NFC INSTITUTE OF ENGINEERING & TECHNOLOGY
FEDERAL DEGREE AWARDING INSTITUTE

NFC IET
MULTAN-PAKISTAN

PROSPECTUS
2023

www.nfciet.edu.pk

CONTENTS

CONTENTS

Dr. Arif Hussain Alvi
Chancellor

Prince Muhammad Isa Jan Baloch
Pro-Chancellor

Engr. Prof. Dr. Akhtar Ali Malik
Vice Chancellor

Vice Chancellor's Message

It is with great pleasure and enthusiasm that I extend a warm welcome to each and every one of you to our prestigious institute. As the Vice Chancellor, I am honored to represent an institution renowned for its commitment to academic excellence, innovation, and personal growth.Choosing a university is a significant milestone in your educational journey, and we understand the importance of making an informed decision. Our institute stands apart as a beacon of knowledge in the Southern Punjab region, providing a nurturing environment that fosters intellectual curiosity, creativity, and critical thinking. Here at our NFC IET Multan, we believe in the power of education to transform lives and shape the future. Our dedicated faculty members are renowned experts in their fields, ready to inspire and guide you on your path to success. We offer a diverse range of programs spanning various disciplines, ensuring that you have the opportunity to pursue your passion and explore new horizons. Although the institute major concentration is on our engineering, sciences and technology courses; we also made our name in the fields of business administration, fashion design, architecture, and criminology to name a few. Our state-of-the-art facilities, cutting-edge research centers, and extensive library resources provide you with the tools necessary to excel academically. Furthermore, the purpose built campus and the infrastructure will provide endless opportunities to nurture your dreams. Additionally, we understand the importance of a well-rounded education, and our vibrant campus life offers countless opportunities to engage in extracurricular activities, clubs, and student organizations that cater to a wide range of interests. As a student at NFC IET Multan, you will be part of a vibrant and inclusive community that celebrates diversity and embraces collaboration. We are committed to fostering an environment where ideas are freely exchanged, perspectives are valued, and lifelong friendships are formed. Beyond the classroom, we encourage you to take advantage of our strong network of industry partnerships, internships, and career development programs. Our goal is to empower you with the knowledge, skills, and experiences necessary to thrive in an ever-changing global landscape. I invite you to explore our institute further, whether through virtual tours, information sessions during open day, or conversations with our current students and alumni. We are confident that you will discover why NFC IET Multan is a place where dreams take flight and ambitions are realized. On behalf of the entire NFC IET Multan family, I extend a heartfelt welcome to you. We eagerly await the opportunity to guide you on your educational journey and witness your growth and achievements.

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NFC IET
MULTAN-PAKISTAN

Prospectus 2023

GENERAL

- History of IET
- Academic Programmes
- Academic Setup

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History

NFC-IET was established in 1985 to meet the technological training needs of production units of National Fertilizer Corporation of Pakistan in liaison with the industrial units of NFC with the collaboration of COSMO, Japan. Initially it trained managers, engineers, supervisors, operators and technicians through multi-dimensional programmes attuned to fertilizer and chemical process industry. The genesis of the Institute can be traced back to the early 90's when Dr. Saeed Ahmad Khan (late) emerged the idea that a centre of excellence in engineering and technology ought to be established in this region since there was no engineering institute from Lahore to Nawabshah, Sindh and the students hailing from these areas had to face huge difficulties to get admission in engineering universities as well as to pursue their education. The activities of the institute were diversified in 1994 in line with the education policy of Government of Pakistan and it was upgraded to the first dedicated engineering institute in Southern Punjab with engineering degree programmes offered in affiliation with Bahauddin Zakariya University, Multan. The under-graduate Engineering programme in NFC-IET was introduced in 1994 when a batch of 40 students was admitted in Chemical Engineering discipline. Since then, IET never looked back and grew with every passing year. In 2001, two new disciplines Electronic Engineering and Computer Systems Engineering were added. A four year B.S. Programme in Computer Science was introduced in 2008. The institution started a four year BS programme in Environmental Science in 2011.

In 2012, NFC-IET was awarded the charter of Federal Degree awarding Institute and Prof. Dr. Malik Akhtar Ali Kalrou was appointed as its first Vice Chancellor. Under the dynamic leadership of Prof. Dr. Malik Akhtar Ali Kalrou, NFC-IET is galloping at a rapid pace having launched new programmes including Mechanical Engineering, Civil Engineering, Architecture Design, BBA in 2013 and BS Engineering Technologies, in 2014 and B.Sc. Petroleum & Gas Engineering in 2015. The Institution has started Environmental Engineering and Energy System Engineering in 2017 and MS Programmes in Electrical Engineering & Chemical Engineering in 2016, and MS Computer Science in 2017. In 2020, four new programmes, including two post graduate programs were launched.

All our Engineering programmes have been accredited by Pakistan Engineering Council (PEC), the apex body to regulate engineering education in the country. Over the years, the institute has produced more than 2800 bright, motivated graduates employed at some of the most respectable firms all over the world. We are proud that our graduates are not only strengthening the economy of Pakistan but also earning great respect for the institute. The practical engineering education facilities which are available in the Institute, such as Miniature Plant provide added benefits to students in learning actual plant operation, process control and plant optimization. These facilities are in no parallel with other engineering institutions/ universities of Pakistan. Another achievement of our institute in the field of engineering and technology is the establishment of Coal Research Centre which is a state of the art lab. The Coal Research Centre, established at a cost of Rs.80 Million, caters for coal gasification and combustion.

Solar Power Plant (to be included one paragraph)

In today's competitive marketplace, NFC-IET is not only envisaged to grow as a modern centre of excellence in engineering and technology but also take heed in provided its students with industrial and science exposure since we strongly believe that science and engineering linkage between academic institutions, industry and elsewhere plays a critical role in raising our standard of living, quality of education, creating jobs and improving right knowledge, skills and attitude. We also believe in the harmony of academic and personal growth. Our societies have been playing their role in providing the students with various opportunities to indulge in their aesthetic interests and experience working in a professional environment. Moreover, these societies instil in their members the priceless qualities of teamwork and leadership.

Vision:

"NFC-IET committed to provide quality education and skills by providing conducive environment while maintaining self sustainability."

Mission:

"To pursue incorporation of academic evaluation standards in all strategic planning, policies and efficient management of financial resources at the Institute."

Goals:

- To produce graduates of market demand and social competence.
- Sustenance of Institute's employees

confidence.

- Promotion of individual faculty research profile.
- Facilitation of international faculty and students' academics and R&D collaboration.
- Self assurance and compliance to all concerned academic regulatory bodies.
- To maximize resource mobilization of the Institute.

In present techno-driven world, institutions of engineering and technology education have got prime importance for a country to achieve distinguished position among the advanced nations. Investments on producing high tech professionals and experts can guarantee in transforming traditional businesses of a country to a knowledge based economy which is accredited as an effective measure of prosperity of a nation. NFC-IET is also serving for the same cause offering higher education in multi engineering and science disciplines to the aspiring youth of Pakistan. The Institute aims at producing such professionals by setting up a strong base of engineering education and research. It strives to produce graduates who can upgrade the existing technological enterprise and in whom professional excellence is inseparable from a commitment to the national ideals.

Location, Area and Locality

The Institute is situated in Multan, a city located in the orbit of world known as Indus civilization and is amongst the few ancient cities of Pakistan. Multan's history of religious-political activities is almost five thousand years old. Multan, once famous for "Sun-Worship" in the early centuries of Christian era was introduced to a completely new set of conquerors. The city turned into a great centre of Suhrwardia Silsillah established under the guidance of Sheikh Bahauddin Zakariya.

Exquisite relics of that era are the treasured possessions of The Khanqah (Shrine) of Shah Rukn-e-Aalam, a masterpiece of architecture which became the identity of Multan. During this period, immigrants from various cultural and intellectual centres of central Asia and Iran came to Multan. Today's city of Multan reflects a complete blend of modern, planned metropolitan systems and old

civilization.

