply these concepts to mechatronic systems.
- **PLO5 (Programming and Software Development Skills):** Graduates will develop programming skills in languages such as C/C++, Python, or MATLAB, allowing them to control mechatronic systems and analyze data effectively. They will also be proficient in software tools and platforms commonly used in mechatronics, such as CAD software for design and simulation tools for modeling dynamic systems.
- **PLO6 (Robotics and Automation Expertise):** Students will acquire expertise in robotic kinematics, dynamics, and trajectory planning, as well as practical experience in programming and operating industrial robots for various tasks in manufacturing and automation.

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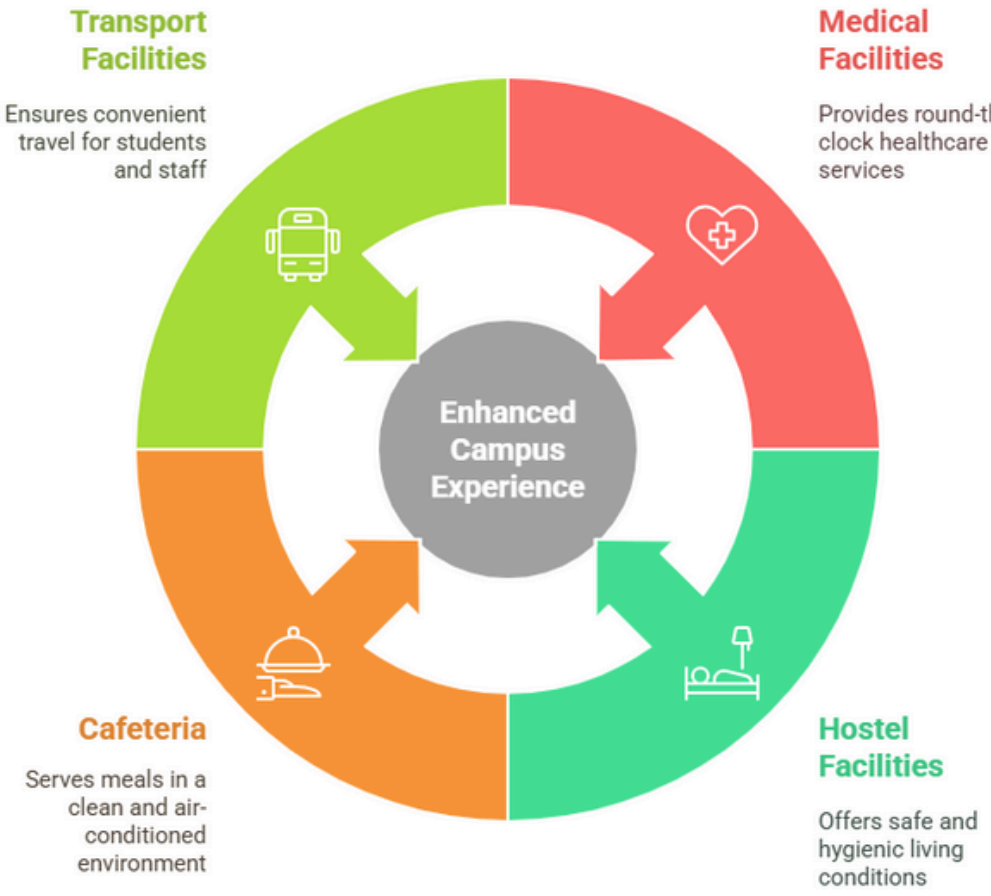
- **PLO7 (Project Management and Professionalism):** Graduates will develop project management skills, including planning, scheduling, and risk management, as well as effective communication and teamwork skills. They will also adhere to professional ethics, standards, and safety regulations relevant to the field of mechatronics engineering.
- **PLO 8 (Cultural and Economic Understanding):** Gain a comprehensive understanding of Chinese culture, history, and economic systems, enabling effective communication and collaboration in cross-cultural engineering projects.
- **PLO 9 (Communication Proficiency and Ethical Decision-Making):** Develop the ability to articulate complex engineering concepts effectively and ethically, while demonstrating sensitivity to diverse cultural and ethical perspectives in professional interactions and decision-making processes.

Mechatronics Curriculum

Courses: 1st Year (NUTECH, Pakistan)				
Course Code	Course Title	Theory	Practical	Credits
Gen-111	Islamiat & Pakistan Studies	1	0	1
Eng-112	English	2	0	2
GenC-112	Chinese Language-1	2	0	2
Math-123	Applied Mathematics-I	3	0	3
Phy.-132	Applied Physics	1	3	2
Ch.-132	Applied Chemistry	1	3	2
MTRC-113	Basic Engineering Drawing & CAD – I	1	6	3
COMPC-112	Introduction to Computer Studies & Programing	1	3	2
MTRC-121	Introduction to Mechatronics	1	0	1
MTRC-133	Electrical Essentials	2	3	3
MTRC-143	Workshop Practice a) Metalwork and Machining b) Woodworking c) Welding	1	6	3
MTRC-151	Computer Tool Software Application	0	3	1
	Total	16	27	20
Courses: 2nd Year (NUTECH, Pakistan)				
GEN-201	Islamiat & Pakistan Studies	1	0	1
MATH-212	Applied Mathematics-II	2	0	2
GENC-212	Chinese Languages-II	2	0	2
MGMC-212	Understanding China	2	0	2
MGM-212	Business Communication & Report Writing	1	3	2
MTRC-202	Engineering Materials	1	3	2
MTRC-212	Drives & Linkages	1	3	2
MTRC-222	Sensors & Actuators	1	3	2
MTRC-233	Motors & Generators	2	3	3
MTRC-253	Measuring Instruments	2	3	3
MTRC-263	Electronic Devices & Circuits	2	3	3
MTRC-272	Digital Logic Design	2	3	3
	Total	19	24	27
Courses: 3rd Year (TANG Institute, China)				
Gen -301	Islamiat & Pak Studies	1	0	1
MGMC- 311	Intelligent production and management	1	0	1
MTRC-313	Digital Design & Simulation of Production Line	2	3	3
MTRC-321	Hydraulics & Pneumatics	1	0	1
MTRC-333	Programmable Logic Controllers	2	3	3
MTRC-343	Micro Controller Application Technology	2	3	3
MTRC-353	Fundamentals of Industrial Robotics	2	3	3
MTRC-361	Overview of Artificial Intelligence	1	0	1
MTRC-372	Programming and practical training of CNC machine tools	1	3	2
MTRC-283	Mechanical and Electrical Comprehensive Training	2	3	3
MTRC-392	Project	0	6	2
	Total	15	24	23

