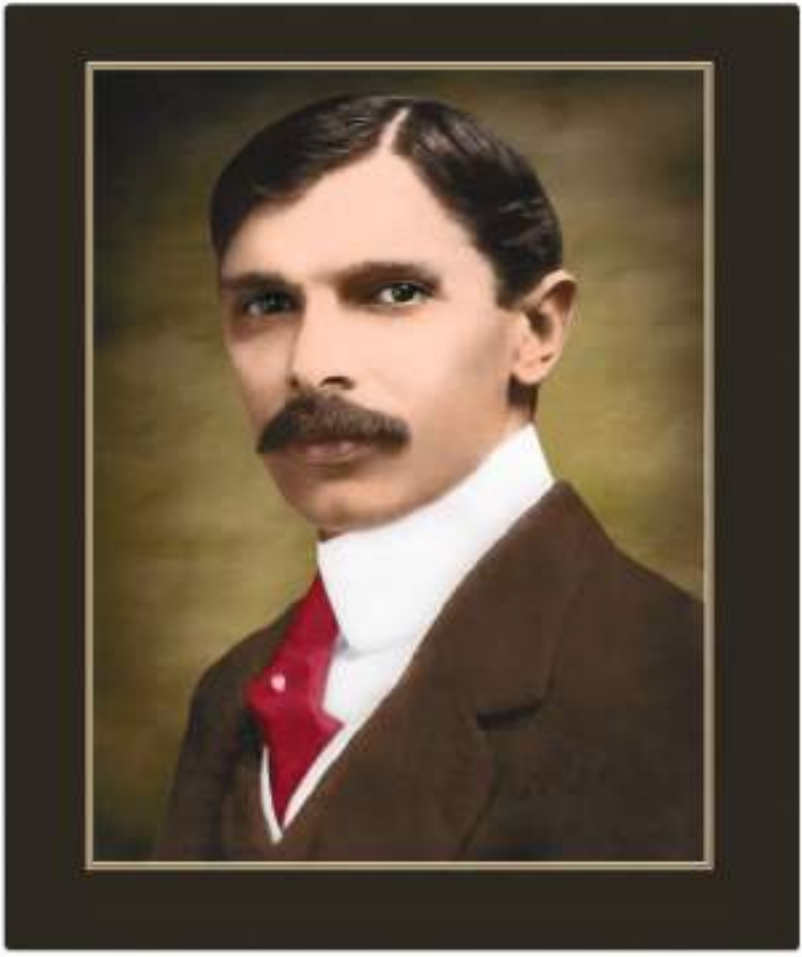
University for Industry

NUtech

Leading to Progress & Excellence

NATIONAL UNIVERSITY OF TECHNOLOGY

PROSPECTUS 2023-24



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.

Rector's 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

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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. 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 (Retd), HI(M)
Rector NUTECH

History of NUTECH

The idea of NUTECH was born in early 2015 based on the interactions with national industry in the context of Pakistan's economic growth. On 21st August 2017, a bill was passed by the National Assembly Standing Committee on Science and Technology of Pakistan to establish a technology university under The National University of Technology Bill, 2017. The bill was subsequently passed by the National Assembly on 20th November, 2017, then by the Senate Standing Committee on Science and Technology on 10th January, 2018 followed by the Senate on 26th January, 2018. Finally, the President's assent was received on 22nd February, 2018. The University commenced its UG programs in fall 2018.

Vision&Mission

Vision

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

Mission

To advance knowledge and educate students in science, engineering, technologies 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.

NUTECH Convocation Ceremony

WELCOME TO NUTECH

We Provide Equal Opportunities to Male and Female Students

Contact us:

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 241

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

NUtech
Leading to Progress & Excellence

Table of Content

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.

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» Career counseling by expert team provided to students for planning their careers and seeking scholarships.
» Focus on personality development.

Salient Aspects of Undergraduate 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.

Regular Subjects

» Regular subjects of the bachelor degree are divided into two main categories:

- **General University Requirements (GURs)**
  Include subjects in sciences, humanities, arts, social sciences and sports.
- **Departmental/Majors**
  Primarily include subjects related to the chosen field/discipline of study.

Experiential Learning Programs

NUTECH degree represents not only regular subjects which are based on a specified number of credit hours, but also includes an intense involvement in an academic enterprise and an immersion in the culture of NUTECH. In this context, students have to complete the following additional experiential learning programs:

a. Industrial Learning Experience Program (ILEP).
b. Four week Industrial and Creative Activity Term (ICAT) every year.
c. NUTECH Learning Communities Program (NLCP) in first year.
d. NUTECH Career Acceleration Program (NCAP) in second year.
e. NUTECH Engineering Leadership Program (NELP) in third year and fourth year.
f. Undergraduate Research Experience Program (UREP) in third and fourth years.

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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, jobsearch, 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.

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- **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.
- **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

Theoretical Foundation through Concepts
(Class Lectures/ Tutorials)

Proof of Concept
(Lab Class)

Real World Applications of Concept
(Field/ Industry Class)

Study of Industrial Best Practices in the Application of Concept
(Own Time Study/ Assignments)

Concept & Application Analysis
(**Graded** Student Presentation Seminars)

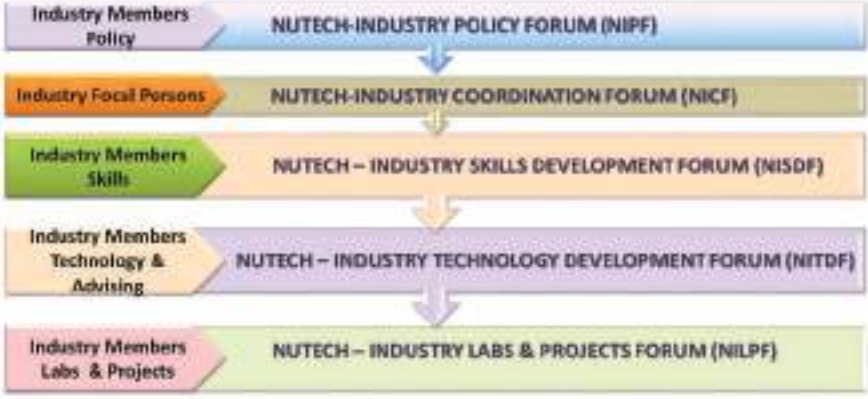
Industrial Learning Experience (ILE) Program

» 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, departmental 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	Fluid Mechanics Lab
	Heat Transfer Lab
	Thermodynamics Lab
	Mechanics of Materials Lab
	Mechanics of Machines/Elements of Mechanical Design Control and Instrumentation Lab
	Workshop Technology Lab
	Manufacturing Lab
	Internal Combustion Engines 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
	Biology 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.

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 civil engineering 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.
- **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 importance of, and pursue lifelong learning in the broader context of innovation and technological developments.

Curriculum of BS CE

Semester- I			Semester- II		
Course Code	**Course Title**	**Credits**	**Course Code**	**Course Title**	**Credits**
CE1101	Engineering Mechanics	3-1	CHE1001	Applied Chemistry	2-1
MATH1101	Applied Calculus	3-0	MATH1102	Applied Differential Equations	3-0
CE1201	Engineering Geology	2-0	BIO1001	Biology	1-1
HU1001	Functional English	2-0	CE1006	Basic Electro-Mechanical Engineering	2-1
IS1001	Islamic Studies	2-0	CE1005	Civil Engineering Materials	2-1
SSCT101 OR MAST1001 OR SSC1102	Social science elective (Becoming Human - OR- Computational Media Design OR Modern Conception of Freedom)	2-0	CE1003	Computer Programming	1-2
CE3024	Architecture and Town Planning	2-0	CEILE1002	Industrial Learning Experience 2	0-1
CEILE1001	Industrial Learning Experience 1	0-1			
	Total	**16-1-1**		**Total**	**11-6-1**

Semester- III			Semester- IV		
Course Code	**Course Title**	**Credits**	**Course Code**	**Course Title**	**Credits**
CE2401	Fluid Mechanics	3-1	CE2008	Engineering Surveying	2-1
MATH2301	Numerical Analysis	3-0	MATH2501	Probability and Statistics	3-0
CE2101	Mechanics of Solids I	2-1	CE2105	Structural Analysis I	3-0
CE3005	Environmental Engineering I	2-1	CE2111	Mechanics of Solids II	2-1
CE2103	Reinforced Concrete Design I	3-1	CE3105	Environmental Engineering II	2-0
CEILE2003	Industrial Learning Experience 3	0-1	CE3106	Reinforced Concrete Design II	3-1
			CEILE2004	Industrial Learning Experience 4	0-1
	Total	**13-4-1**		**Total**	**15-3-1**