The Institute is located on Khanewal Road in close proximity to Pak Arab Fertilizers Ltd., which is one of the biggest chemical process complexes in the country, and provides a strong technical backup to the Institute. Stretched over a land of 320 canals, NFC-IET is housed in a number of buildings having graceful exterior and elegant interiors with all the necessary amenities for its users. The location of the Institute offers many advantages. Perhaps the most important advantage is the invaluable opportunities it offers for establishing an interaction between industry and institute.

Academic Programmes

The Institute offers following undergraduate programmes:

1. B.Sc. Chemical Engineering
2. B.Sc. Electrical (Power) Engineering
   B.Sc. Electrical (Electronics) Engineering
   B.Sc. Electrical (Computer Systems) Engg.
3. B.Sc. Mechanical Engineering
4. B.Sc. Civil Engineering
5. B.Sc. Petroleum & Gas Engineering
6. B. Architecture
9. BS Computer Science
10. BS Software Engineering
11. BBA
12. BS Bio-Medical Engineering Technology
13. B.Des. Fashion Design
14. BS Criminology
15. BS Environmental Science
16. BS Chemistry
17. BS Physics
18. BS Food Science and Technology

The Institute offers following postgraduate programmes;

1. MS Electrical Engineering
2. MS Chemical Engineering
3. MS Computer Science
4. MS Mechanical Engineering
5. MS Civil Engineering
6. MBA

Curriculum for the degree in each discipline is designed to provide in-depth knowledge of engineering & technology to the graduates, develop their thinking ability in a manner that they become competent professionals with additional attributes of creative vision, innovative approach and managerial skills. The curricula are in line with PEC and HEC guidelines.

Academic Setup

Each semester shall be of five months duration with 16 weeks for teaching, and two weeks each for conduct of examination and vacations. The medium of instruction

is English.

The Faculty

The existing teaching staff is highly qualified and rich in industrial experience and technical skills. IET is perhaps one of the few institutions in Pakistan, with a teaching staff of such a vast industrial experience. The faculty consists of professionals in the fields of Chemical, Mechanical, Civil, Electrical, Electronic, Instrumentation Computer Engineering, and Science and Architecture Design. The faculty includes 21 Ph.Ds in Engineering and Basic Sciences and over 94 Masters Degree holders. Under the faculty development plan of the Institute, as many as eight faculty members have gone abroad for Ph.D./M.S. Programme and an equal number is pursuing Ph.D./M.S. within the country.

The Institute also holds the services of competent professionals, senior academicians and experienced teachers as panel members who frequently visit the Institute during the academic year.

Outcome-based Education System

Outcome-based education is a model of education that rejects the traditional focus on what the Institute provides to students, in favor of making students demonstrate that they "know and are able to do" whatever the required outcomes are.

OBE reforms emphasize setting clear standards for observable, measureable outcomes. Nothing about OBE demands the adoption of any specific outcome. For example, many countries write their OBE standards so that they focus strictly on mathematics, language, science, and history, without ever referring to attitudes, social skills, or moral values.

The key features which may be used to judge if a system has implemented an outcomes-based

- Creation of a curriculum framework that outlines specific, measureable outcomes. The standards included in the frameworks are usually chosen through the area's normal political process. A commitment not only to provide an opportunity of education, but to require learning outcomes for advancement. Promotion to the next grade or other rewards is granted upon achievement of the standards, while extra classes, repeating the year or other consequences entail upon those who do not meet the standards.
- Standards-based assessments that determines whether students have achieved the stated standard. Assessments may take any form, so long as the assessments actually measure whether the student knows the required information or can perform the required task.
- NFC-IET Multan adopted OBE System for Engineering Technologies programs according to the requirement of Pakistan Engineering Council and National Technology Council.

Benefits of OBE

Clarity

The focus on outcomes creates a clear expectation of what needs to be accomplished by the end of the

course. Students will understand what is expected of them and teachers will know what they need to teach during the course. Clarity is important over years of schooling and when team teaching is involved. Each team member, or year in school, will have a clear understanding of what needs to be accomplished in each class, or at each level, allowing students to progress. Those designing and planning the curriculum are expected to work backwards once an outcome has been decided upon; they must determine what knowledge and skills will be required to reach the outcome.

Flexibility

With a clear sense of what needs to be accomplished, instructors will be able to structure their lessons around the student's needs. OBE does not specify a specific method of instruction, leaving instructors free to teach their students using any method. Instructors will also be able to recognize diversity among students by using various teaching and assessment techniques during their class. OBE is meant to be a student-centered learning model. Teachers are meant to guide and help the students understand the material in any way necessary, study guides, and group work are some of the methods instructors can use to facilitate students learning.

Comparison

OBE can be compared across different institutions. On an individual level, institutions can look at what outcomes a student has achieved to decide what level the student would be at within a new institution. On an institutional level, institutions can compare themselves, by checking to see what outcomes they have in common, and find places where they may need improvement, based on the achievement of outcomes at other institutions. The ability to compare easily across institutions allows students to move between institutions with relative ease. The institutions can compare outcomes to determine what credits to award the student. The clearly articulated outcomes should allow institutions to assess the student's achievements rapidly, leading to increased movement of students. These outcomes also work for school to work transitions. A potential employer can look at records of the potential employees to determine what outcomes they have achieved. They can then determine if the potential employee has the skills necessary for the job.

Involvement

Student involvement in the classroom is a key part of OBE. Students are expected to do their own learning, so that they gain a full understanding of the material. Increased student involvement allows students to feel responsible for their own learning, and they should learn more through this individual learning. Other aspects of involvement are parental and community, through developing curriculum, or making changes to it. OBE outcomes are meant to be decided upon within

Facilities & Services

- Computing & Internet
- Libraries
- Students' Accommodation
- Vice Chancellor Secretariat
- Guest House
- Sports Facilities
- Laboratories
- Mosque
- FM Radio Broadcasting
- Transport & Parking Facilities
- Metro Bus Service

The Institute is spread over 40 acres of land. NFC IET include Dr. Akhtar Ali Kalrou Block, Old & new Chemical Engineering Blocks, Mechanical Engineering Block, Civil Engineering Block, Bio-Medical Block, Architecture Block and Electrical Engineering Block. In addition, the Institute has a Vice Chancellor Secretariat, Training Block and Central Workshop in the Academic premises. These buildings, apart from the class rooms and labs, include three libraries - one each for Chemical Engineering, Electrical Engineering & Basic Sciences, three Seminar Halls and six Committee Rooms. The Institute is housed in a number of buildings, which have a graceful exterior and an elegant interior with all the necessary amenities and conveniences for its users. The academic blocks have fully furnished, air-conditioned class rooms, lecture theaters, laboratories equipped with latest equipment and Instruments, Workshop, Faculty Rooms, Seminar Halls, Committee Rooms and a Library.

Computing & Internet Facilities

The Institute has high speed network setup for the faculty members and students who have an easy access to the internet services like web surfing, file transfer, chat and e-mail. The computer and Simulation Labs of Chemical Engineering Department have 70 computers while in the Electrical Engineering Department, in addition to different Lab Computers, there are 70 Core-i5 computers in Labs for the purpose of computing and internet facility, in particular Computer Science Department has five state of the art computer labs and computer equipped class rooms.

Libraries

At present, we have three libraries. One of the libraries of the Institute is situated in Electrical Engineering Block. The main hall is well furnished, air-conditioned and has independent study cabins. It has textbooks, reference books, Science & Engineering Encyclopedias, Training Manuals, Technical Literature, Magazine and journals to meet the needs of the faculty and students. The library at the moment has over twenty five thousand books which are under use for study, training and research purpose. In addition, latest and contemporary issues of international journals and magazines of the relevant disciplines are also available for the pursuance of research activities.