NUTECH Campus Facilities



Accommodation Facility/Allotment

- NUTECH provides fully furnished hostel facilities for both **boys** and **girls** students enrolled in various disciplines of the university. Al-Khwarizmi Boys Hostel is situated inside university campus at walking distance of approx. 5 minutes. However, Girls hostel is located in well-developed and secured area of Westridge Rawalpindi.
- Hostel allotment is carried out on **"first come first serve"** basis as per merit maintained by the Hostel Management, the newly admitted students of the University can apply for hostel accommodation at the Hostel management office. Existing students can apply for hostel accommodation through written application to Hostel Management though DSL office. After approval and on availability, the accommodation facility will be provided to the desired students.

Note: The hostel facility is available for outstation students only.

Office of Student Affairs (OSA)

NUTECH strongly believes in overall grooming and personality development of students. NUTECH has dedicated Office of Student Affairs (OSA). The Office contributes to the educational mission of the University by initiating programs and services that support an environment conducive to academic and personal development. OSA Office spares no efforts to empower students and assists them with its innovative character and personality development mechanism in developing their potential as responsible citizens and future leaders.

- **Mandate:** The OSA envisions, plans and organizes University activities related to student services and campus life. Primarily, this office is responsible for serving as a point of information for students and responding to various kinds of students' needs and queries. The Office is also responsible for fostering and implementing the Student Life vision, which is focused on character development and personal formation to help support the mission of National University of Technology (NUTECH). In addition, it is also responsible for the management and supervision of all kinds of co-curricular and extra-curricular activities of NUTECH students. Following are the three main functions of the DSL Office:
- **Student Affairs:** Student Affairs Office serves as a first point of contact and support for students. It is responsible for actively addressing and responding to students' complaints. It acts as a liaison between students and different departments. It also ensures interpretation and implementation of NUTECH policies and regulations and enforce student code of conduct at campus. It encourages suggestions, feedback or comments for improvements in students' facilities such as hostels, cafeterias, dining plans and common rooms.
- **Clubs & Societies:** NUTECH Clubs and Societies strive to instill a sense of teamwork and sportsmanship in students through a variety of activities all centered around building up students' humanistic, artistic and adventurous attributes. Our clubs and societies provide multiple socio-academic opportunities to the students helping them shape their personalities and build their confidence. In its aim to holistically groom students in all endeavors of life, NUTECH has established NUTECH Fine Arts & Creativity Club, NUTECH Adventure Club, NUTECH Social Service Club, NUTECH Green Youth Movement Club, NUTECH Media & Publicity Society and NUTECH Literary & Debating Society.

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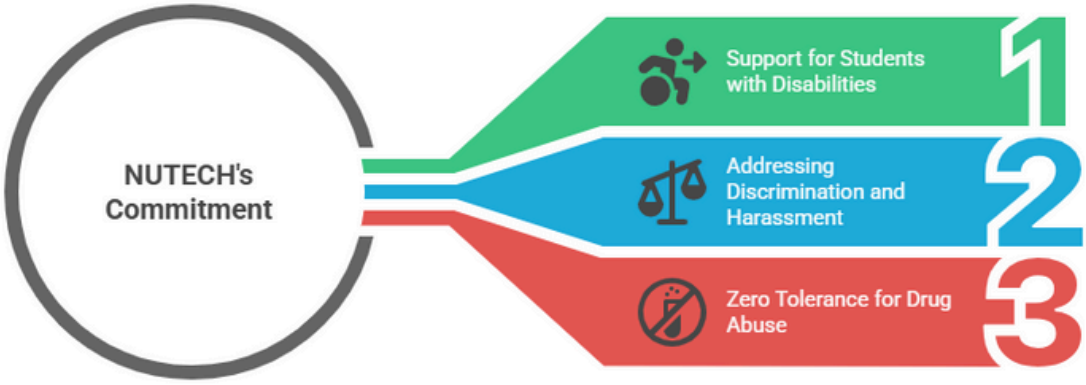
- **Co-Curricular Activities:** The above-mentioned clubs and societies are the main stakeholders in organizing on and off campus co-curricular and extra-curricular activities for students. Such activities are monitored and supervised solely by the DSL Office and are organized to foster comradeship, endurance and many other skills and attributes that help the students in polishing their personality and character.
- **Counselling Cell:** Counselling Cell provides counselling services (individual, group) to help promote emotional health of students and faculty members. It conducts workshops/lectures to faculty members to create conducive learning environment (psychological, emotional aspects). It also promotes students success as it facilitates their future career development. Moreover, it assists students in adapting to the environmental demands and pressures of the university life.



NUTECH Library


- **NUTECH** Library plays a vital role in achieving core objectives of the institution like assisting in imparting quality education, dissemination of relevant and upto date information and helping our users in carrying out extensive research works. It has a seating capacity for about 200 readers. Library is stocked with rich collection of encyclopedias, dictionaries and a large reference collection of text and general interest books.
- **Aim:** To serve our university community in the best possible way in providing requisite and upto date information while affording conducive learning environment.
- **Timings:** Monday – Friday: 09:00 am - 05:00 pm
- Resources: Library has more than 13,500 books and rich collection of research journals / magazines pertaining to engineering and applied sciences. It is also subscribing number of popular magazines for the interest / information of its users.
- **Reference Section:** Reference resources are located at the 6th & 7th floor. These include following:
  - Reference Books: This section consists of dictionaries, encyclopaedias and various titles of course and reference textbooks pertaining to various engineering disciplines.
  - Research Journals / Magazines and General Interest Magazines:
  - NUTECH Library subscribes to variety of quality research journals, general interest magazines and newspapers.
- **Services and Facilities:** NUTECH Library provides different types of services and facilities to its users. These services and facilities are:-