Semester- V			Semester- VI		
Course Code	**Course Title**	**Credits**	**Course Code**	**Course Title**	**Credits**
CE3401	Advanced Fluid Mechanics	3-1	CE3201	Soil Mechanics	3-1
CE3301	Transportation Engineering I	3-1	CE2019	Quantity & Cost Estimation	2-1
CE2106	Structual Analysis II	3-0	CE1008	Civil Engineering Drawing & Graphics	1-2
CE2108	Engineering Drawing	1-1	CE3404	Transportation Engineering II	3-0
CE2108	Geo-Informatics	1-1	CE3405	Engineering Hydrology	2-1
CE3208	Advanced engineering survey	1-1	CEILE3006	Industrial Learning Experience 6	0-1
CEILE3005	Industrial Learning Experience 5	0-1			
	Total	**12-5-1**		**Total**	**11-5-1**

Semester- VII			Semester- VIII		
Course Code	**Course Title**	**Credits**	**Course Code**	**Course Title**	**Credits**
CE4321	Construction Engineering	2-0	CE1009	Construction Management	2-1
CE3105	Engineering Economics	2-0	CE2107	Steel Structures	3-0
CE4098	Capstone Project I	0-2	SS3001	Professional Ethics	2-0
MGT3001	Entrepreneurship	2-0	PS3001	Pakistan Studies	2-0
HU3005	Business Communication	2-0	CE4099	Capstone Project II	0-4
CE4404	Hydraulics and Irrigation Engineering	3-1			
CE2201	Geotechnical and Foundation Engineering	2-1			
	Total	**13-4-0**		**Total**	**9-5-0**

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. Ability to apply knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems

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- **PLO 2:** Problem Analysis. Ability to identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and
- engineering sciences
- **PLO 3:** Design and Development of Solutions. Ability to design solutions
- for complex engineering problems and design systems, components or processes and develop/ create / innovate technologies that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations

PLO 4: Investigations. Ability to investigate complex engineering problems in a methodical way including literature survey, design and conduct of experiments, analysis and interpretation of experimental data, and synthesis of information to derive valid conclusions

PLO 5: Modern Tool Usage. Ability to create, select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modeling, to complex engineering activities, with an understanding of the limitations

PLO 6: Engineer and Society. Ability to apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practice and solution to complex engineering problems

PLO 7: Environment and Sustainability. Ability to understand the impact of professional engineering solutions in societal and environmental contexts and demonstrate knowledge of and need for sustainable development

PLO 8: Ethics. Apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice

PLO 9: Individual and Teamwork. Ability to work effectively as an individual or in a team, on multifaceted and /or multidisciplinary settings

PLO 10: Communication. Ability to communicate effectively, orally as well as in writing, on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions

PLO 11: Project Management. Ability to demonstrate management skills and apply engineering principles to one's own work, as a member and/or leader in a team, to manage projects in a multidisciplinary environment

PLO 12: Lifelong Learning. Ability to recognize the importance of, and pursue lifelong learning in the broader context of innovation and technological developments

Curriculum of BS ME

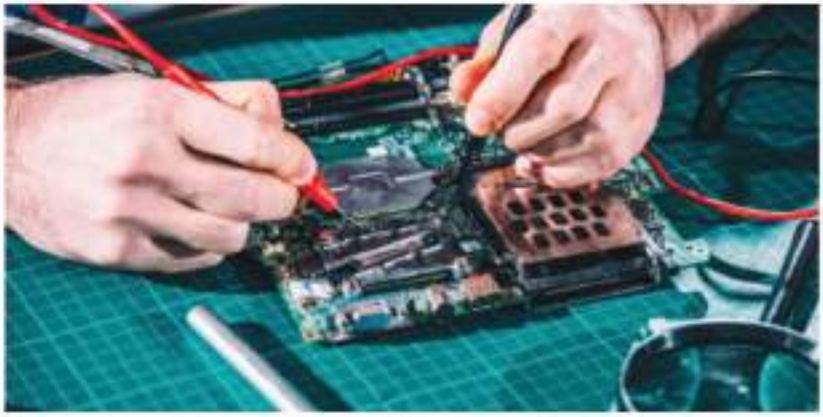
Semester- I			Semester- II		
Course Code	**Course Title**	**Credits**	**Course Code**	**Course Title**	**Credits**
PHY1303	Applied Physics	2-0	MATH1107	Calculus II	3-0
PHY1304	Applied Physics Lab	0-1	ME2201	Engineering Mechanics I (Statics)	3-0
MATH1104	Calculus I	3-0	ME2306	Workshop Practice	0-1
CHE1007	Chemistry	2-0	HU1009	English II (Technical Report Writing)	1-0
HU1004	English I	2-0	HU1010	English II (Technical Report Writing Lab	0-1
ME1215	Engineering Drawing	1-0	IS1001	Islamic Studies	2-0
ME1216	Engineering Drawing and CAD Lab	0-2	ME1160	Engineering Materials	3-0
PS1001	Pakistan Studies	2-0	ME2609	Computer Systems and Programming	2-0
			ME2610	Computer Systems and Programming Lab	0-1
	Total	**12-3**		**Total**	**14-3**

Semester- I			Semester- II		
Course Code	**Course Title**	**Credits**	**Course Code**	**Course Title**	**Credits**
PHY1303	Applied Physics	2-0	MATH1107	Calculus II	3-0
PHY1304	Applied Physics Lab	0-1	ME2201	Engineering Mechanics I (Statics)	3-0
MATH1104	Calculus I	3-0	ME2306	Workshop Practice	0-1
CHE1007	Chemistry	2-0	HU1009	English II (Technical Report Writing)	1-0
HU1004	English I	2-0	HU1010	English II (Technical Report Writing) Lab	0-1
ME1215	Engineering Drawing	1-0	IS1001	Islamic Studies	2-0
ME1216	Engineering Drawing and CAD Lab	0-2	ME1160	Engineering Materials	3-0
PS1001	Pakistan Studies	2-0	ME2609	Computer Systems and Programming	2-0
			ME2610	Computer Systems and Programming Lab	0-1
	Total	**12-3**		**Total**	**14-3**

Semester- III			Semester- IV		
Course Code	**Course Title**	**Credits**	**Course Code**	**Course Title**	**Credits**
MATH2305	Differential Equations and Linear Algebra	3-0	ME3505	Numerical Analysis	2-0
ME3136	Engineering Mechanics II (Dynamics)	3-0	ME3506	Numerical Analysis Lab	0-1
ME3137	Engineering Mechanics Lab	0-1	ME3109	Mechanics of Machines	3-0
ME2569	Electronics	2-0	ME2109	Mechanics of Materials I	3-0
ME2570	Electronics Lab	0-1	ME3338	Thermodynamics II	3-0
ME3303	Thermodynamics I	3-0	ME3352	Thermodynamics Lab	0-1
ME2603	Electrical Engineering	2-0	ME3350	Fluid Mechanics I	3-0
ME2604	Electrical Engineering Lab	0-1			
	Total	**13-3**		**Total**	**14-2**

Semester- V			Semester- VI		
Course Code	**Course Title**	**Credits**	**Course Code**	**Course Title**	**Credits**
ME2501	Probability and Statistics	3-0	ME3442	Machine Design II	2-0
ME3373	Mechanics of Materials II	3-0	ME4530	Internal Combustion Engines	3-0
ME3374	Mechanics of Materials Lab	0-1	ME4307	Heat and Mass Transfer	3-0
ME3110	Machine Design I	3-0	ME2418	Manufacturing Process	3-0
ME3169	Fluid Mechanics I	3-0	ME2419	Manufacturing Process Lab	0-1
ME3170	Fluid Mechanics Lab	0-1	ME3723	Project Management	2-0
ME4203	Measurement and Instrumentation	2-0	ME3403	Control Engineering	3-0
ME4204	Measurement and Instrumentation Lab	0-1	ME3404	Control Engineering Lab	0-1
MEILE1001	Industrial Learning Experience	0-0	MEILE1002	Industrial Learning Experience	0-0
	Total	**14-3**		**Total**	**16-2**

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)

- **PEO1:** To apply the knowledge and skills to provide sustainable solutions to challenging engineering problems in industry and academia.
- **PEO2:** Pursue lifelong learning, continued professional development and sustainable growth of the society.
- **PEO3:** 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: Ability to apply knowledge of mathematics, science and engineering fundamentals and an engineering specialization to the solution of complex engineering problems.
- **PLO-02:** Problem Analysis: Ability to identify, formulate, 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: Ability to design solutions for complex engineering problems and design systems, components,

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or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.