The library has access to on-line digital library through HEC's PERN System, which is the flagship program of HEC. The Audio-Visual section of the library has over one hundred videocassettes on diverse topics like operation of different machines, pumps, compressors etc. maintenance of these machines and other technical and general

engineering issues. A separate library for Chemical Engineering students has been created in the old Chemical Engineering Block and for Civil Engineering, Mechanical Engineering, Architecture, & Environmental Engineering programmes, a library is established in Dr. Akhtar Ali Kalrou Block. These libraries have similar facilities as that of Electrical Engineering Block.

Students' Accommodation

Two boys' hostels were constructed in 2007 and 2015 having a capacity of 440 students each. The hostels are fully equipped with all residential and sports facilities required for male students. The hostel mess serves quality food at approved rates and the canteen offers break-fast, snacks, refreshments and remains open till late night.

Girls' Accommodation

The girls' hostel can accommodate over 100 female students. The hostel is fully equipped with all residential and sports facilities required for female students. In addition to furnished kitchen, mess facility is also available on membership basis.

Vice Chancellor Secretariat

The Vice Chancellor Secretariat of the institute includes offices of the Vice Chancellor, Registrar, Controller of Examinations, Admission, Administration, Finance and other allied offices.

Guest House

The first building which was constructed right at the inception of the Institute was the Guest house to accommodate guests for their short stay at the campus. It is lavishly furnished, has ten bed rooms and is currently used for visitors stay as well as to serve external examiners.

Sports

Extensive indoor and outdoor sports facilities are available within and around the Institute. A Gymnasium, Badminton courts and a football ground/cricket field are available in the Institute. Construction of new sports complex, having Basket ball, Lawn Tennis, Squash Courts and a Swimming pool, will start soon.

Laboratories

The Institute has a number of laboratories having latest equipment and a state of the art miniature plant. Fifteen new laboratories have been added to the laboratory facilities of the Institute to cater the needs of the engineering students. These lab facilities meet the international standards and are highly ranked among the institutions offering degree in engineering disciplines. Construction work for the upgradation of existing labs and addition of new ones is underway. The labs will not only be utilized at under-graduate level but also at post-graduate level for research and studies. Detailed list of the Labs with major equipment is given on subsequent pages.

Mosque

A mosque has been constructed near the boys' hostels to facilitate the students to offer their regular prayers.

NFC-IET Goes Live (FM Transmission)

NFC-IET has taken another congenial initiative by incorporating with PILAC (Punjab Institute of Language, Art & Culture) and established a specialized subject “Punjab Rung FM 99.4" radio station in the premises of the Institute. This incitingly zealous and spirited project aims for the development of the Education and culture of Southern Pun jab.

FM 99.4 is benefitting NFC-IET with two hours exclusive On-Air time daily and free of cost for the presentation of education, and research to promote.

An independent floor is entrusted to FM in the Architecture department where FM owns an On-Air studio, Production Studio, Control Room, and a very well equipped digital recording and editing system.

The test transmission has already started from 24th May 2021. The initial coverage area is more than 200 KM all around Multan.

The station director Mr. Hassan Jalil enlightened us that Punjab Rung FM 99.4 Radio has a very special scope which makes it different and vibrant from other non-commercial radios.

It will provide technical expertise to educational institutions, media, and cultural bodies in the field of programming, production, folk music, fine arts, and literature.

He further added that all the students and faculty of NFC-IET will also be provided an opportunity to elucidate their talent through this platform.

PARKING PLAZA

The expansion of the Institution with numerous new departments, and greater enrollment of students, had made the parking place rather insufficient. The issue has been addressed and the innovative and the most awaiting facility of multi-story parking plaza has finally been built and functional at the present moment in the Institute.

It is a 3-story building consists of a basement, ground floor, and 1st floor covering 56000 sq feet with segregated entrances having the parking space of 300 Bikes and 150 Cars and still further floors can be

constructed according to future requirements.

The students can get access to park their vehicles safely by having the parking-tokens while the faculty is allocated with exclusive stickers for parking.

This marvelous project was inaugurated by the reverend Vice-Chancellor NFC-IET Prof. Dr. Malik Akhtar Ali Kalrou in a ceremony. During the program, the Vice Chancellor recognized all the hard work to make this plan a success. In his speech, he further elucidated that the parking problem had been becoming a much more serious concern for NFC-IET. The Institute construe the issue resulted in another memorable accomplishment credited to the Institute.

Solar Power System:

In order to avoid load shedding and getting green energy, NFC-IET became first Institute to install Solar Power System of 500 kw. NFC-IET is the first Institute of Punjab who get Generation Licence and it will give extra energy to MEPCO through Net Meter with the vision of Vice Chancellor.

Dr. Kamran Liaqat Bhatti, Project Director, completed the Solar Power System Project in record time of two months from the date of award of work.

NFC INSTITUTE OF ENGINEERING & TECHNOLOGY
FEDERAL DEGREE AWARDING INSTITUTE
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DEPARTMENT OF
Chemical Engineering

Prospectus
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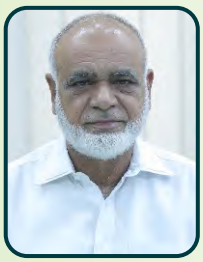

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MINIATURE PLANT

Chemical Engineering

Chemical Engineering focuses on the application of engineering principles to industrial processing plant design, construction, and operation. In any industrial processing plant, such as those dealing with petrochemicals, chemicals, pharmaceuticals, semiconductors, food processing and other related industries, a chemical engineer typically works. The job includes monitoring the operation and maintenance of the plant, troubleshooting process-related operational problems, and undertaking plant modification work for process operability and safety. The Bachelor of Chemical Engineering program emphasizes the need for a strong foundation in Mathematics, Physics and Chemistry, followed by a thorough coverage of basic engineering courses such as Fluid Mechanics, Mass & Heat Transfer and Thermodynamics. During the later years of study, students are introduced to Unit Processes, Reaction Engineering, Environment & Safety, Process Control and Process Design. In addition to the above, at the end of their studies, a student will have the opportunity to take special subjects in one of the promising areas of interest. Chemical engineers are mainly concerned with developing, operating, and maintaining processing systems to turn and upgrade raw materials into goods that are more socially useful and valuable. Our programme is accredited by the Pakistan Engineering Council (PEC). As Pakistan has been listed in the Washington Accord International Accreditation Agreement, the Bachelor of Engineering degree graduates of NFC(IET) are accredited under Outcome-based education (OBE) since 2K17 session. Outcome-based education (OBE) is an educational theory that bases each part of an educational system around goals (outcomes). Pakistan has been declared as "Full Signatory" of the Washington Accord. The Department of Chemical Engineering has adopted Outcome Based Education (OBE). Presently, there are 20 full and 8 provisional signatory members making up Washington Accord.

Mission

To nurture engineers for industry and academia with strong values of professionalism and scientific inquiry so as to enable them to achieve high standards of industry while maintaining sound financial health.

Employability

The discipline 'chemical engineering' is often used to describe a broad area of engineering. Chemical engineers are called universal engineers since they are involved in constructing, designing, and managing chemical processing plants all over the world. Chemical engineers have a great demand in strategic sector as well as bright opportunities for higher education in advanced countries. The prominent sectors employing chemical engineers include:

- Fertilizer industry
- Oil & gas sector
- Petroleum refining & Petrochemical sectors

- Synthetic & polymer sector
- Cement industry
- Paper & pulp industry
- Energy sector
- Textile industry
- Ceramics industry
- Glass industry
- Pharmaceutical industry
- Sugar industry
- Chemical industry
- Mineral processing
- Food & beverages industry
- Research & development
- Plant design & manufacturing
- Steel mill industry
- Water treatment operations
- Safety & environment operations

The Chemical Engineering program at NFC IET equip the graduates with the technical skillset and critical thinking that enable them to adapt and succeed in any professional challenge, by identifying and solving bottlenecks.