Sr. #	Services	Facilities
01	Online Public Access Catalogue (OPAC)	34 x Research Stations
02	Reference Service	Integrated Library Management System (ILMS)
03	Help Desk Service	5 x Group Discussion Rooms
04	Circulation Desk Service	Plagiarism Detection Software
05	Current Awareness Service (CAS)	
06	Reprographic Service	

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- **NUTECH Digital Library:** NUTECH Library provides access to different databases and more than 23,000 high quality peer reviewed journals and articles through HEC Digital Library Program. Prominent available databases are ASTM, INFORMS, ELIBRARY, PROQUEST, SPRINGERLINK, TAYLOR and FRANCIS, JOHN WILEY – BLACKWELL.
- **Serial Subscriptions:** NUTECH Library has different types of serial subscriptions for the faculty and users. These include IEEE, ASME and DOAJ International Impact Factor Journals / Magazines, General Interest Magazines and Newspapers.
- **Fresh Arrivals:** NUTECH Library regularly updates fresh arrivals on library webpage for faculty, staff, and students.
- **Contact:** NUTECH library is digitally accessible through library webpage https://nutech.edu.pk/library. The users can also contact library staff through telephone extension 180.

NORIIC

- NUTECH Office of Research Industrialization, Internationalization and Commercialization (NORIIC) is established at NUTECH to fulfill its motto of "University for Industry". Objective of NORIIC is to integrate products and market by conducting market research through establishment of industrial linkages and finding avenues for commercialization and internationalization of indigenous products and career development of engineers, engineering technologists, and graduates of NUTECH in other areas of scholarship. Director General heads NORIIC, and manages/oversees the following tasks:
- Integrate NUTECH academics, research and skills education with the existing and emerging technology and skills based needs of industry.
- Facilitates the University in establishing the research links of NUTECH with the industry, business and commercial enterprises.
- Explore possible avenues for the placement of students, researchers and faculty in the industry, national research labs and commercial organizations.
- Arrange resources for promising industry development projects through joint collaborations/interactions with the research funding agencies/companies.
- Remain updated of all the technology and skills based and industry related research and academic projects based developments in the university,
- Interact and strengthen research based commercial relations with the different chambers, associations and representative organizations of national industry,
- Create company(s)/ entities for the future commercialization or industrialization through joint ventures.
- Promote and place NUTECH products in industry, commercial markets through marketing strategies.
- Build-on from the benefits of academic engagement through transformation into commercialization.

Office of Treasurer

Office of treasurer ensures financial viability of NUTECH through transparency, competence and integrity. The office of the treasurer is managed and controlled by “Treasurer" who acts as head of Finance office of NUTECH and as the principal finance officer of the University.

Office of Controller of Examination

Office of the Controller of Examination ensures transparent conduct of examinations with a view to realizing the intended study objectives in line with NUTECH vision. Moreover, it ensures safe custody of academic records with utmost accuracy and security. The Office of the Controller of Examination is responsible to perform inter alia the following functions:

- Establishes strong, reliable, secure and credible examination system in the University, to improve the quality of examination throughout the system
- Ensures that all components of the examination system in the University follow the rules and policies of the University in true letter and spirit and to ensure the same quality standards across the board.
- improves the examination policies of the University to make them flexible enough to adapt to the changing environment on continuous basis.
- Establishes an effective communication system for timely dissemination of information to all concerned.
- Arranges and coordinate invigilators for the smooth conduct of examinations.
- Ensures compilation of mid and end semester examination results, after ratification from concerned Performance Evaluation Committee.
- Facilitates notification of finally approved results.
- Designs and develop mechanism for issuance of Degrees, Provisional certificates/ Transcript and other certificates.

Registrar Office

The office integrates and synergizes all academics, research, skills education based learning and knowledge enhancement activities with future design, planning and development activities of the university. Registrar plays key role in the preparation of academics’ plan encompassing academic calendar, weekly academic activities, arrangements and facilitation of education workshops, conferences, symposia, academic association and linkages with scientific organizations, R&D setups etc. Registrar is the focal representative, sole spokesperson and interpreter of policies of the university before the outside world.

ICT Office

ICT Office Implements policies related to Information and Communication Technologies (ICT), and is responsible for planning and implementation of ICT projects for provision of ICT facilities to the NUTECH community and evaluation and processing of all IT related requirements of the constituents. ICT Office helps in storage systems of important data or document to protect company's valuable records. Storage systems, such as vaults, it can help via keep information safe.

Human Resource Office

Office of Human Resource models the HR policies in mustering the finest, diversified and motivated work force that realizes the NUTECH's Vision and Mission. Human Resource Office is responsible to perform following functions:

- Attract and retain the best professionally sound faculty / staff.
- Ensure retention of the astute work force at the University.
- Improve the profile and performance of the university recruiting and developing highly competent employees / staff.
- Promote flexibility and innovation by developing organizational capability.
- Invest heavily in leadership development of NUTECH at all tiers.
- Develop user friendly Human Resource system, while ensuring confidentiality of employee's data.
- Adhere and implement strict merit and transparency in the enrolment / appointment of all the employees without any favor or discrimination.

Administration Office

Office of the Administration acts as the center of all administrative activities of NUTECH, as prescribed from time to time. It is responsible to look after host of administrative matters including classes, labs, hostels, security, transport, cafeteria, horticulture and other miscellaneous aspects, essential for smooth functioning of the University for the achievement of vision and mission of National University of Technology.

NBTPE Office

- Conduct examinations and issue certificates of technical, vocational, industrial, and professional education for levels 1-5 trainings as per National Vocational and Qualification Framework (NVQF).
- Prescribe curricula and courses of study for its examinations.
- Lay down policies, procedures and conditions for affiliation, de-affiliation and recognition of institutions.
- Enforce and maintain secrecy/confidentiality of all examinations, results and records etc.

Cont...