- **PLO-04:** Investigation: Ability to investigate complex engineering problems in a methodical way including literature survey, design and conduct of experiments, analysis and interpretation of experimental data, and synthesis of information to derive valid conclusions.
- **PLO-05:** Modern Tool Usage: Ability to create, select and apply appropriate techniques, resources, and modern engineering and IT tools. Including prediction and modelling, to complex engineering activities, with an understanding of the limitations.
- **PLO-06:** The Engineer and Society: Ability to apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practice and solution to complex engineering problems.
- **PLO-07:** Environment and Sustainability: Ability to understand the impact of professional engineering solutions in societal and environmental contexts and demonstrate knowledge of and need for sustainable development.
- **PLO-08:** Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice.
- **PLO-09:** Individual and Team Work: Ability to work effectively, as an individual or in a team, in multifaceted and/or multidisciplinary settings.
- **PLO-10:** Communication: Ability to communicate effectively, orally as well as in writing on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentations, make effective presentations, and give and receive clear instructions.
- **PLO-11:** Project Management: Ability to demonstrate management skills and apply engineering principles to one's own work, as a member and/or leader in a team to manage projects in a multidisciplinary environment.
- **PLO-12:** Lifelong Learning: Ability to recognize importance of, and pursue lifelong learning in the broader context of innovation and technological developments.

Curriculum of BS EE

Semester- I			Semester- II		
Course Code	**Course Title**	**Credits**	**Course Code**	**Course Title**	**Credits**
PHY1301	Applied Physics	2-0	HU1002	Functional English	2-0
PHY1302	Applied Physics Lab	0-1	MATH1202	Complex Variables and Transform	3-0
MATH2302	Linear Algebra	3-0	IDE1001	Occupational Health and Safety	1-0
MATH1103	Calculus and Analytical Geometry	3-0	EE1001	Digital Logic Design	3-0
EE1011	Workshop Practice Lab	0-1	EE1002	Digital Logic Design Lab	0-1
EE1012	Engineering Drawing Lab	0-1	PS1002	Pakistan Studies and Global Perspective	2-0
IS1002	Islamic Studies and Ethics	2-0	CHE1003	Applied Chemistry	2-0
EE1201	Linear Circuit Analysis	3-0	CHE1004	Applied Chemistry Lab	0-1
EE1202	Linear Circuit Analysis Lab	0-1	HU1008	Engineering Economics	2-0
	Total	**13-4**		**Total**	**15-2**

Semester- III			Semester- IV		
Course Code	**Course Title**	**Credits**	**Course Code**	**Course Title**	**Credits**
HU1007	Technical Writing and Presentation Skills	2-0	SS2002	Professional Ethics	2-0
HU1003	Communication Skills	2-0	EE2401	Signals and Systems	3-0
MATH2304	Differential Equations	3-0	XXXCXX	IDEE I'	3-1
MATH2501	Probability and Statistics	3-0	EE3011	Instrumentation and Measurements	3-0
EE1003	Computer Programming	3-0	EE3012	Instrumentation and Measurements Lab	0-1
EE1004	Computer Programming Lab	0-1	EE2203	Electronic Devices and Circuits	3-0
EE2205	Electrical Network Analysis	3-0	EE2204	Electronic Devices and Circuits Lab	0-1
EE2206	Electrical Network Analysis Lab	0-1			
	Total	**16-2**		**Total**	**14-3**

Semester- V			Semester- VI		
Course Code	**Course Title**	**Credits**	**Course Code**	**Course Title**	**Credits**
EE2007	Introduction to Embedded Systems	3-0	EE3601	Electrical Machines	3-0
EE2008	Introduction to Embedded Systems Lab	0-1	EE3602	Electrical Machines Lab	0-1
EE3101	Communication Systems Engineering	3-0	EE3301	Linear Control Systems	3-0
EE3102	Communication Systems Engineering Lab	0-1	EE3302	Linear Control Systems Lab	0-1
EE2501	Electromagnetic Field Theory	3-0	EE3403	Digital Signal Processing	3-0
EE2005	Data Structures and Algorithms	3-0	EE3404	Digital Signal Processing Lab	0-1
EE2006	Data Structures and Algorithms Lab	0-1	EEXXXX	Depth Elective I**	3-0
MGT1002	Engineering Project Management	2-0	MGT1001	Entrepreneurship	2-0
	Total	**14-3**		**Total**	**14-3**

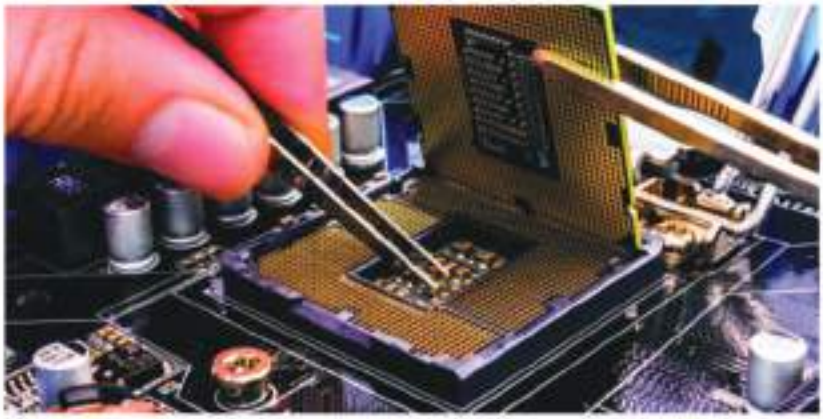
Semester- VII			Semester- VIII		
Course Code	**Course Title**	**Credits**	**Course Code**	**Course Title**	**Credits**
MATH3501	Numerical Methods	2-0	EEXXXX	Depth Elective IV**	3-1
MATH3502	Numerical Methods Lab	0-1	EEXXXX	Depth Elective V**	3-1
EEXXXX	Depth Elective II**	3-1	EEXXXX	Depth Elective VI**	3-0/1
EEXXXX	Depth Elective III**	3-0/1	EE4099	Capstone Project II	0-4
EE4098	Capstone Project I	0-2			
XXXXXX	IDEE II'	3-0/1			
	Total	**11-4/6**		**Total**	**9-6/7**

* 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 Department aims to establish a remarkable reputation for both teaching and research in the field of Computer Engineering. We produce industrial leadership qualities among students to address the upcoming challenges in industrial technology."

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-01: Engineering Knowledge
PLO-02: Problem Analysis
PLO-03: Design/Development of Solutions
PLO-04: Investigation
PLO-05: Modern Tool Usage
PLO-06: The Engineer and Society
PLO-07: Environment and Sustainability
PLO-08: Ethics
PLO-09: Individual and Team-Work
PLO-10: Communication
PLO-11: Project Management
PLO-12: Lifelong Learning

Curriculum of BS CEN

Semester- I			Semester- II		
Course Code	**Course Title**	**Credits**	**Course Code**	**Course Title**	**Credits**
MATH1101	Calculus and Analytical Geometry	3	MATH2201	Linear Algebra	2
IS1002	Islamic Studies and Ethics	2	CEN1008	Computer Programming	3
CEN1004	Information and Communication Technologies	2	CEN1009	Computer Programming Lab	1
CEN1005	Information and Communication Technologies Lab	1	CEN1010	Circuit Analysis	3
PHY1101	Applied Physics	2	CEN1011	Circuit Analysis Lab	1
PHY1102	Applied Physics Lab	1	HU1003	Communication Skills	2
CEN1006	Computer Engineering Workshop	1	HU1007	Technical Writing & Presentation Skills	2
CEN1007	Occupational Health and Safety	1	MATH3901	Discrete Structures	3
PS1002	Pakistan Studies and Global Perspectives	2	CENLE1002	Industrial Learning Experience 2	1
CENLE1001	Industrial Learning Experience 1	1			
	Total	**16**		**Total**	**18**

Semester- III			Semester- IV		
Course Code	**Course Title**	**Credits**	**Course Code**	**Course Title**	**Credits**
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 or mast1001 or SSC1101 or SSC1102	Social Science Elective I Engg. Economics or Computational Media Design or Becoming Humane or Modern Conceptions Of Freedom		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)	3
CENLE1003	Industrial Learning Experience 3	1	CENLE1004	Industrial Learning Experience 4	1
	Total	**18**		**Total**	**18**

Semester- III			Semester- IV		
Course Code	**Course Title**	**Credits**	**Course Code**	**Course Title**	**Credits**
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 or mast1001 or SSC1101 or SSC1102	Social Science Elective I Engg. Economics or Computational Media Design or Becoming Humane or Modern Conceptions Of Freedom		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)	3
CENLE1003	Industrial Learning Experience 3	1	CENLE1004	Industrial Learning Experience 4	1
	Total	**18**		**Total**	**18**

Semester- VII			Semester- VIII		
Course Code	**Course Title**	**Credits**	**Course Code**	**Course Title**	**Credits**
Cen3009	Software Engineering	3	MATH3503	Numerical Analysis	2
CENXXX	Multi-Disciplinary Engineering Elective I	2/3	MATH3504	Numerical Analysis Lab	1
CENXXXX	Multi-Disciplinary Engineering Elective I Lab	1/0	MGT1001	Management Science Elective – II (Entrepreneurship)	2
CEN4001	Digital System Design	3	CENEXXX	Computer Engineering Depth Elective IV	3
CEN4002	Digital System Design Lab	1	CENEXXX	Computer Engineering Depth Elective IV Lab	1
CENXXXX	Computer Engineering Depth Elective III	3	CENEXXX	Multi-Disciplinary Engineering Elective II	2
CENXXXX	Computer Engineering Depth Elective III Lab	1	CENEXXX	Multi-Disciplinary Engineering Elective II Lab	1
CEN4099	Capstone Project-I	1	CEN4099	Capstone Project-II	4
	Total	**15**		**Total**	**16**

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.