Industrial Advisory Board (IAB):

IAB has been established in the chemical department to achieve the following objectives:

- Link the Institute to industry for benefit through memorandum of understanding/agreement
- Obtain support from industry for institute program and projects
- Involve industrial personnel for curriculum development
- Organize visits for institute-industry relationship
- Arrange internship for students every year
- Link institute academic staff to industry for collaboration research and consultancy work
- Obtain opportunities in industry for practical experience for NFC-IET students to carry out their final year project thesis
- Establish partnership with community based projects and organization
- Solve funded industrial-based problems

Memorandums of understanding have been signed with several industrial and organizational entities, to offer the technical expertise of the department for techno-economic growth of industry and social sector. Some of these include,

- Century Paper and Board Mills Limited
- Velosi International
- Water Engineering and Management Services (WEMS)
- Chemical Kinetics
- Multan Chamber of Commerce and Industry
- BinRasheed Group
- Khawaja Mineral Industries
- National Cleaner Production Center
- National Productivity Organization
- Volka Foods International

Departmental Quality Assurance Committee (QAC)

The role of QAC is to provide a comprehensive strategy and planning to ensure, maintain and implement quality standards in the department. It will make sure that Annual Monitoring Report (AMR) is prepared and submitted to Head of Department Office for continuous improvement in quality. The committee will be responsible for defining criteria, standards and quality monitoring procedures as per


Fatima Recruitment Drive in NFC-IET


Industrial Advisory Board (IAB)

HEC guidelines.

Societies of Chemical Engineering Departments Alumni Association

The mission of the Chemical Engineering Department Alumni Association is to create an environment in which alumni stay connected to the department through social, cultural, and educational activities, and support it with their work, wisdom, and wealth. The association has helped in strengthening the bond between the alumni and the department. The department keeps track of the alumni and helps them in job seeking and postgraduate studies even after passing out through the association. Several alumni have been invited to deliver technical and motivational lectures to the upcoming graduates which have been extremely beneficial. The Alumni Association implements its mission in partnership with the Institute's Office of Alumni.

OUR ALUMNI - OUR PRIDE


Dr. Faisal hameed
Vice President Infrastructure
EXP, USA


Engr. Shahid Umar
Manager Process
Pak Arab Refinery


Engr. Asif Shamim
Dy. Chief Engineer
SNGPL, Multan


Engr. Muhammad Adnan
Section Head Ammonia Plant
Fauji Fertilizer Co. Limited


Engr. Abdul Wahab
Lead Preoess Engineer
ARAMCO


Engr. Jahangir Rehman Khan
Senior Engineer
Pakistan Atomic Energy Commission


Dr. Waseem Raza
Postdoctoral Fellow
Shenzhen University, China


Engr. Kashif Ashraf
Lecturer, Chemical Department
KFUEIT, Rahimyar Khan


Engr. Usama Iqbal
Senior Process Engineer
Pakarab Fertilizers Ltd.
Multan

Chemical Department Technical Society (CDTS):

CDTS was launched in the chemical department with the aim to conduct seminars, conferences and technical competitions in the chemical department

Best Brain Competition (CDTS)

and provide platform for the budding engineers to enhance their communication and presentation skills for a successful career. Another objective of CDTS is to expand the presence of chemical department on social media platforms. To achieve these, the society has been inviting personnel from top managerial positions in industrial sector for the last three years which has helped in bridging gap between academic and industrial sector. CDTS has organized more than 12 seminars and webinars in a short span of three years. With the slogan “Will to build the future”, CDTS is doing an excellent job of providing leadership to the students. Recently, CDTS has launched official YouTube Channel of the Chemical Department.

Chemical Department Literary Society (CDLS):

The literary societies are an important factor in the educational institutes. Our CDLS was introduced with the aim to promote healthy reading and writing habits among students. This helps the students to show their talent using the society as their platform. The society has organized different activities like Seerat-un-Nabi Conference, Motivational lectures, Sham e Ghazal and many more. It can also give charm to students during their busy schedule by conducting “funny poetic symposium”. Under its platform, we have conducted English as well as Urdu debate competitions. Our focus is to release students from academic stress through social involvement, bring together students having similar interests and learn about activities. With the slogan **Touch the sky we give the way;** our literary society is doing a good job for providing better skills to the students.

Chemical Department Blood Donation Society (CDBDS):

Chemical Department Blood Donation Society (CDBDS) NFC IET was established in 2019 under the supervision of Engr. Dr. Sadiq Hussain, HoD of Chemical Engineering Department. CDBDS-NFC IET has a team of highly motivated faculty members and students, who maintain a complete database of blood donors that include volunteers from students and faculty/staff. This society helps in securing timely blood donations in emergencies as well as in routine requirements. The objectives of the society are: to create awareness of donating blood and conducting health awareness programs; to motivate students to donate blood; to develop a database of our students for blood donation; and to connect needy with volunteer blood donors.

Faculty Development

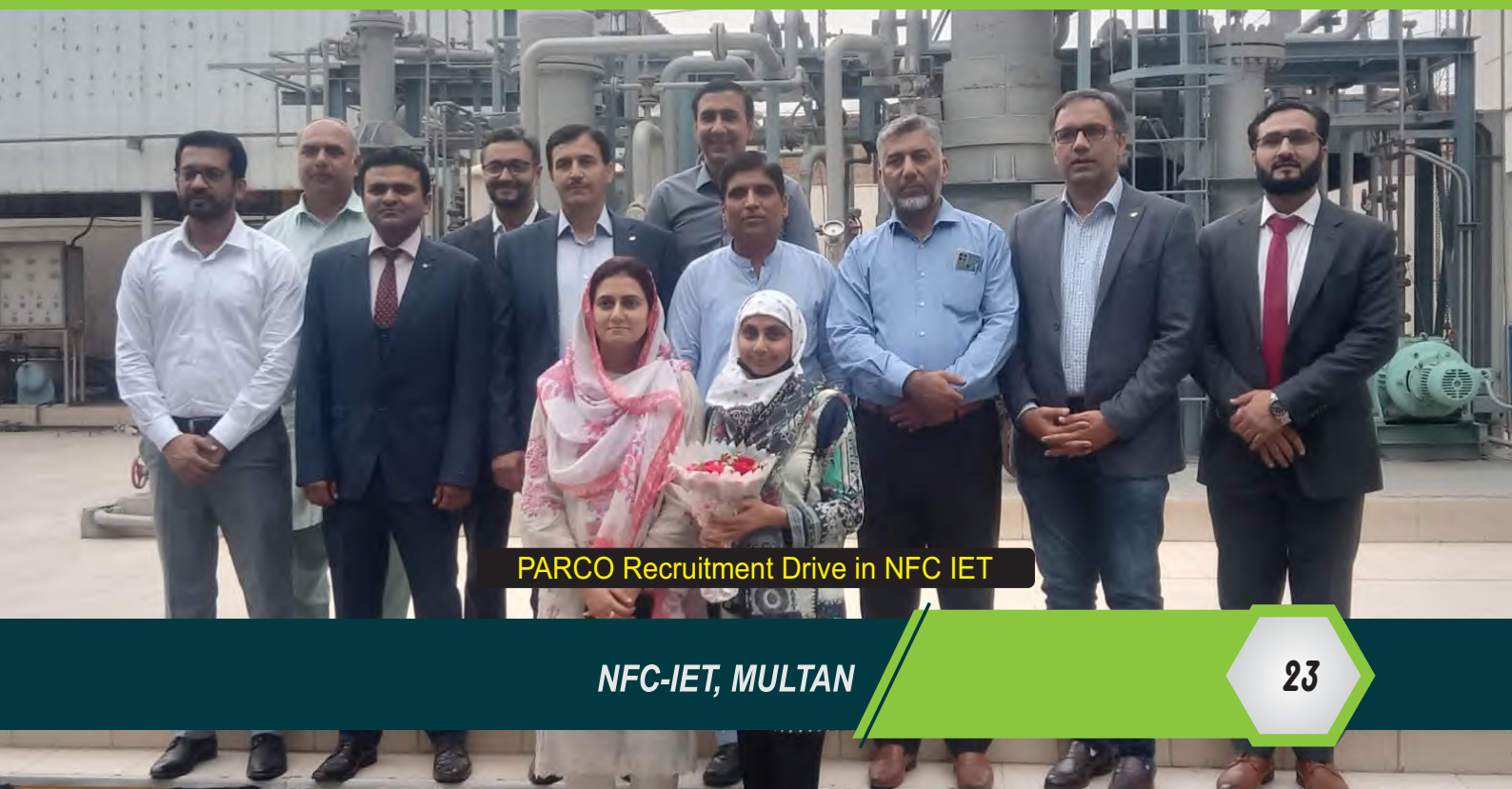
The faculty at the Department of Chemical Engineering is a blend of qualified professionals rich in teaching, training, research, and industrial experience. The faculty comprises of Ph.D. and M.Sc. Engineering qualified personnel with vast industrial and engineering design experience.