- Accord, refuse or withdraw affiliation/recognition wholly or partially, after considering inspection reports received from an Inspection Committee appointed by the NBTPE on its behalf.
- Inspect and arrange for an inspection of affiliated/constituent /recognized institutions and call for inspection reports.
- Lay down conditions for admission to its examinations, to determine the eligibility of candidates and to admit them to the examinations.
- Award certificates and diplomas to the persons who have passed the relevant examinations.
- Fix, demand and receive such fees as may be prescribed.
- Supervise the residence, health and discipline of students of affiliated/ constituent/ recognized institutions and classes to promote their general welfare.
- Institute and award scholarships, medals and prizes as per approved policies / procedures.
- Maintain record of exams funds in coordination with the NUTECH treasure office.
- Appoint the staff and define their duties and conditions of service.
- Liaise and coordinate with other bodies/entities like NAVTTC, IBCC and Govt Ministries for formulation and implementation of policies directly or indirectly affecting the vision, mission and objectives of TVET education of NUTECH and its affiliated/constituent/ recognized institutes.
- Perform all other acts as may be necessary to achieve the vision, mission and objectives of TVET education of NUTECH and NBTPE.
- Perform any other responsibility assigned by the competent / controlling authority.

NUTECH Quality Assurance Department

- NUTECH as University for Industry, aims to adopt a leading role in transformation of national industry by addressing the emerging educational needs through educational offerings in collaboration with industry, regulatory bodies and other stakeholders. NUTECH Quality Management System (NQMS) focuses upon regular academic audit, review, up gradation and improvement of learning, teaching and all related tiers of knowledge eco-system.
- **Motto of NQMS:** NQMS motto is developed as an enlightenment for initiating future pursuits for excellence in academics, research and character development.
- **Quality Statement:** NUTECH Quality Statement, given below, highlights the fundamental spirit and essence behind the perceived concept of character building and high quality education:

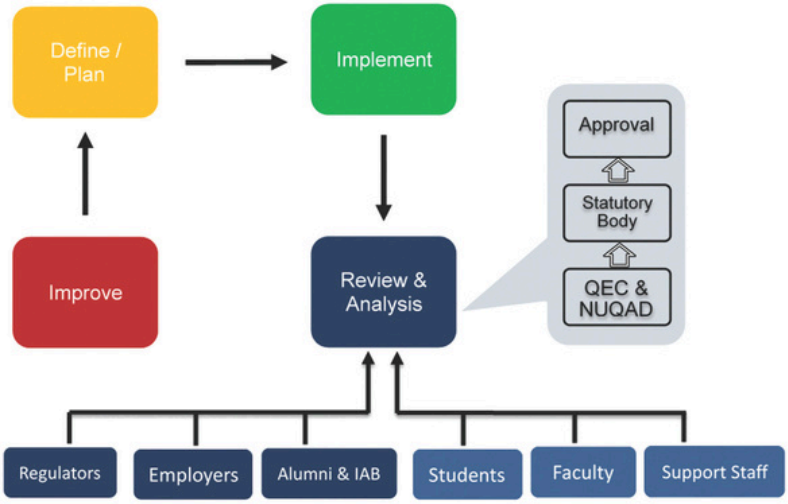
اعلیٰ تربیت بہترین تعلیم کے ساتھ

(Finest Character Building with Best Education)

Cont...

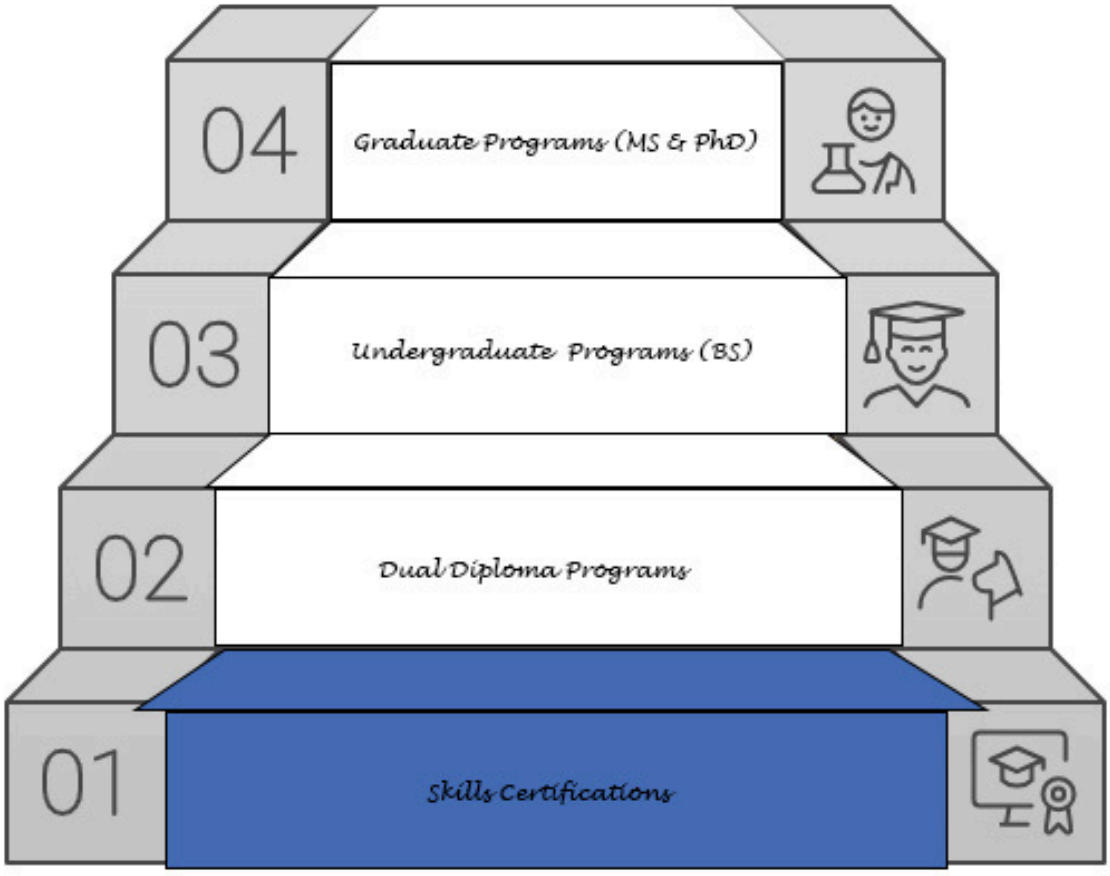
Three pillars of NUTECH Quality Management System (NQMS)