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- **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.

Semester- I			Semester- II		
Course Code	**Course Title**	**Credits**	**Course Code**	**Course Title**	**Credits**
PHY1101	Physics I	3-0	PHY1201	Physics II	3-0
MATH1101	Calculus I	4-0	MATH1102	Calculus II	4-0
CHE1001	Chemistry	3-0	BIO1002	Biology	3-0
PHY1102	Physics I Lab	0-1	PHY1202	Physics II Lab	0-1
CHE1002	Chemistry Lab	0-1	BIO1003	Biology Lab	0-1
HU1001	Language and Communications Skills	2-0	IS1001	Islamic Studies	2-0
SSC1101 MAST1001 SSCT102	Becoming Humane/ Computational Media Design/ Modern Conception of Freedom		CS1025	Computational Thinking	2-0
CSILE1001	Industrial Learning Experience 1	0-0-1	CSILE1002	Industrial Learning Experience 2	0-0-1
	Total	**14-2-1**		**Total**	**14-2-1**

Semester- III			Semester- IV		
Course Code	**Course Title**	**Credits**	**Course Code**	**Course Title**	**Credits**
CS1001	Introduction to Information Technology	3-0	CS2005	Object Oriented Programming	3-0
CS1002	Introduction to Information Technology Lab	0-1	CS2006	Object Oriented Programming Lab	4-0
MATH2501	Probability and Statistics	3-0	CS1601	Digital Logic Design	3-0
CS1003	Programming Fundamentals	3-0	CS1602	Digital Logic Design Lab	0-1
CS1004	Programming Fundamentals Lab	0-1	MATH3301	Linear Algebra and ODEs	0-1
MATH3901	Discrete Structures	3-0	CS3101	Theory of Automata	3-0
PS1001	Pakistan Studies	2-0	HU1005	Technical Communication for Engineers	2-0
CSILE1003	Industrial Learning Experience 3	0-0-1	CSILE1004	Industrial Learning Experience 4	0-0-1
	Total	**14-2-1**		**Total**	**15-2-1**

Semester- V			Semester- VI		
Course Code	**Course Title**	**Credits**	**Course Code**	**Course Title**	**Credits**
CSXXX2	Restrictive Elective I	3-0	CS4105	Compiler Construction	3-0
SS3001	Ethics for Engineers	2-0	CS4011	Database Systems	3-0
CS3009	Software Engineering	3-0	CS4012	Database Systems Lab	0-1
CS3007	Data Structures and Algorithms	3-0	CS4103	Design and Analysis of Algorithms	3-0
CS3008	Data Structures and Algorithms Lab	0-1	CSXXX3	Restrictive Elective II	3-0
CS4603	Computer Organization and Assembly Language	3-0	CS4013	Operating Systems	3-0
CS4604	Computer Organization and Assembly Language Lab	0-1	CS4014	Operating Systems Lab	0-1
CSILE1005	Industrial Learning Experience 5	0-0-1	CSILE1006	Industrial Learning Experience 6	0-0-1
	Total	**14-2-1**		**Total**	**15-2-1**

Semester- VII			Semester- VIII		
Course Code	**Course Title**	**Credits**	**Course Code**	**Course Title**	**Credits**
CS3501	Artificial Intelligence	3-0	CS4301	Parallel and Distributed Computing	3-0
CS3502	Artificial Intelligence Lab	0-1	CS4017	Information Security	3-0
CS4015	Computer Networks	3-0	CSXXX2	Concentration Stream Subject II	3-0
CS4016	Computer Networks Lab	0-1	CSXXX3	Concentration Stream Subject III	3-0
CSXXX1	Concentration Stream Subject 1	3-0	CS4099	Capstone Project II	0-4
CSXXX4	Restrictive Elective III	3-0			
MGT1001	Entrepreneurship	2-0			
CS4098	Capstone Project I	0-2			
	Total	**14-4**		**Total**	**12-4**

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

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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:

- **PLO 1:** Software Engineering Knowledge – To apply knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of Complex Software Engineering problems.
- **PLO 2:** Problem Analysis – Identify, formulate, research literature, and analyze complex computational problems, reaching substantiated conclusions using first principles of mathematics, natural sciences, computing, and software Engineering.
- **PLO 3:** Design/Develop Solutions – Design solutions for complex computing problems and design systems, components, and processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.
- **PLO 4:** Investigation & Experimentation – Conduct investigation of complex computing problems using research based knowledge and research based methods.
- **PLO 5:** Modern Tool Usage – Create, select, and apply appropriate techniques, resources and modern Computer-Aided Software Engineering (CASE) tools, including prediction and modelling for complex computing problems.
- **PLO 6:** Society Responsibility – 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 7:** Environment and Sustainability – Understand the impact of professional software solutions in societal and environmental contexts and demonstrate knowledge of, and need for, sustainable development.
- **PLO 8:** Ethics – Apply ethical principles and commit to professional ethics and responsibilities and norms of Software Engineering practice.
- **PLO 9:** Individual and Team Work – Function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary settings.
- **PLO 10:** Communication – Communicate effectively on complex Software Engineering processes and activities with the software Engineering community and with society at large.

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PLO 11: Project Management and Finance – Demonstrate knowledge and understanding of management principles and economic decision-making and apply these to one's own work as a member or a team.

PLO 12: Life Long Learning – Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological changes.

Curriculum of BS SE

Semester- I

Course Code	Course Title	Credits
CS1027	Introduction to ICT	2-0
CS1028	Introduction to ICT Lab	0-1
CS1005	Programming Fundamentals	3-0
CS1004	Programming Fundamentals Lab	0-1
HU1013	English Composition and Comprehension	3-0
MATH1101	Calculus and Analytical Geometry	3-0
CS1025	Computational Thinking	2-0
MAST1001	Computational Media Design	2-0
	Total	15-2

Semester- II

Course Code	Course Title	Credits
PHY1205	Applied Physics	2-0
PHY1204	Applied Physics Lab	0-1
CS2005	Object Oriented Programming	3-0
CS2006	Object-Oriented Programming Lab	0-1
CS2029	Discrete Structures	3-0
HU1015	Communication and Presentation Skills	3-0
CS3009	Software Engineering	3-0
IS1001	Islamic Studies	2-0
	Total	16-2

Semester- III

Course Code	Course Title	Credits
CS3123	Software Requirements Engineering	3-0
CS3007	Data Structures and Algorithms	3-0
CS3008	Data Structures and Algorithms Lab	0-1
MATH2202	Linear Algebra	3-0
CS3101	Theory of Automata	3-0
CS3133	Human-Computer Interaction	3-0
PS1001	Pakistan Studies	2-0
	Total	17-1

Semester- IV

Course Code	Course Title	Credits
CS4013	Operating Systems	3-0
CS4014	Operating Systems Lab	0-1
MATH3501	Probability and Statistics	3-0
CS4103	Design and Analysis of Algorithms	3-0
CS4011	Database Systems	3-0
CS4012	Database Systems Lab	0-1
CS4129	Software Design & Architecture	2-0
CS4130	Software Design & Architecture Lab	0-1
	Total	14-3

Semester- V

Course Code	Course Title	Credits
CS4015	Computer Networks	3-0
CS4016	Computer Networks Lab	0-1
CS4131	Software Construction & Development	2-0
CS4132	Software Construction & Development Lab	0-1
HU2001	Technical and Business Writing	3-0
CS4135	Business Process Engineering	3-0
CS4137	Formal Methods in Software Engineering	3-0
	Total	14-2

Semester- VI

Course Code	Course Title	Credits
CS4139	Operations Research	3-0
CSXXXX	Restrictive Elective I	3-0
CS4017	Information Security	3-0
CS4141	Web Engineering	3-0
CS4125	Software Quality Engineering	3-0
HU2003	Professional Practices	3-0
	Total	18-0

Semester- VII

Course Code	Course Title	Credits
CSXXXX	Concentration Stream Subject I	3-0
CSXXXX	Restrictive Elective II	3-0
CS4127	Software Project Management	3-0
CS4143	Software Re-Engineering	3-0
CS4098	Capstone Project I	0-2
	Total	12-2

Semester- VIII

Course Code	Course Title	Credits
MGT1001	Entrepreneurship	2-0
CSXXXX	Concentration Stream Subject II	3-0
CSXXXX	Concentration Stream Subject III	3-0
CS4099	Capstone Project II	0-4
	Total	8-4

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

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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:

- **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
CS1027	Introduction to ICT	2-0	CS1005	Object Oriented Programming	3-0
CS1028	Introduction to ICT Lab	0-1	CS1006	Object Oriented Programming Lab	0-1
CS1003	Programming Fundamentals	3-0	CS4011	Database Systems	3-0
CS1004	Programming Fundamentals Lab	0-1	CS4012	Database Systems Lab	0-1
HU1013	English Composition and Comprehension	3-0	MATH2501	Probability and Statistics	3-0
MATH1003	Calculus and Analytical Geometry	3-0	HU1015	Communication and Presentation Skills	3-0
CS1025	Computational Thinking	2-0	MATH2202	Linear Algebra	3-0
MAST3001	Computational Media Design	2-0	CSILE1002	Industrial Learning Experience 2	0-0-1
CSILE1001	Industrial Learning Experience 1	0-0-1			
	Total	15-2-1		Total	15-2-1

Semester- III			Semester- IV		
Course Code	Course Title	Credits	Course Code	Course Title	Credits
CS3007	Data Structures and Algorithms	3-0	CS4103	Design and Analysis of Algorithms	3-0
CS3008	Data Structures and Algorithms Lab	0-1	CS1601	Digital Logic Design	3-0
CS3501	Artificial Intelligence	3-0	CS1602	Digital Logic Design Lab	0-1
CS3502	Artificial Intelligence Lab	0-1	CS4015	Computer Networks	3-0
CS2029	Discrete Structures	3-0	CS4016	Computer Networks Lab	0-1
MATH2304	Differential Equations	3-0	CSXXXX	Restrictive Elective	3-0
CS4017	Information Security	3-0	CS1509	Programming for Artificial Intelligence	2-0
CSILE1003	Industrial Learning Experience 3	0-0-1	CS1510	Programming for Artificial Intelligence Lab	0-1
			CSILE1004	Industrial Learning Experience 4	0-0-1
	Total	15-2-1		Total	14-3-1

Semester- V			Semester- VI		
Course Code	Course Title	Credits	Course Code	Course Title	Credits
CS4603	Computer Organization and Assembly Language	3-0	CS4013	Operating Systems	3-0
CS4604	Computer Organization and Assembly Language Lab	0-1	CS4014	Operating Systems Lab	0-1
CS3511	Artificial Neural Network	2-0	BIO1004	Applied Biology	2-0
CS3512	Artificial Neural Network Lab	0-1	BIO1005	Applied Biology Lab	0-1
CSXXXX	Concentration Stream Subject I	3-0	CS4507	Computing Vision	2-0
CS3503	Machine Learning	2-0	CS4508	Computing Vision Lab	0-1
CS3504	Machine Learning Lab	0-1	CS4505	Natural Language Processing	3-0
CS3513	Knowledge Representation and Reasoning	3-0	CSXXXX	Concentration Stream Subject II	3-0
CSILE1005	Industrial Learning Experience 5	0-0-1	CSILE1006	Industrial Learning Experience 6	0-0-1
	Total	13-3-1		Total	13-3-1

Semester- VII			Semester- VIII		
Course Code	Course Title	Credits	Course Code	Course Title	Credits
CS4301	Parallel and Distributed Computing	2-0	CSXXXX	Concentration Stream Subject III	3-0
CS4302	Parallel and Distributed Computing Lab	0-1	MGT1001	Entrepreneurship	2-0
HU2001	Technical and Business Writing	3-0	IS1001	Islamic Studies	2-0
CS3009	Software Engineering	3-0	HU2003	Professional Practices	3-0
CHE1003	Applied Chemistry	2-0	CS4099	Capstone Project II	0-4
CHE1004	Applied Chemistry Lab	0-1			
PS1001	Pakistan Studies	2-0			
CS4098	Capstone Project I	0-2			
	Total	12-4		Total	10-4

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:

- **PEO-1:** 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:** Manage engineering, technology and social problems effectively and innovatively while adhering to best 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.

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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 (Civ)

Semester- I

Course Code	Course Title	Credits
BETCE1001	Applied Mathematics	3-0
BETCE1002	Materials for Infrastructure Engineering Tech	2-1
BETCE1003	Transportation Engineering	2-1
BETCE1004	Applied Mechanics	2-1
BETCE1005	Applied Chemistry	2-1
	Total	11-4

Semester- II

Course Code	Course Title	Credits
BETCE1006	Construction Machinery	1-2
BETCE1007	Surveying	2-2
BETCE1008	Drawing and CAD	1-2
BETCE1009	Transportation Infrastructure	2-1
BETCE1010	English Exposition	3-0
	Total	9-7

Industry Semester-I

Course Code	Course Title	Credits
BETCE1011	Transportation Infrastructure Construction	0-8
	Total	0-8

Semester- III

Course Code	Course Title	Credits
BETCE2001	Residential Buildings	2-1
BETCE2002	Basics of Structural Design	3-0
BETCE2003	Geotechnical Engineering	2-1
BETCE2004	Concrete Technology	3-1
BETCE2005	Applied Mathematics II	3-0
	Total	13-3

Semester- IV

Course Code	Course Title	Credits
BETCE2006	Civil and Substructure	2-1
BETCE2007	Non-Structural Infrastructure Components	3-1
BETCE2008	Sustainable Development	2-0
BETCE2009	Islamic Studies	3-0
BETCE2010	Building Regulations Studies	2-0
	Total	12-2

Industry Semester-II

Course Code	Course Title	Credits
BETCE3011	Building Construction	0-8
	Total	0-8

Semester- V

Course Code	Course Title	Credits
BETCE3001	Building Information Modelling	2-2
BETCE3002	Pakistan Studies	3-0
BETCE3003	Special Infrastructure	3-0
BETCE3004	Social Interaction	3-0
	Total	11-2

Semester- VI

Course Code	Course Title	Credits
BETCE3005	Irrigation and Hydraulic Structures	2-1
BETCE3006	Rural Development Studies	3-0
BETCE3007	Quantity Surveying and Contract Management	3-1
BETCE3008	Technical Report Writing	3-0
	Total	11-2

Industry Semester-III

Course Code	Course Title	Credits
BETCE3009	Special Infrastructure Construction	0-4
	Total	0-4

Semester- VII

Course Code	Course Title	Credits
BETCE4001	Project Economics	3-0
BETCE4002	Tendering and Bidding	3-0
BETCE4003	Communication Skills	3-0
BETCE4004	Project-I	0-3
	Total	9-3

Semester- VIII

Course Code	Course Title	Credits
BETCE4005	Project Management	3-1
BETCE4006	Professional Ethics	3-0
BETCE4007	Construction Risk Mgmt	2-0
BETCE4008	Elective	2-1
BETCE4009	Project-II	0-3
	Total	10-5

Industry Semester-IV

Course Code	Course Title	Credits
BETCE4010	Project Management	0-4
	Total	0-4

DESIGNED TO BE

'Hands-on' problems solver University of local and international industry

BS Degree Programs, Credit Hours & Seats in Various Disciplines

Serial	Degree Title	Credit Hour	No. of Seats
1	**Bachelor of Science Civil Engineering (BS CE)**	140	50
2	**Bachelor of Science Mechanical Engineering (BS ME)**	138	50
3	**Bachelor of Science Electrical Engineering (BS EE)**	130-133	50
4	**Bachelor of Science Computer Engineering (BS CEN)**	140	50
5	**Bachelor of Science Computer Science (BS CS)**	138	100
6	**Bachelor of Science in Software Engineering (BS SE)**	130	50
7	**Bachelor of Science in Artificial Intelligence (BS AI)**	136	50
8	**Bachelor of Engineering Technology (Civil) – BET (Civ)**	138	50

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 October).
- 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 in the month of January - March.
- 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).
- Three Series of NUTECH Entry Test will be conducted, computer-based at NUTECH Islamabad and Paper-based at other centers (Qta, GB, Skardu, Lhr, Bwp, and AJK).
- Display of 1st merit list and issue of provisional admission offer letter by 1st week of October.
- Display of second merit mid of October and display of final merit list by 3rd week of October.
- Start of classes in 2nd week of November.
- Deposit of admission and tuition fee before given dates for each merit list.