As a firm believer on the significance of continuous improvement, Department of Chemical Engineering has always encouraged the faculty members to achieve professional and academic milestones. In the year 2023, one faculty member of the Department, Engr. Dr. Subhan Azeem completed his PhD from the University of the Punjab, Lahore. He has published two research papers in international refereed journals while two more papers are in the pipeline.

Tribute to the Legendary Academicians:

In 2021, Engr. Gulzar Hussain (M.Sc. Chemical Engineering., P.E.) retired with honors as Assistant Professor from Department of Chemical Engineering, NFC IET, Multan. With more than three decades of experience, he is considered a true veteran with remarkable contributions to the Institute since its inception. He will always be remembered and admired for the rich legacy he has created over his career.

Engr. Gulzar Hussain



PARCO Recruitment Drive in NFC IET

Chemical Engineering Laboratories:

- Particulate Technology Lab
- Physics Lab
- Chemical Lab
- Fluid Flow Lab
- Fuels & Combustion Lab
- Instrumentation & Process Control Lab
- Miniature Plant
- Heat & Mass Transfer Lab
- Thermodynamics Lab
- CPT/Unit Process Lab
- Chemical Reaction Engineering Lab
- Engineering Workshop
- Computer Lab
- Mass Transfer Lab
- Chemical Engineering Plant Design & Simulation Lab

Coal & Sustainable Energy Research Center

NFC IET has established Coal & Sustainable Energy Research Center with the financial assistance of Ministry of Science & Technology (MOST) Govt. of Pakistan by spending Rs.67.34 million.

The objectives of this project are to carry out Research Work on Coal/biomass Combustion, Gasification and Beneficiation. State-of-the-art Center is equipped with analytical and experimental research rig facilities. The Research Center is currently providing research support for energy and environmental research programs. In addition to performing proximate and ultimate analysis, it provides a wide variety of testing. Calorific value of fuel, flue gas analysis, grindability index of coal, sieve analysis, size reduction, ash fusion temperature, analysis of refinery Gas/Natural Gas/Coal/Biomass Gases and Element Analysis of Drinking Water.

Our mission is to provide both high quality and reliable, physical and chemical analytical testing services and technical trained manpower to the energy, textile, sugar, and cement sector of the country.

The Curriculum

Syllabi & Courses of reading in Chemical Engineering are as per the latest guidelines of Higher Education Commission and Pakistan Engineering Council. The courses have been designed in consultation with representatives of academic institutions of Pakistan, representatives of Chemical industry all over the country and needs of foreign Universities offering higher degrees in Chemical Engineering. Therefore, graduates of this department have been accepted for higher studies by universities all over the world.

B.Sc. (CHEMICAL ENGINEERING) CURRICULUM
SEMESTER SYSTEM

SEMESTER-1			SEMESTER-2		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
HM-101	Islamic Studies/Ethics	2+0	HM-103	Communication Skills	0+1
HM-102	Functional English	3+0	HM-104	Pakistan Studies	1+0
NS-101	Calculus & Analytical Geometry	3+0	NS-103	Applied Physics	3+1
NS-102	Inorganic & Organic Chemistry	3+1	NS-104	Applied Mathematics	3+0
ID-101	Engineering Drawing	0+1	NS-105	Physical & Analytical Chemistry	3+1
ChE-101	Chemical Process Calculations-I (CPC-I)	3+0	ChE-102	Chemical Process Technology	3+1
	Total Credits	**16**		**Total Credits**	**17**

SEMESTER-3			SEMESTER-4		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
HM-201	Social Sciences*	2+0	ID-203	Computer Aided Engineering Drawing	0+1
ID-201	Workshop Practices	0+1	ID-204	Applied Electrical Engineering	2+1
ID-202	Engineering Mechanics	2+0	ID-205	Process Safety Management	2+0
CS-201	Computer Programming	1+1	ChE-204	Fluid Mechanics-II	2+0
ChE-201	Chemical Engineering Thermodynamics-I	3+1	ChE-205	Chemical Engineering Thermodynamics-II	2+0
ChE-202	Fluid Mechanics-I	3+1	ChE-206	Particulate Technology	3+1
ChE-203	Chemical Process Principles-II	2+0	ChE-207	Chemical Engineering Mathematics	3+0
	Total Credits	**17**		**Total Credits**	**17**

SEMESTER-5			SEMESTER-6		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
NS-301	Probability and Statistics	2+0	HM-301	Chemical Engineering Economics	2+0
ID-301	Engineering Materials	2+0	HM-302	Technical Report Writing & Presentation Skills	2+0
CS-301	Numerical Methods & Software Applications	2+1	ChE-304	Instrumentation & Process Control	3+1
ChE-301	Fuel & Energy	3+1	ChE-305	Chemical Reaction Engineering	3+1
ChE-302	Mass Transfer	2+1	ChE-306	Separation Process-I	2+1
ChE-303	Heat Transfer	3+1	ChE-307	Transport Phenomena	3+0
	Total Credits	**18**		**Total Credits**	**18**

SEMESTER-7			SEMESTER-8		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
Mgt-401	Industrial Management	2+0	Mgt-402	Entrepreneurship	2+0
ChE-401	Separation Process-II	2+1	ID-401	Maintenance & Utility Engineering	2+0
ChE-402	Chemical Plant Design	3+0	CS-401	Process Design & Simulation	2+1
ChE-403	Process Analysis and Optimization	3+0	ChE-405	Design Project-II	0+3
ChE-404	Design Project-I	0+3		Elective-II	3+0
	Elective-II	3+0		Elective-III	3+0
	Total Credits	**17**		**Total Credits**	**16**

ELECTIVE-I	
ChE-406	Waste Management
ChE-407	Renewable Energy Resources
ChE-408	Biochemical Engineering
ChE-409	Petroleum Refinery Engineering
ChE-410	Computational Fluid Dynamics
ChE-411	Industrial Energy Systems
ChE-412	Science of Energetic Materials
ChE-413	Chemical Wet Processing of Textiles

ELECTIVE-II	
ChE-414	Petrochemical Engineering
ChE-415	Gas Engineering
ChE-416	Mineral Process Technology
ChE-417	Coal Technology
ChE-418	Environmental Engineering
ChE-419	Statistical Experimental Design
ChE-420	Biochemical Separations
ChE-421	Rocket Propulsion

ELECTIVE-III	
ChE-422	Nuclear Engineering
ChE-423	Process Analysis & Optimization
ChE-424	Polymer Engineering
ChE-425	Energy Management
ChE-426	Novel Separation Process
ChE-427	Green Technologies
ChE-428	Biochemical Processes & Products
ChE-429	Explosive Formulation, Manuf. & Filling

NFC INSTITUTE OF ENGINEERING & TECHNOLOGY
FEDERAL DEGREE AWARDING INSTITUTE
NFC IET
MULTAN-PAKISTAN

DEPARTMENT OF
Electrical Engineering

Prospectus
2023

www.nfciet.edu.pk

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Electrical Engineering

B.Sc. Electrical Engineering Specialization in Computer Systems Engineering, Electronics Engineering and Power Engineering is a professional engineering discipline that generally deals with the study and application of electricity, electronics, and electromagnetism. This field turned to an identifiable profession in late 19th century after commercialization of the power generation, transmission, distribution, electric telegraph and telephone. Today, it wraps a wide range of sub fields including electronics, computer, power, telecommunications, control systems, radio frequency, and signal processing to name a few.