- **Objectives:** NQMS concept revolves around establishing a comprehensive system of quality assurance at NUTECH with following objectives:
  - To enable regular academic audit, review, assessment, upgrade and improvement of all tiers of knowledge eco-system (level 1 to 8).
  - To ensure that interests/concerns of all stakeholders, particularly graduates and industry, are addressed promptly, in a transparent and professional manner.
  - To ensure that all academic initiatives, from level 1 to 8, and associated support processes are positively contributing towards the spirit of personality development and character building so as to achieve desired conformity with the Vision, Mission and Guiding Principles of NUTECH.
- **Scope:**
  - NQMS covers the entire spectrum of NUTECH activities related to infrastructure, finance, management, human resource, academics and all aspects of students' campus life, i.e. from admission to graduation, and interactions with the students even after their graduation, its main impetus is expected to revolve around ensuring the attainment of objectives and outcomes of academic programs (level 1 to 8).
  - Moreover, NQMS applies to all types of educational initiatives undertaken by NUTECH, regardless of mode of study and place of delivery.



Continuous Quality Improvement

NATIONAL QUALIFICATION FRAMEWORK



NUTECH Skills Development Department (NSDD)

Skills education bridges the gap between basic functioning and capabilities. NSDD is a team of passionate professionals with goal to improve everyone's life through lifelong Skills. NSDD is providing conducive environment for the energetic youth to explore their abilities in different skills. Our Skills education including High-Tech courses are designed for individual from every field who requires enhanced professional knowledge to optimize the performance and attain sustainable employment opportunity at national and international industry. NSDD focuses on the quality of skills education / training for developing employable skills oriented towards the world of work; delivering high quality technical education at different levels of difficulties to prepare the youth for employments and sustainable livelihood; thereby, contributing towards the socio-economic development. The NSDD is structured to provide policy directions, procedures and processes for identification and development of technical and vocational qualifications through participation of industry, conduct of trainings, assessment systems, quality assurance and establishment of a management information system.

Certification Courses

NSDD offers High-Tech professional courses from level 1-5 as per NVQF. NUTECH is a declared Qualification Awarding Body (QAB) by National Vocational and Technical Training Commission (NAVTTC). NSDD has established collaborations with national industry for on the Job Training (OJT) for students and established international collaboration like Turku Vocational Institute (TAI) Finland for joint certification in Hospitality Management course. NSDD is offering the following High-Tech certifications:-

- Computer Graphics - Print Media
- Computer Graphics - Motion
- Industrial Stitching
- Hospitality Management
- Machine Embroidery
- Artificial Intelligence
- Cloud Computing
- Internet of Things (IoT)
- Mobile App Development
- UI/UX Design & Web Designing



NLSP

NUTECH Lifelong Skills Program (NLSP) is designed to focus on the quality of education/training for developing employable skills, oriented towards the world of work with delivering high quality technical education. This includes developing lifelong skills also. This means “Lifelong Skills Concept” at NUTECH to support our youth. Recognition of Prior Learning (RPL) is also an important component of NLSP enabling the skilled youth to make them employable in domestic and global markets. Lifelong learning blends formal education with continual professional and personal development. As technology advances at a rapid pace, lifelong learners have to learn new skills and adapt to rapid changes in professional and personal environments. Creation of Reskilling Forum at World Economic Forum – 2020, of which Pakistan is a member is also meant to enhance lifelong skills of the countries and industrial works. NUTECH is also contemplating to establish NLSP for capacity enhancement to cope up all these aspects.

REKO DIQ Training Courses

NUTECH University offers specialized training programs that bridge the gap between academia and industry. These include a **2-month mining certification courses** focused on advanced techniques, safety, sustainability, and modern technologies, along with **short lab courses** and site visits. The aim is to equip participants with both theoretical knowledge and practical skills, preparing them for leadership roles while contributing to workforce development and industry growth.

NUTECH Management

Rector Secretariat

Lt Gen Moazzam Ejaz (Retd), HI(M)
Rector

Maj Gen Raza Ali Khan, HI(M)
Pro-Rector Skills

Maj Gen Khurram Anwar HI(M)
Pro-Rector P&R

AVM M. Asif Aslam, SI (M)
Pro-Rector NORIIC

Support Staff

Dr. Syed Adnan Qasim
Registrar & Dir NUMEST

Muhammad Tahseen Arif Goraya
Director NBTPE

Nauman Pasha
Director Human Resource

Taimur Baig
Director NUQAD

Muhammad Maqbool Ahmed
Controller of Examination

Shaukat Abbas Kakuana
Director Admission

Zahid Hussain
Treasurer

Shaukat Ali Khan
Director PMO/SCM

Muhammad Sohail Akhter
Director NORIIC

Tauqeer Anwar Khan
Director Administration

Tariq Mahmood
Consultant P & D

Asim Rehman
Dean of Student Affairs (DSA)

Academic Dean/Principal

Dr. M. Khurram
Dean of University (DoU)

Dr. Wasim Khaliq
Principal NUSET

Dr. Muhammad Rashid
DGE & Principal NUSIT

Departments / Faculty

Civil Engineering Department

Dr. Wasim Khaliq
HoD Civil / Professor
PhD (USA)
Specialization: Structural Engineering

Dr. Malik Sarmad Riaz
Assistant Professor
PhD (Belgium)
Specialization: Traffic Engineering

Dr. Muhammad Nouman Sattar
Assistant Professor
PhD (South Korea)
Specialization: Water Resources & Environmental Engineering