NUTECH


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TO
NUtech

Eligibility Criteria of UG Programs

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

S#	Qualification Criterion	Engineering (CE, ME, EE, CEN)	Computer CS/SE/AI	Technology BET(Civil)
a	SSC / O-level / Equivalent exams	60% Marks	60% Marks	50% Marks
b	HSSC / A-level / foreign equivalent examination (Part-I and II combined) / DAE (Complete)	60% Marks	50% Marks	50% Marks
c	NUTECH Entry Test (NUET) / SAT Subject Test	As a Mandatory Requirement		
d	Equivalence Certificate for O / A-Level and other qualification holders from Inter Board Committee of Chairman (IBCC) Islamabad, Pakistan			
e	Candidates awaiting the result of HSSC Part-II / A-Level can also apply on the basis of HSSC Part-I / AS Level by providing Hope Certificate. Provisional admission would be granted			
f	Candidates with FSc Pre-Engineering & Pre-Medical who have passed Additional Math are eligible for all programs as per the above-mentioned Qualification/Percentage Criterion			
g	Pre-Medical students without Additional Math can apply for admission in BS CS, BS AI & BS SE however, they must pass deficiency courses of Math after joining the University			
h	Candidates passing FSc /ICS/ Equivalent qualification with a combination of Maths, Physics, and Computer Science are eligible to apply for BS Computer Engineering, BS Computer Science, BS Software Engineering, and BS Artificial Intelligence			
i	*Candidates passing HSSC level, Mathematics with a combination of any other subjects like Computer Science, Statistics, Economics, Commerce, etc., or Equivalent qualifications certified by IBCC are eligible to apply for BS CS, BS AI & BS SE			
j	Candidates holding DAE (all disciplines) can apply for BS CS, BS SE, and BS AI on open merit. They can also apply for applicable engineering programs (CE, ME, EE & CEN) in line with PEC policy			
k	Candidates holding DAE in Civil Engineering can apply for a Bachelor of Engineering Technology (Civil) on Open Merit			

*General Group with Mathematics (It includes any HSSC level Combination with Mathematics)

Note: Abbreviations used for UG Programs are explained as under:-

- Civil Engineering (CE)
- Mechanical Engineering (ME)
- Electrical Engineering (EE)
- Computer Engineering (CEN)
- Computer Science (CS)
- Software Engineering (SE)
- Artificial Intelligence (AI)
- Bachelor of Engineering Technology (Civil) - BET (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 (Qta, GB, Skardu, Lhr, Bwp, and AJK). 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

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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:

a. Math (standard as per programs) - 40%
b. Physics (") - 30%
c. Chemistry/Computer Science (") - 20%
d. English / reasoning (") - 10%

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

a. FSc (Pre Engg) will be tested for Math, Physics, Chemistry, and English.
b. FSc (Pre Medical) will be tested for physics, Chemistry, Gen Arithmetics, and English.
c. DAE (Any Discipline) will be tested primarily from DAE Syllabus.
d. ICS will be tested for Math, Physics, Computer, and English.
e. 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.

Medical Fitness

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% Technology programs).
- Likewise those attaining less than 60% marks in HSSC / A-Level (IBCC Equivalence Certificate) would also be ineligible. (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.*

Scholarships

» NUTECH offers Need based, Ehsaas (sponsored by HEC), and Merit based scholarships for deserving students (obtaining 3.5 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.

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 medical certificate.
- 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.

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 Aplication

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

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 :

UG Programs Fee Structure

Type of Fee	Rs
Application Processing Fee (At the time of Registration only)	2,000
Admission Fee (One Time only)	22,500
Security (One Time & Refundable)	10,000
Semester Fee for Engg/CS/AI (Per Semester)	100,000
Semester Fee for BET(Civ) only (Per Semester)	70,000

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

Hostel Charges

Ser #	Type of Fee	National Students (PKR)	Remarks
a	Hostel Rent (Boys)	42,000	Per Semester
b	Hostel Rent (Girls)	51,000	Per Semester
c	Hostel Rent Security (Boys & Girls)	10000	One time Refundable
d	Messing Security (Boys & Girls)	6000	One time Refundable
e	Messing Charges (per month)	5800	As per Contractor Agreement
f	Laundry Charges (Boys Only)	850	As per Contractor Agreement
g	Maintenance Charges (Boys & Girls)	500	Per Semester
h	Bedding Items & Mattress	-	As per Market rate

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 7th Day from Start of Semester	100% fee refund less registration and admission processing fee
b)	Between 8th – 15th day from Start of Semester	50% fee refund less admission processing fee and registration fee
c)	16th day onward from Start of Semester	No refund of any kind of fee will be made less security deposit

- Welcome and Orientation days are included in start of semester classes.
- Timeline shall be calculated continuously, covering both weekdays and weekend.

Establishment of HBL Branch

» HBL has established its branch in NUTECH to meet financial requirement of NUTECH faculty, staff & students.

MS Degree Programs

at

NUTECH

NUtech
Leading to Progress & Excellence

MS Degree Programs, Credit Hours & Seats in Various Disciplines

Serial	Degree Title	No. of Seats
1	**Master of Science Civil Engineering (MS CE)**	50
2	**Master of Science Computer Science (MS CS)**	50
3	**Master of Science in Mathematics**	50
4	**Master of Science in Physics**	50
5	**Master of Science in Chemistry**	50

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) - 2 Years

Vision: The vision of our graduate civil engineering program is to produce young engineers equipped with professional and leadership qualities. These individuals will have the capacity to take up professional and research assignments in Civil Engineering and allied fields with focus on interdisciplinary and innovative approach to worldly problems so that they can compete at Global level.

Mission: The mission of the graduate 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 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	1(1-0)
	Total	**10-0**
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	**12-0**
Semester- III		
CE-7xxx	Elective Course-IV	3(3-0)
CE-8999/CE7xxx	Research Thesis/Two Elective Courses	6(0-6)
	Total	**3+6=9**

Master of Science Computer Science (MS CS) - 2 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 with a focus on engineering and technology that will:

- Produce future technology leaders in the field of Computer Science mainly focusing on bridging the gap between industry and academia through world-class education in science engineering, technology, other technologies, other areas of scholarship, professional certifications, technical & vocational skills.
- Develop state-of-the-art technologies through continuous research and development that can help industries in cost savings, rapid product development, process improvements and gaining competitive advantage in the marketplace.
- Produce graduates that are not only competent in technical skills but also have strong communication skills and teamwork abilities.
  Promote culture of research and student involvement through continuous industry academia collaboration.

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.

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- 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.
- 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.

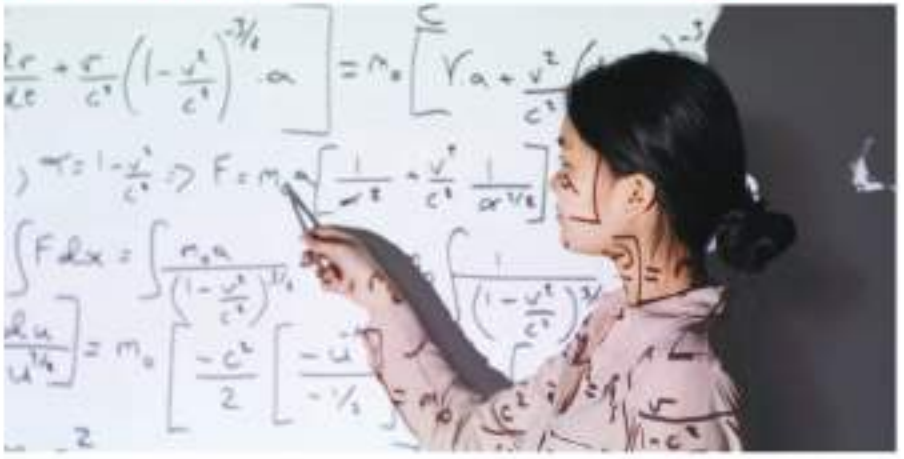
MS CS Curriculum

Semester- I		
Course Code	**Course Title**	**Credits**
CS6001	Advanced Analysis of Algorithms	3(3-0)
CS6003	Advanced Operating Systems	3(3-0)
CSxxxx	Elective Course – I	3(3-0)
RM6000	Research Methodology	1(1-0)
	Total	**10-0**
Semester-II		
CS6005	Theory of Programming Languages	3(3-0)
CS6007	Advance Theory of Computation/Theory of Automata – II	3(3-0)
CSxxxx	Elective Course - II	3(3-0)
CSxxxx	Elective Course - III	3(3-0)
	Total	**12-0**
Semester- III		
CSxxxx	Elective Course - IV	3(3-0)
CS8999/ CSxxxx	MS Thesis or 2 Elective Courses	6(0-6)
	Total	**3+6=9**

Curriculum (MS Mathematics)

Semester-I		
Course Code	**Course Title**	**Credit Hours**
MATHXXXX	Core-1	3(3-0)
MATHXXXX	Core-2	3(3-0)
MATHXXXX	Core-3	3(3-0)
	Total	9-0
Semester-II		
MATHXXXX	Core-4	3(3-0)
MATHXXXX	Elec-1	3(3-0)
MATHXXXX	Elec-2	3(3-0)
	Total	9-0
Semester-III		
MATHXXXX	Elec-3	3(3-0)
MATHXXXX	Elec-4	3(3-0)
MATHXXXX	MS Thesis	
	Total	6-0
Semester-IV		
MATH6001	MS Thesis	6-0
	Total	6-0
	Grand Total	30

Master of Science in Mathematics (MS Mathematics)



To support NUTECH to advance knowledge in science to grow the knowledge economy with the spirit of discovery and innovation to best serve the society and industry.