Research followed by development of unbelievable commercial products to ease life of human has made electrical engineering the first choice of students around the globe. Its amazing ability to merge allied fields has given rise to many hybrid disciplines which ultimately has broadened its scope and has resulted in a variety of choices for students entering in the field.

Department of Electrical Engineering is an emergent feature of the NFC Institute of Engineering & Technology, Multan. The department preserves distinction in education and carries out diverse tasks for worldwide endorsement. The objective of the Electrical Engineering Program is as follows:

Program Educational Objectives

1. Proficiency in engineering knowledge and tools usage for the design, analysis and evaluation of complex engineering problems.
2. Enhance their knowledge and skills while providing effective solutions keeping in view the environmental and societal aspects.
3. Contribute as a team member or manager, demonstrating professionalism.

   These PEOs are prominently displayed on several notice boards around the department.

Specializations

Department of Electrical Engineering at the institute offers BSc Degree in Electrical Engineering with specialization in the following three growing sub-areas:

- Computer Systems Engineering
- Electronics Engineering

- Power Engineering

Students enrolled in the program, study common subjects for the first four semesters. After that they are regrouped to a specialization, based on their preference and obtained Cumulative Grade Point Average (CGPA) up to that point. This approach not only provides enough prologue to the field of Electrical Engineering before they study specialized courses, but makes them eligible to compete for a wide spectrum of employment opportunities at both national and international levels.

Computer Engineering students are trained in the field of computing, software engineering, ASIC, DSP and other hardware development tools related to R&D. Electronic engineering is biased toward Power Electronics, Signal Processing, and VLSI Design. Power Engineering has been observed as neglected field in the country for the last one decade which has resulted in shortage of skilled persons in the field. The department has taken on this challenge and initiated this specialization in 2010 focussing on Power System Protection, Power Generation, Power Transmission and Distribution, and Efficient Transmission and utilization of Electrical Energy.

Elective subjects of each specialization are designed according to the latest job market requirements and are regularly updated with changing need of targeted market by the feed back of Industrial Advisory Board

Emerging Topics in Electrical Engineering:

We, at department of Electrical Engineering are aware of emerging subfields of Electrical Engineering and have designed our curriculum and planned our laboratory facilities accordingly. A few such fields are as under:

- Wireless Transmission of Electrical Energy
- Satellite Controlled Power Systems
- Intelligent Power System Protection Devices
- Utilization of Wireless Sensor Networks for Developing World
- 3-G Broad Band Networks
- Microelectronics
- VLSI Design
- Photonics
- Artificial Intelligence and Robotics

Curriculum:

The department has a history of revising curriculum right from the commencement of program in 2001. Presently, it is as per the latest guidelines of Higher Education Commission and Pakistan Engineering Council has been prepared in consultation with experts of the field in the country. Course contents have been designed keeping in view the background knowledge of students and core electrical engineering concepts. Advanced courses are included and dropped as per the changing market and postgraduate requirement at both national and international level.

Faculty:

The department has ample number of qualified faculty members trained to deliver knowledge skilfully by teaching a variety of electrical engineering subjects in range and depth. In addition to having relevant higher qualification in the area, they have versatile educational and industrial experience within country and abroad.

The faculty is actively involved in ongoing research in various sub-fields of Electrical Engineering and has produced many good quality research papers in international journals and conference in last few years.

Research:

NFC Institute of Engineering & Technology is visualised to grow as a modern center of excellence for research and development in the field of science, engineering and technology. The mentors of the institute ensure keen interest of faculty in tendering research publications in well-reputed national and international journals frequently.

Curriculum Components:
The major academic components of the undergraduate degree programme is described below:

Basic Courses
Courses in Physics, Chemistry, Mathematics and introductory engineering are common for students of all specializations before they move on to the major courses.

Humanities and Management Science Courses
Common courses in English language, social sciences and management are required for all students. They are meant to include the student's awareness of history and culture, to help them cultivate aesthetic and moral dimensions of their personalities and to equip them with interpersonal and managerial skills.

Core and Elective Courses
Students are required to take many core and elective courses for their specialization which are listed in the curriculum.

Interdisciplinary Courses
Students are required to select some courses offered by departments other than Electrical Engineering. Such courses aim at providing broader base to their studies, and widening their knowledge of allied fields, which is mandatory for their areas of specialization.

Final Year Project
In the final year, students have to take a 6-credit project. In consultation with their faculty supervisors. students are encouraged to opt projects in the area of their specialization. They are expected to complete their projects and present their reports by the end of the 8th semester.

Summer Internships
Every student must complete a practical training of four to eight weeks during the summer of second or third professional years and submit a formal written report.

Laboratories:
To fulfil the requirements of the program, the department has a number of furnished laboratories which give students an opportunity to have hands on experience on the state of art equipment like field Programmable Gate Array, Digital Signal Processing Trainer, Advanced Communication Trainers, Optoelectronics Trainers, Fibre Optic Splicing Machines and Satellite Communication Trainers. Laboratories of certain advanced courses meet industrial/ commercial requirements which enable our graduates to compete for challenging employment opportunities in the country and abroad just after graduation.

Following laboratories of the department are equipped with state of art equipment in sufficient quantity:

- Power Electronics Lab
- Signal Processing Lab
- Electronics Lab
- Microprocessor & Digital Electronics Lab
- Computer Lab
- Project Lab
- Communication Lab
- General Purpose Computer Lab
- Applied Physics and Electrical Machines Lab
- Instrumentation & Industrial Electronics Lab
- Computer Network Lab

Following Labs are added to further strengthen the department:

- Power System Protection Lab
- Power Transmission & Distribution Lab
- Control Lab
- ETAP Power Lab

PEC Accreditation:
Pakistan Engineering Council (PEC) is a legal body meant to accredit engineering programs run by various universities/institutions in the country on fulfilment of minimum requirement of land, building faculty, curriculum, budget and laboratories etc. Right from our first intake in 2001, the department got all the batches accredited by PEC which has

helped our students a lot to compete for job opportunities in public sector and to get enrolled in various postgraduate's programs locally and abroad.

From Session 2016, our batches are accredited at Level-II of PEC. It means their degree is valid in all over the world and they can work there as engineer without any test.

Opportunities for Employment & Higher Studies:
The department has produced more than 800 graduates in last six years which are either employed, self-employed or enrolled for higher studies in the country and abroad. Power generation & transmission, telecommunication marketing & design, instrumentation & control, teaching at undergraduate level and research & development are some of the fields our graduates have excelled in. Organizations related to research & development in the field of Electrical and Electronic Engineering and software design & development visit the department every year to induct graduating students.

The degree offered by the department has national and international acceptability. Many of our graduates are enrolled in while some of them have completed their postgraduate studies from reputed public-sector universities in Punjab, Sindh and Capital. Moreover, top ranked universities, in technologically advanced countries like Canada, Australia, UK, Germany and South Korea have accepted our graduates for M.Sc. and PhD degrees and have awarded postgraduates degrees to many of them. Our graduates who have completed their postgraduate studies are employed in reputed organizations related to R&D, services, manufacturing, consultancy and teaching both within the country and abroad.

Industrial Advisory Board
The department gives utmost importance to developing and strengthening links with the local industry in order to seek their help in offering useful practical and industrial skills to our students via regular seminars and workshops. Moreover, such industrial linkages could result in job opportunities for the graduating students. Students and faculty members are encouraged to conduct projects which are relevant to the current needs of the industry.

The department has established an industrial advisory framework in form of inclusion of professional engineers working in various engineering organizations in IAB of Electrical Engineering. In this highly experienced engineer from different organizations which are potential employers of our graduate are members of this IAB. Also, some Alumni which are successfully running their career are also members of the Board.