Ehsan Ullah Khan
Lecturer
MS (NUST)
Specialization: Structural Engineering

Muhammad Waqas
Lecturer
MS (CUST)
Specialization: Water Resources Engineering

Muhammad Zubair Bashir
Lecturer
MS (NUST)
Specialization: Structural Engineering

Qamar Muneer
Lecturer
MS (NUST)
Specialization: Transportation Engineering

Samreen Khurshid
Lecturer
MS (NUST)
Specialization: Geotechnical Engineering

Ali Tariq
Lecturer
MS (NUST)
Specialization: Construction Engineering and Management
(On study leave abroad)

Mechanical Engineering Department

Dr. Nauman Razzaq
A/HoD
PhD (NUST)
Specialization: Biomedical Signal Processing

Dr. Waheed Gul
Assistant Professor
PhD (UET)
Specialization: Nano Composites, Materials, Characterization, Vibrations

Dr. Sajid Raza Zaidi
Assistant Professor
PhD (NUST)
Specialization: Design & Manufacturing, Laser Material Processing

Dr. Ali Javaid
Assistant Professor
PhD (NUST)
Specialization: AI, RES, CFD, and Fluid Dynamics

Ali Raza
Lecturer
MS (EME College NUST)
Specialization: Alternative Diesel Fuels, CFD

Afnan Ahmed Gillani
Lecturer
MS (NUST)
Specialization: Design & Manufacturing

Maj Farukkh Hussain
Lecturer
MS (Italy)
Specialization: Materials, Manufacturing and Thermal Energy systems

Maj Ubaid Ur Rehman
Lecturer
MS (Italy)
Specialization: Additive manufacturing, Materials and Thermal Energy systems

Basit Shafiq
Lecturer
MS (NED)
Specialization: Heat Transfer, CFD

Syeda Laraib Tariq
Lecturer
MS (UET)
Specialization: Thermo Fluids, Renewable Energy

Idrees Azeem
Lecturer
MS (UET)
Specialization: Thermofluid ,Manufacturing

Electrical Engineering Department

Dr. Nauman Razzaq
Head of Department
PhD (NUST)
Specialization: Biomedical Signal Processing

Dr. Khalid Iqbal
Associate Professor
PhD (UK)
Specialization: Communication

Cont...

Dr. Muhammad Abu Bakr
Associate Professor
PhD (South Korea)
Specialization: Robotics and Control

Dr. Muhammad Shahid Iqbal
Assistant Professor
PhD (Turkey)
Specialization: Communication

Dr. Hamza Ahmad Raza
Assistant Professor
PhD (USA)
Specialization: Power Renewable Energy & Solar PV

Abdul Basit Taj
Lecturer
MS (CASE)
Specialization: Power Electronics

Syed Sarosh Ali Shah
Lecturer
MS (Italy)
Specialization: Computational and Applied Neuroscience

Dr. Abdullah Waqas
Assistant Professor
PhD (Quaid-e-Azam University)
Specialization: Electronics

Dr. Waqar Uddin
Assistant Professor
PhD (South Korea)
Specialization: Power and Control

Dr. Raees Ahmed Siddiqui
Assistant Professor
PhD (UK)
Specialization: Embedded System and DSP

Syed Shahzad Hussain
Lecturer
MS (UET)
Specialization: Embedded Systems

Muhammad Atif Javed
Lecturer
MS (Italy)
Specialization: Power and AI

Computer Engineering Department

Dr. Kamran Javed
HoD/Associate Professor
PhD (France)
Specialization: Automatic control & Industrial Informatics

Dr. Awais Yasin
Professor
PhD (China)
Specialization: Robotics

Dr. Muhammad Ejaz Khan
Professor
PhD (Korea)
Specialization: Nanoscience and Technology

Dr. Marium Jalal Chaudhry
Associate Professor
PhD (Italy)
Specialization: Electrical & Computer Engineering

Cont...

Dr. Ehsan Ullah
Assistant Professor
PhD (UET)
Specialization: Computer Engineering

Dr. Abdul Rehman Buzdar
Assistant Professor
PhD (China)
Specialization: Digital System Design

Dr. Muhammad Umair Khan
Assistant Professor
PhD (Turkey)
Specialization: Electrical and Electronics Engineering

Dr. Madiha Arshad
Assistant Professsor
PhD (COMSATS)
Specialization: Electrical Engineering

Faria Tasneem
Lecturer
MS (AIR University)

Muhammad Adeel Ijaz
Lecturer
MS (COMSATS)

Muhammad Arslan
Lecturer

Shehryar Akbar
Lecturer
MS (Italy)

Computer Science Department

Dr. Muhammad Rashid
HoD (CS)
PhD (FAST)
Specialization: Computer Science

Dr. Sultan Daud Khan
Associate Professor
PhD (Italy)
Specialization: Computer Science

Dr. Zulfiqar Ali
Assistant Professor
PhD (FAST)
Specialization: Machine Learning

Dr. Benish Fida
Assistant Professor
PhD (UoP, Italy)
Specialization: Machine Learning and Image Processing

Dr. Muhammad Iqbal
Assistant Professor
PhD (UET)
Specialization: Artificial Intelligence. Neural Networks, Cybersecurity

Dr. Maria Kanwal
Assistant Professor
PhD (NUST)
Specialization: Image Processing -Machine Learning

Cont...

Kainat Zafar
Lecturer
PhD (KFUEIT)
Specialization: Image Processing, Signal Processing, Artificial Intelligence

Faria Sajjad
Lecturer
MSc (UK)
Specialization: Computational Intelligence, Multi-objective optimization ML, Computer Vision, Deep learning

Asif Mehmood
Lecturer
PhD in progress
Specialization: Image Processing, Computer vision, Artificial Intelligence, Pattern Recognition

Naveed Yousuf
Lecturer
MS (GCUF)
Specialization: Computer Science

Saba Farooq Abbasi
Lecturer
MS (UET)
Specialization: Telecom Engineering

Naveed Yousuf
Lecturer
PhD in progress
Specialization: Software Testing, Software Vulnerability Analysis, Program Understanding

Sundas Rana
Lecturer
M.Phil (QAU)
Specialization: Computer Science

Afia Zafar
Lecturer
PhD (Malaysia)
Specialization: Medical Imaging, Computer Vision, Deep Learning

Amna Ikram
Lecturer
PhD in progress
Specialization: Computer Science

Saima Yasmeen
Lecturer
MS (COMSATS)
Specialization: Computer Science

Umar Aftab
Lecturer
PhD in progress
Specialization: Data mining, data warehouse, software engineer

Alina Maryum
Lecturer
PhD in progress
Specialization: Digital Image Processing and Machine/Deep Learning

Zainab Iftikhar
Lecturer
MS (COMSATS)
Specialization: Information Security

Hajra Ahmad
Lecturer
MS (Germany)
Specialization: Data Science

Cont...