Objectives of the program

Knowledge of mathematics connects mathematical concepts and techniques to various fields of sciences and engineering. The objective of applied mathematical research is not only to intelligently apply existing mathematical tools and insights to solve scientific problems, but also to develop novel and useful mathematics inspired and driven by the applications. On the successful completion of degree, students should:

a. demonstrate the ability to model, solve, investigate, and analyze the applied sciences and engineering problems using the existing scientific designs and solution tools that would strengthen their research capabilities and enhance their academic, professional and research perspectives.

b. promote the culture of interdisciplinary research among the mathematics and engineering disciplines that would enable them to explore the emerging research areas of the modern world.

c. communicate effectively and work meritoriously in education, industry, business and research institutions as a team member or lead.

Master of Science in Physics

To support NUTECH to advance knowledge in science to grow the knowledge economy with the spirit of discovery and innovation to best serve the society and industry.

Objectives of the Program

The graduates should:

a. demonstrate the ability to model, investigate, analyze and solve applied physics problems using the existing scientific design and solution tools,

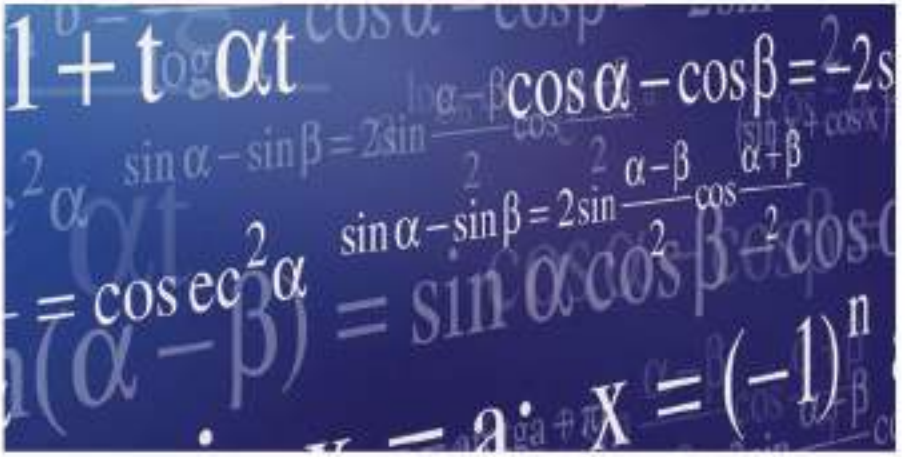
b. develop their research and pedagogical skills and broaden their academic as well as research knowledge, and

c. have awareness of the interdisciplinary research areas which enables them to explore the emerging research fields and topics.

MS Physics Curriculum

Semester-I		
Course Code	**Course Title**	**Credit Hours**
PHY6XX	Core-1	3(3-0)
PHY6XX	Core-1	3(3-0)
PHY6XX	Core-1	3(3-0)
	Total	9-0
Semester-II		
PHY6XX	Core-4	3(3-0)
PHY6XX	Elec-1	3(3-0)
PHY6XX	Elec-2	3(3-0)
	Total	9-0
Semester-III		
PHY6XX	Elec-3	3(3-0)
PHY6XX	Elec-4	3(3-0)
PHY700	MS Thesis	
	Total	6-0
Semester-IV		
PHY700	MS Thesis	6-0
	Total	6-0
	Grand Total	**30**

Master in Science in Chemistry (MS Chemistry)



To prepare students in their chosen field of study and strengthen their professional skills by advancing knowledge and capitalizing on research and innovation, adopting along with social responsibility and ethical practices to best serve the society and industry.

Objectives of the Program

The graduates should: -

a. demonstrate the ability to solve, analyse, investigate problems the society faces and offer pragmatic solutions to global society by using existing scientific tools,

b. enhance their research capabilities and broaden their research and academic horizons,

c. have awareness of the interdisciplinary research culture among the natural and engineering sciences that would enable them to explore the emerging research areas,

d. demonstrate knowledge and understanding of professional ethics and responsible behaviour, and

e. Have ability to apply the knowledge gained in applied research and innovation to support all allied and connected industries of the country.

MS Chemistry Curriculum

Semester-I		
Course Code	**Course Title**	**Credit Hours**
CHExxxx	Core – I	3(3-0)
CHExxxx	Core – II	3(3-0)
CHExxxx	Core – III	3(3-0)
	Total	9-0
Semester-II		
CHExxxx	Core – IV	3(3-0)
CHExxxx	Elective Course - I	3(3-0)
CHExxxx	Elective Course - II	3(3-0)
RMxxxx	Research Methodology	1(NC) *
	Total	9-0
Semester-III		
CHExxxx	Elective Course - III	3(3-0)
CHExxxx	Elective Course - IV	3(3-0)
CHExxxx	MS Thesis	
	Total	6-0
Semester-IV		
CHExxxx	MS Thesis	6-0
	Total	6-0
	Grand Total	30

* NC (Non-credit)

Facilities in NUTECH

Medical Facilities
Available 24/7

NUTECH has excellent **hostel Facilities** and infrastructure within the campus. Separate hostels for girls & boys provide an affordable, hygienic and safe environment to make the students feel at home

Faculty & Student Cafeteria
Centrally air conditioned & tiled flooring with adequate lighting & clean environment

Adequate Transport Facilities
available for Students & Staff

Accommodation Facility

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.

Facilities

Facilities	Boys Hostel	Girls Hostel
Furnished accommodation	√	√
Study Stations	√	√
WIFI facility	√	√
Well-lit rooms	√	√
Community washrooms	√	
Attached Washrooms		√
Tuck Shop	√	
TV Room	√	√
Dinning Facility	√	√
Gymnasium	√	
Table Tennis	√	
Laundry services	√	
24/7 Power backup	√	√

Hostel Allotment

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 Dean Student Life - DSL

NUTECH strongly believes in overall grooming and personality development of students. NUTECH has dedicated Dean Student Life (DSL) Office. 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. DSL 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 DSL Office 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.

Smoking is a gateway to further serious addiction that is why it has to be curbed. Drug abuse poses a threat to the health and safety of our students and community. NUTECH is committed to the elimination of drug in our lives and has a zero-tolerance policy for its use.

» **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.

We provide equal opportunities to students with disabilities to participate in Extra-curricular and recreational activities

» **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 is committed to create and maintain an educational working and living environment free from discrimination and harassment. We encourage everyone to report all incidents of discrimination and/or harassment and respond to all allegations while taking steps to ensure that each is handled according to applicable policies.

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 encyclopaedias, 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	

Cont...

- **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,

Cont...

- 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.
- 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.
- Llaise 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.

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)

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.

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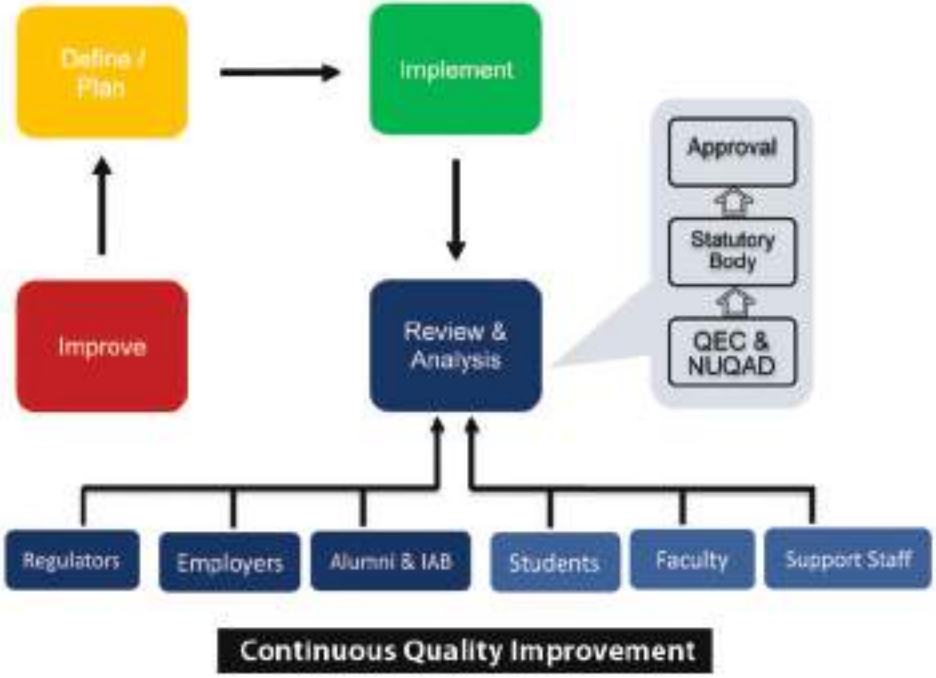
- To ensure that all academic initiatives, from level 1 to 8, and associated support processes are positively contributing towards the spirit of personality development and character building so as to achieve desired conformity with the Vision, Mission and Guiding Principles of NUTECH.