Feedbacks for PEOs Attainment
The department of the electrical engineering is striving hard to develop and strengthen link with the industry in order to get their feedback regarding our graduates working in the industry and improve our program based on their feedback. For that purpose, an employer survey form has been developed. The questions have been carefully designed so that feedback is then analyzed to ascertain whether a specific PEO has been attained or not. The feedback from employers is planned to gather once a year.
Additionally, alumni feedback is also gathered in order to get an assessment regarding their academic experience at NFC IET. For this purpose, an online alumni feedback form has been developed which covers most of the requirements of PEOs.

Social work:
Department of electrical engineering understand the importance of social responsibilities. To make students socially responsible a 2 week social services are made compulsory for every students before graduation.

B.Sc. ELECTRICAL ENGINEERING

Specialization in

Computer Systems, Electronics and Power Engineering

SEMESTER-1			SEMESTER-2		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
HS-111	Functional English	2+0	NS-121	Differential Equations	3+0
NS-112	Calculus & Analytical Geometry	3+0	NS-122	Natural Science Elective	3+0
EE-113	Linear Circuit Analysis	3+1	GE-123	Electrical Workshop Practice	0+1
CE-114	Information & Computer Technologies	1+1	HS-124	Pakistan Studies	2+0
GE-115	Engineering Drawing	0+1	CE-125	Computer Programming	3+1
NS-116	Applied Physics	3+1	HS-126	Occupational Health & Safety	3+1
			EE-127	Electronic Devices & Circuits	3+1
	Total Credits	**12+4**		**Total Credits**	**15+3**

SEMESTER-3			SEMESTER-4		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
NS-211	Complex Variables and Transforms	3+0	HS-221	Communications and Presentation	2+1
HS-212	Social Sciences Elective-I	3+0	NS-222	Linear Algebra	3+0
EE-213	Digital Logic Design	3+1	NS-223	Probability Methods in Engineering	3+0
CE-214	Algorithms and Data Structures	3+1	HS-224	Islamic Studies/Ethics	2+0
EE-215	Electrical Network Analysis	3+1	EE-225	Signals and Systems	3+1
			EE-226	Electromagnetic Field Theory	3+0
	Total Credits	**15+3**		**Total Credits**	**16+2**

SEMESTER-5			SEMESTER-6		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
EE-311	Electrical Machines	3+1	EE-321	Linear Control Systems	3+1
EE-312	Microprocessors and Interfacing	3+1	EE-322	Power Distribution & Utilization	3+1
EE-313	Communications Systems	3+1	XX-323	Depth Elective (Core)-I	3+1
HS-314	Social Sciences Elective-II	3+0	XX-324	Depth Elective (Core)-II	
HS-315	Technical Writing	2+0			
	Total Credits	**14+2**		**Total Credits**	**12+4**

SEMESTER-7			SEMESTER-8		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
MS-411	Management Science Elective-I	3+0	EE-421	Management Science Elective-II	3+0
XX-XXX	Depth Elective-III	3+1	EE-422	Open EE Elective-II	3+0
XX-XXX	Open EE Elective-I	3+1	XX-XXX	Depth Elective-IV	3+1
GE-414	IDEE	3+0	XX-XXX	Depth Elective-V	3+0
EE-415	Final Year Project-I	0+2	EE-425	Final Year Project-II	0+4
	Total Credits	**14+3**		**Total Credits**	**12+5**

ELECTIVES FOR SOCIAL SCIENCE			
o	Professional Ethics	o	Spanish
o	Sociology for Engineers	o	Arabic
o	Critical Thinking	o	French
o	Organizational Behavior	o	Chinese
o	Applied Psychology		

ELECTIVES FOR MANAGEMENT SCIENCE			
o	Engineering Management	o	Financial Management
o	Marketing Management	o	Leadership and Personal Grooming
0	Engineering Economics	o	Innovation Ecosystem
o	Engineering Project Management		
o	Entrepreneurship		

ELECTIVES FOR NATURAL SCIENCE			
O	Multivariable Calculus	o	Applied Chemistry
o	Discrete Mathematics	o	Biology or any related course appropriate for the program
o	Numerical Analysis		

DEPTH ELECTIVES

ELECTIVES FOR POWER STREAM			
PE-323	Power Generation (Depth Core-I)	PE-427	Renewable Energy Systems
PE-324	Power System Analysis (Depth Core-II)	PE-428	FACTS and HVDC Transmission
PE-412	Electrical Power Transmission (Depth Elective-III)	PE-429	Smart Grid
PE-423	Power System Protection (Depth Elective-IV)	PE-430	Instrumentation and Measurement
PE-424	Power System Operation & Control	PE-324	Power Electronics
PE-425	Electrical machine Design & Maintenance	CE-414	Artificial Intelligence
PE-426	High Voltage Engineering		

ELECTIVES FOR ELECTRONICS STREAM			
EE-323	Electronic Circuit Design (Depth Core-I)	EE-429	Wave Propagation and Antennas
EE-324	Power Electronics (Depth Core-II)	EE-430	RF and Microwave Engineering
EE-412	FPGA Based Digital Design (Depth Elective-III)	EE-431	Nanotechnology
EE-423	Digital Signal Processing (Depth Elective-IV)	EE-432	Micro Electro Mechanical Systems (MEMS)
EE-424	Analogue Integrated Electronics	EE-433	Industrial Electronics
EE-425	VLSI Design	EE-434	Application Specific Integrated Circuits (ASIC) Design
EE-426	Optoelectronic	CE-414	Artificial Intelligence
EE-427	Digital Control Systems	CE-415	Embedded Systems
EE-428	Biomedical Instrumentation	CE-427	Internet of Things

ELECTIVES FOR COMPUTER SYSTEMS STREAM			
CE-323	Computer Communication Networks (Depth Core-I)		**SET-C (General)**
CE-324	Operating Systems (Depth Core-II)	CE-421	Data Base Systems
	SET-A (Networking)	CE-422	Data Communication
CE-401	Network Protocols and Standards	CE-423	Computer Graphics
CE-402	Network Security	CE-424	Computer Vision
CE-403	Network and System Programming	CE-425	Image and Video Coding
CE-404	Cloud Computing	CE-426	Digital Control
CE-405	Cyber Security Systems	CE-427	Internet of Things (IoT)
	SET-B (Automation)	CE-428	Computer Organization
CE-411	Digital Signal Processing	CE-429	Computer Architecture
CE-412	Digital Image Processing	CE-430	Digital Systems Design
CE-413	Robotics	CE-431	Unmanned Aerial Vehicles (UAVs)
CE-414	Artificial Intelligence	CE-432	Geo-Informatics
CE-415	Embedded Systems		

DEPARTMENT OF
Mechanical Engineering

Prospectus
2023

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Mechanical Engineering

Mechanical Engineering is an exciting/thrilling field of Engineering because it encompasses all Engineering aspects of almost everything that moves in the universe. Mechanical Engineers are concerned with the principles at motion, energy and force. Generally, a machine converts one form of energy or movement into another. It is the responsibility of engineers to design machines whose parts and assemblies function in a safe and reliable, efficient, and predictable fashion. Indeed, the numerous laws and principles developed by scientists are the everyday tools of the mechanical engineer. Anything the engineer does that is related to the motion and dynamics of heat, gas, air, liquids and solid materials. Smart structures and robotics requires the understanding and application of the underlying basic science.

Mechanical engineering encompasses many specialties. Mechanical engineers analyze problems to see how mechanical and thermal devices might help to solve the problems, Design or redesign mechanical and thermal devices or subsystems, using analysis and computer aided design, investigate equipment failures, develop and test prototypes of devices they design and oversee the manufacturing process.

Mechanical engineers design power-producing machines, such as electric generators, internal combustion engines, and steam and gas turbines, as well as power-using machines, such as refrigeration and air-conditioning systems.