Muhammad Bilal Rehman
Lecturer
MS(Air Uni)
Specialization: Machine Learning and Natural Language Processing

Muhammad Rizwan Yousaf
Lecturer
MS (PIEAS)
Specialization: Cyber Security

Tayyaba Kalsoom
Lecturer
PhD in progress
Specialization: Software Engineering

Momina Mir
Lecturer
MS (HITEC)
Specialization: Software Engineering

Kainat Babar
Lecturer
MS (COMSATS)
Specialization: Computer Science

Noushin Saba
Lecturer
MS (UET)
Specialization: Computer Science

Tahreem Khalil
Lecturer
MS (COMSATS)
Specialization: Computer Science (AI , NLP, ML,DL)

Shanza Zafar Malik
Lecturer
MS (COMSATS)
Specialization: Computer Science (AI , NLP, ML,DL)

Kiran Jabeen
Lecturer
PhD in progress
Specialization: Artificial Intelligence and Computer Vision

Sumera Aslam
Lecturer
MS (COMSATS)
Specialization: Computer Science

Laraib Khan
Lecturer
M.Phil (QAU)
Specialization: Computer Science

Muntaha Noor
Lecturer
MS (NUST)
Specialization: Software Engineering

Rabbiya Younas
Lecturer
MS (South Korea)
Specialization: Multi-agent RL

Daniya Jadoon
Lecturer
MS (FAST)
Specialization: Data Science

Cont...

Afeera Bint-e-Tanveer
Lecturer
PhD in progress
Specialization: Software Engineering

Sikandar Mehmood Abbasi
Lecturer
MS (Italy)
Specialization: Cyber Security, Network/ Information Security

Rooshan Saleem Butt
Lecturer
PhD in progress
Specialization: Natural Language Processing, Deep Learning, Machine Learning

Abdul Moeed Rao
Lecturer
MS (Italy)
Specialization: Information Security, Computer Networks, Cyber Security

Babar Yousaf
Lecturer
MS (Italy)
Specialization: Cyber Security

Bachelor of Engineering Technology (Civil) Department

Dr. Wasim Khaliq
HoD BET Civil / Professor
PhD (USA)
Specialization: Structural Engineering

Dr. Nafeesa Shaheen
Assistant Professor
PhD (NUST)
Specialization: Structural Engineering

Muhammad Yousuf
Lecturer
MS (FAST)
Specialization: Transportation Engineering

Ali Siddique
Lecturer (on study leave)
MS (COMSATS)
Specialization: Structural Engineering

M. Rizwan Shahid
Lecturer
MS (China)
Specialization: Structural Engineering

Mutahir Abbas
Lecturer
MS (UET Peshawar)
Specialization: Structural Engineering

NUSASH

Javed Gul Bahar
Principal NUSASH

Mathematics Faculty

Dr. Ubaid Ahmed Nisar
Assistant Professor
PhD (COMSATS)
Specialization: Computational/Mathematics

Dr. Muhammad Waqas
Assistant Professor
PhD (QAU)
Specialization: Fluid Mechanics

Dr. Faryal Younis
Assistant Professor
PhD (QAU)
Specialization: Survey Sampling Bayesain Statistics

Dr. Atta Ullah
Assistant Professor
PhD (QAU)
Specialization: Cryptography, Cummutative Algebra

Dr. Danyal Ahmad
Assistant Professor
PhD (Italy)
Specialization: Numerical Analysis

Dr. Muhammad Sajjad
Assistant Professor
PhD (QAU)
Specialization: Coding Theory

Dr. Muhammad Asim
Assistant Professor
PhD (QAU)
Specialization: Group Theory

Dr. Ahsan Abbas
Assistant Professor
PhD (QAU)
Specialization: Fractional Calculus

Dr. Usman Alam Gillani
Lecturer
PhD (QAU)
Specialization: Relative Physics

Dr. Mehwish Manzur
Lecturer
PhD (QAU)
Specialization: Fluid Mechanics

Mr. Muhammad Zeshan
Lecturer
MS

Physics Faculty

Dr. Sohail Amjad
Associate Professor
PhD (France)
Specialization: Experimental Particle Physics

Dr. Khushbakhat Shamrez
Assistant Professor
PhD (CUI)
Specialization: Material Science & Nano Technology

Chemistry Faculty

Dr. Faiza jan Iftikhar
Assosciate Professor
PhD (Austria)
Specialization: Physical Chemistry (Electro Chemistry)

Dr. Maria Hasan
Lecture
PhD (NUST)
Specialization: Inorganic/ Analytical Chemistry

Dr. Shamsa Munir
Assistant Professor
PhD (QAU)
Specialization: Physical Chemistry

English Faculty

Muqaddas Inayat
Lecturer
MPhil (NUML)
Specialization: Linguistics and Literature

Zaigham Aizad Malik
Lecturer
MS (COMSATS)
Specialization: Linguistics and Literature

NUTECH Skills Development Department

Nadeem Khalid
Director / Principal NSDD

Naveed Yusuf
Director PI&E

Faculty of DAE / NSDD

Dr. Khushbakhat
Assistant Professor
PhD
DAE Instructor: Mathematics

Dr. Maria Hassan
Lecturer
PhD
DAE Instructor: Chemistry

Dr. Shahbaz Anjum
Deputy Director Academic
PhD
DAE Instructor: Pak Studies

Sohaib Ashraf
Lecturer
PhD (Continue)
DAE Instructor: Islamiat

Hamza Hassan
Consultant DAE
HSK-V
DAE Instructor: Chinese language & Culture

Maryum Zaman
Lecturer Skills
MS Information Security

Amna Bibi
Lecturer Skills
MSc Economics/ Hospitality Expert

Arslan Mehmood Khan
Senior Lecturer
PhD (Continue)
DAE Instructor: Physics

Sadaf Nadeem
Lecturer Skills
PhD (NUST) in progress
DAE Instructor: Big Data

Muhammad Zohaib Khan
Senior Lecturer
PhD (Continue)
DAE Instructor: Business Communication

Usman Majeed
Lecturer Skills
B.A (Mass Comm)

Shams-ul-Haq
Lecturer Skills
B. Com

Cont...