» **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.



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 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**

Industry representatives conducting interviews during the job expo at NUTECH, from the allocated seats for On-the-Job Training (OJT) and internship in relevant industries

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.

NUTECH Management

Rector Secretariat

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

Maj Gen Khalid Javed, HI(M)
Pro-Rector

Support Staff

Maj Gen Raza Ali Khan, HI(M)
DG Skills

AVM M. Asif Aslam, SI (M)
DG NORIIC

Dr. Syed Adnan Qasim
Registrar

Muhammad Shahid Manzoor
Director Admission

Kamran Ullah Malik
Director Administration/PMO

Nauman Pasha
Director Human Resource

Muhammad Tahseen Arif Goraya
Director NBTPE

Taimur Baig
Director NUQAD

Agha Abid Raza
Controller of Examination

Dr. Sayyed Naseem Abbas
Director ICT

Engr Farooq Umer
Director NORIIC

Tariq Mahmood
A/Director P & D

Zahid Hussain
Treasurer

Dean of University

Dr. Almas Anjum
Dean of University (DoU)

Dr. Umair Manzoor
Dean of Graduate Education (DGE)

Dr. Muhammad Maqbool
Dean UG Education (DUE)

Nasir Majeed Akhtar
Dean of Students Life (DSL)

Sukman Khalid
Director Library

Departments / Faculty

Civil Engineering Department

Dr. Muhammad Maqbool
HoD Civil
PhD (USA)
Specialization: Structural Engineering

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

Dr. Muhammad Aaqib
Assistant Professor
PhD (South Korea)
Specialization: Geotechnical Engineering

Dr. Muhammad Zohaib
Assistant Professor
PhD (South Korea)
Specialization: Water Resources/ Remote sensing

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

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

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

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

Cont...

Sameean Khurshid
Lecturer
MS (NUST)
Specialization: Geotechnical Engineering

Sana Gul
Lecturer
MS (NUST)
Specialization: Structural Engineering

Asim Sultan
Lecturer
MS (NUST)
Specialization: Structural Engineering

Saad Fawad Azim
Lecturer
MS (NUST)
Specialization: Construction Engineering & Management

Mechanical Engineering Department

Dr. M. Khurram
HoD Mechanical
PhD (NUST)
Specialization: Tribology Instrumentation, Materials

Dr. Umair Manzoor
Professor
PhD (South Korea)
Specialization: Materials Engineering

Dr. Liaquat Ali Khan
Associate Professor
PhD (UET)
Specialization: Control, Vibrations, Thermo-Fluids

Dr. Kamran Nazir
Assistant Professor
PhD (South Korea)
Specialization: Computational Fluid Dynamics / Fluid Mechanics

Dr. Waheed Gul
Assistant Professor
PhD (South Korea)
Specialization: Nano Composites, Materials, Characterization, Vibration Analysis

Kishwat Ijaz Malik
Lecturer (on Study Leave)
MS (UET)
Specialization: Tribology /IC Engines/ Thermodynamics

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

Sajid Raza Zaidi
Lecturer
MS (NUST)
Specialization: Design & Manufacturing, Laser MaterialProcessing

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

Electrical Engineering Department

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

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

Cont...

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

Dr. Adnan Saeed
Assistant Professor
PhD (Germany)
Specialization: Microwave

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

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

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

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

Aneeqa Ramzan
Lecturer
MS (NUST)
Specialization: Medical Image Processing

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

Computer Engineering Department

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

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

Dr. Yasir Awais Butt
Associate Professor
PhD (CUST)
Specialization: Robotics and Control Systems

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

Dr. Muhammad Ejaz Khan
Associate Professor/Director LQEC
PhD (Korea)
Specialization: Nanoscience and Technology

Dr. Qasim Mahmood Ch
Associate Professor
PhD (USA)
Specialization: Electrical Engineering

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

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

Faria Tasneem
Lecturer
MS (AIR University)
Specialization:

NUtech
Leading to Progress & Excellence

Computer Science Department

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

Dr. Rafi Ullah
Associate Professor
PhD (PIEAS)
Specialization: (Computer and Information Sciences

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

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

Dr. Saman Riaz
Assistant Professor
PhD (Xidian University, China)
Specialization: Artificial Intelligence

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

Dr. Mussadiq Abdul Rahim
Assistant Professor
PhD (BIT, China)
Specialization: Artificial Intelligence and Cybersecurity

Afia Zafar
Lecturer
MS (COMSATS)
Specialization: Software Engineering

Kainat Zafar
Lecturer
MS (USA)
Specialization: Computer Science

Umay Kulsoom
Lecturer
MS (NUST)
Specialization: Software Engineering

Bachelor of Engineering Technology (Civil) Department

Dr. Muhammad Maqbool
HoD BET (Civil)
PhD (USA)
Specialization: Structural Engineering

Dr. Omer Javaid
Assistant Prof
PhD (South Korea)
Specialization: Structural Engineering

Ali Tariq
Lecturer
MS (NUST)
Specialization: Construction Management

Ali Siddique
Lecturer
MS (COMSATS)
Specialization: Structural Engineering

Muhammad Yousuf
Lecturer
MS (FAST)
Specialization: Transportation Engineering

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

Sajid Rasheed
Lecturer
MS (NUST)
Specialization: Structural Engineering

Mathematics Faculty

Dr. Muhammad Ashiq
Principal NUSASH
PhD (QAU)
Specialization: Group Theory/ Theory of Group Graphs

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

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

Dr. Usman Alam Gillani
Lecturer
PhD (QAU)
Specialization: General Relativity

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

Physics Faculty

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

Dr. Qamar Wali
Assistant Professor
PhD (Malaysia)
Specialization: Advance Materials & Solar Cells

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

Dr. Mohsan Waseem Ather
Assistant Professor
PhD (Cyprus)
Specialization: Experimental Particle Physics

Dr. Hasan Abdur Rahman
Assistant Professor
PhD (Germany)
Specialization: Computational Physics

Chemistry Faculty

Dr. Faiza Jan Iftikhar
Associate Professor
PhD (Austria)
Specialization: Electrochemistry

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

Dr. Sohaila Andleeb
Assistant Professor
PhD (QAU)
Specialization: Inorganic/Anal Chemistry

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

Biology Faculty

Dr. Sajid Hussain
Assistant Professor
PhD (China)
Specialization: Biochemistry & Molecular Biology

Dr. Roohi Aslam
Assistant Professor
PhD (NUST)
Specialization: Biochemistry and Molecular Biology/ Biotechnology

Dr. Sajeela Ahmed
Assistant Professor
PhD (Italy)
Specialization: Biochemistry and Molecular Biology

Humanities Faculty

Awais
Assistant Professor
PhD In progress
Specialization: Pakistan Studies/ International Relations

Sohaib Ashraf
Lecturer
PhD In progress
Specialization: Islamic Finance

Aalyia Yasmin
Lecturer
MPhil (NUML)
Specialization: English Linguistics

Muqaddas Inayat
Lecturer
MPhil (NUML)
Specialization: English Linguistics

NUTECH Skills Development Department

Nadeem Khalid
Director NSDD

Naveed Yusuf
Director PI&E

Sadiya Qureshi
Principal NIVATS

NIVATS Faculty

Qazi Nauman Ejaz
Lecturer Skills
Master in Computer Science

Usman Majeed
Lecturer Skills
B.A (Mass Comm)

Junaid Mehboob
Lecturer Skills
MSc Project Management

Shams-ul-Haq
Lecturer Skills
B. Com

Zakria Qadir
Lecturer Skills
MS Electrical Engineering

Amna Bibi
Lecturer Skills
MSc Economics/
Hospitality Expert

Arslan Mehmood Khan
Lecturer Skills
MSE

Maryum Zaman
Lecturer Skills
MS Information Security

Nouman Zafar Hashmi
Lecturer Skills
MSCS

Faizan Abbas
Lecturer Skills
Masters in Computer Science

Undergraduate Convocation of First -Batch 2018

Open House & Job Fair at NUTECH

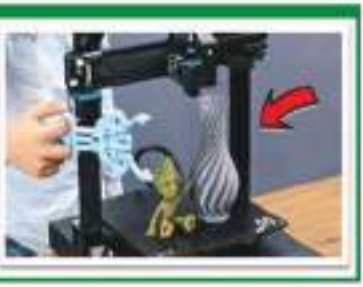
NUTECH Participates in Engineering Capstone Expo 2023

PEC Excellence Award 2022

NUTECH Participation in International Summit Higher Education & Workforce Development in the 21st Century

NUTECH Participation at IDEAS-2022 Exhibition, Karachi

NUTECH INDUSTRIAL R&D PROJECTS



NUTECH FUTURE INDUSTRIAL R&D PROJECTS

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Students Activities

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Students Activities

National University of Technology

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