Faizan Abbas
Lecturer / DAE Instructor MS(CS)

Qazi Nauman Ejaz
Lecturer Skills/Instructor DAE
Master in Computer Science

Nouman Zafar Hashmi
Lecturer Skills/Instructor DAE
MSCS

Ali Shehzad
Lecturer / DAE Instructor
Bachelor

Rukhsana Parveen
DAE Instructor
MS(EE)

Muhammad Asher Ahsan
DAE Instructor
MS(CS) in progress

Sameen Naz
DAE Instructor
MS Robotics & AI

Naveed Khan
DAE Instructor
MS(CS)

Syed M Ali Khaquan
DAE Instructor
MS(IT)

Bilal Mehmood
DAE Instructor
MS(CS)

Muhammad Adil
DAE Instructor
MS(EE)

Muhammad Asif Akram
DAE Instructor
MS Nuclear

Hafiz Bab Ur Rayan
DAE Instructor
BS(CS)

Photo Gallery

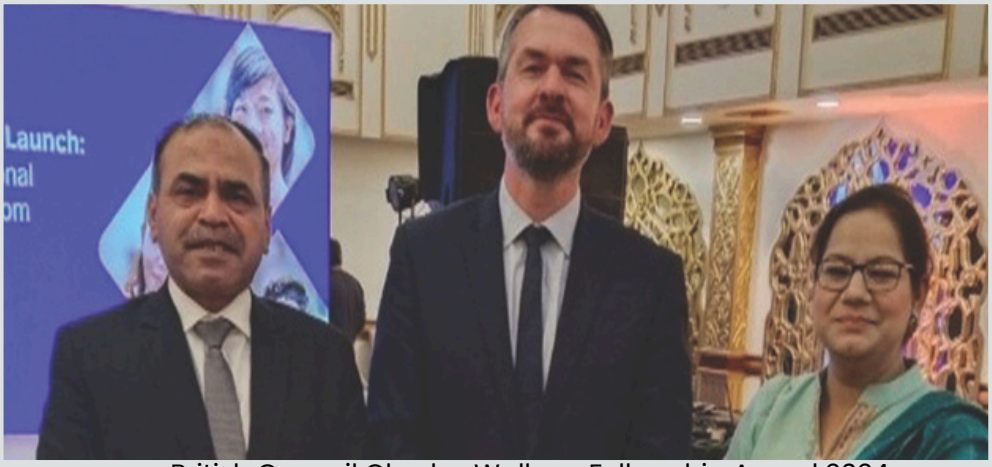
Undergraduate Convocation -Batch 2019

NUTECH Participates in Engineering Capstone Expo 2023

Open House & Job Fair at NUTECH

Achievements

1st Position in Federal Engineering Capstone Expo 2024



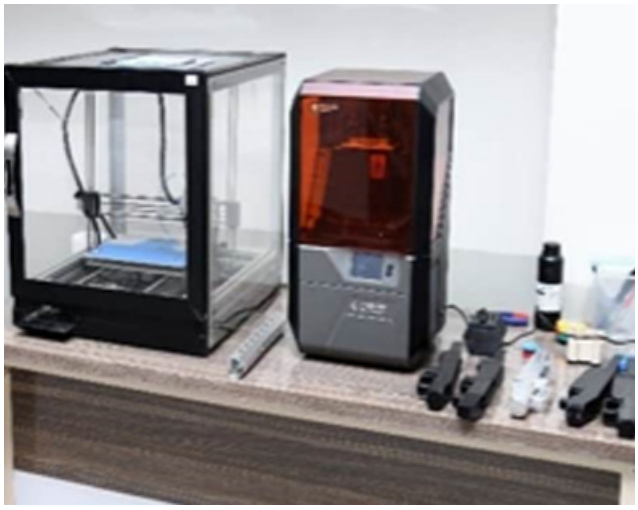
British Council Charles Wallace Fellowship Award 2024

National Idea Bank Competition - Winning Innovative Ideas

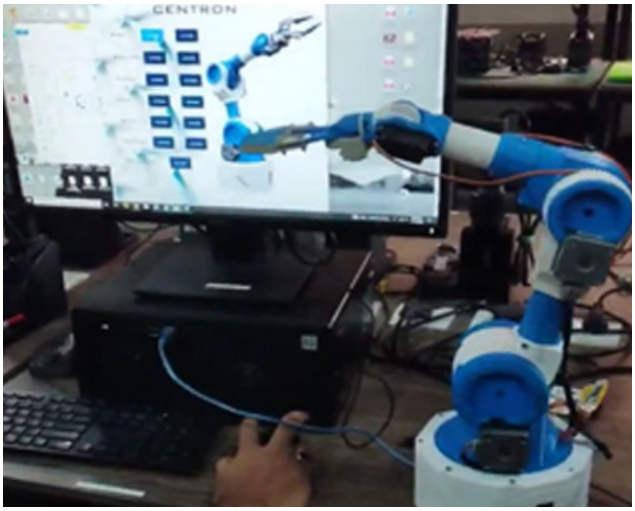
Students Activities

Students Activities

Industrial R&D Projects



Industrial R&D Projects



admission@nutech.edu.pk

0330 9310005

Karnal Sher Khan Shaheed Road, Sector I-12, Islamabad