Mechanical engineers design other machines inside buildings, such as elevators and escalators. They also design material-handling systems, such as conveyor systems and automated transfer stations.

Like other engineers, mechanical engineers use computers extensively. Mechanical engineers are routinely responsible for the integration of sensors, controllers, and machinery. Computer technology helps mechanical engineers create and analyze designs, run simulations and test how a machine is likely to work, interact with connected systems, and generate specifications for parts.

Mechanical engineers apply scientific methods to the solution of engineering problems. Mechanical engineering teaches design, analysis and simulation techniques to realize ideas and dreams to improve life on earth. It also teaches how to create and realize next generation products, systems and organizations.

Department

NFC-IET's Mechanical Engineering Department which is a new addition to the upgraded degree awarding institute is dedicated to the academic excellence in our course offerings. We intend to engage our students in challenging and rewarding work as soon as they decide to explore Mechanical Engineering. The Mechanical Engineering Department is an ideal environment for students who have proven to be the best and the brightest; those who are prepared and eager for the challenge.

Program

The Department offers 4 years B.Sc. Mechanical Engineering program. Its strong and interactive curriculum, based on the recommendations of HEC and PEC, and hands on learning will make students capable of taking their career to the next level, whether it be in the professional engineering practice or in advance study. The Department aim to focus on high quality teaching along with integrated laboratory

experience. It effectively connects teaching of engineering education to active research in different areas. It provides excellent education in the application of the traditional blend of the core areas of dynamics, vibrations, structural analysis, materials, thermodynamics, fluid mechanics and heat transfer and control theory for the analysis, design and manufacturing of a wide variety of mechanical system. The students undergo extensive course work, project work and laboratory experience during their studies.

Mission

To provide Research based education that builds within students a solid foundation in Mechanical Engineering Principles having critical and creative thinking, communication and problem-solving abilities and prepares motivated graduates possessing the ability of continuous social/professional growth.

Program Education Objectives (PEOs)

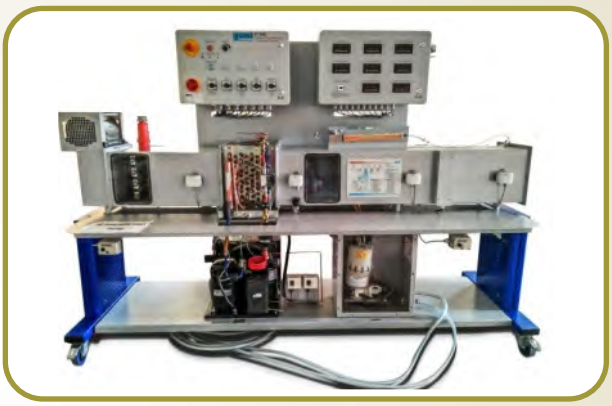
1. Provide sustainable solutions to challenging mechanical engineering problems using acquired knowledge.
2. Exhibit continual professional growth in learning modern engineering and its application.
3. Work as effective team members with leadership qualities & communication skills.
4. Work ethically and contribute towards socio-technical development of the country.

Laboratories

Mechanical Engineering Labs are designed to supplement the degree program. The department places utmost importance on laboratory courses, hence efforts have been made to have the laboratories equipped with modern state of the art equipment, which permits the students to apply his or her theoretical knowledge to test engineering principles with effective test and measuring techniques. The laboratories are designed to provide hands on experience in basic measurements and instrumentation equipment and the application of classroom theory. The aim of the laboratory course is to conduct experiments in the major areas of MECHANICAL ENGINEERING. The experiments in this laboratory course are tailored towards a specific engineering discipline. For this purpose, IET has established the following labs

- Engineering Workshop
- Engineering Drawing Hall
- Mechanics Lab (Statics & Dynamics)
- Mechanics of Machines
- Mechanics of Materials
- Refrigeration & Air Conditioning
- Thermodynamics Lab
- Fluid Mechanics Lab
- Heat & Mass Transfer Lab
- IC Engine Lab
- CAD/CAM Lab
- Power Plant Lab
- Manufacturing Lab

LAB EQUIPMENT



B.Sc. (MECHANICAL ENGINEERING) CURRICULUM
SEMESTER SYSTEM

SEMESTER-1			SEMESTER-2		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
MA-101	Calculus & Analytical Geometry	3+0	MA-102	Vector & Complex Variables	3+0
WS-101	Workshop Practice	0+2	ME-121	Engineering Dynamics	3+1
IS-101	Islamic Studies	2+0	ME-122	Thermodynamics-I	3+1
HU-101	Functional English	2+0	ME-123	Industrial Materials	2+0
ME-111	Engineering Statics	2+1	ME-124	Engineering Drawing & Graphics	1+1
CS-112	Computer Systems & Programming	2+1	HU-102	Communication Skills	2+0
NS-101	Applied Physics	2+1			
	Total Credits	**18**		**Total Credits**	**17**

SEMESTER-3			SEMESTER-4		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
MA-201	Differential Equations	3+0	EE-201	Electrical Engineering	2+1
IS-201	Pakistan Studies	2+0	ME-241	Mechanics of Machines-I	2+1
HU-201	Technical Report Writing	1+1	ME-242	Thermodynamics-II	3+1
ME-231	Mechanics of Materials-I	2+1	ME-243	Fluid Mechanics-II	3+1
ME-232	Manufacturing Processes	2+1	ME-244	Machine Design & CAD-I	2+1
ME-233	Fluid Mechanics-I	3+1			
	Total Credits	**17**		**Total Credits**	**17**

SEMESTER-5			SEMESTER-6		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
MA-301	Engineering Statistics	2+0	EE-361	Industrial Electronics	2+1
ME-353	Mechanics of Materials-II	3+1	ME-362	Mechanics of Machines-II	2+1
ME-351	Machine Tools & Machining	2+1	ME-363	Refrigeration & Air Conditioning	3+1
ME-352	Machine Design & CAD-II	2+1	ME-364	Metrology & Quality Assurance	3+1
MS-353	Principals Management & Economics	3+0	ME-365	Numerical Methods for Engineers	2+1
ES-354	Environmental Engg. & Pollution Control	2+0	HS-366	Professional Ethics	2+0
	Total Credits	**17**		**Total Credits**	**19**

SEMESTER-7			SEMESTER-8		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
ME-472	Heat & Mass Transfer	3+1	ME-481	Energy Resources & Utilization	2+1
ME-473	IC Engine	3+1	ME-482	Instrumentation & Control	2+1
ME-474	Finite Element Analysis	2+1	MS-483	Power Plants	3+1
ME-475	Mechanical Vibration	3+0	ME-484	Production Management	3+0
ME-499	Project-I	0+3	ME-499	Project-II	0+3
	Total Credits	**17**		**Total Credits**	**16**

NFC IET
MULTAN-PAKISTAN

DEPARTMENT OF
Civil Engineering

Prospectus
2023

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1 year experience in Research & Teaching

Introduction and Overview

Civil Engineering stands among the oldest engineering disciplines in human history and is universally recognized as the mother of all engineering disciplines. It is a broad field that incorporates everything we see around us, built using natural or manufactured resources. It widely covers the planning, design, construction, operation and maintenance of buildings, bridges, streets and highways, railways, airports, industries, and infrastructure for water supply, dams, barrages, head-works, sewage, hydraulic structures, irrigation system and many more.

The Civil Engineering Department at NFC Institute of Engineering & Technology was established in fall 2013. The B.Sc Civil Engineering program is accredited by Pakistan Engineering Council (PEC). After a successful accreditation visit, the 2k17 and 2k18 session is accredited under level-II, substantially equivalent to Washington Accord. Accreditation of successive enrolled sessions is under process.

Outcome-Based Education (OBE) System

The department adopted the Outcome-Based Education (OBE) system during 2017 as it is significant both for the graduating engineers and the university. Hence, courses were reviewed through statutory bodies and training for faculty members was arranged.

Further, the seminars for students' awareness of the OBE systems were also conducted. As a result, the department completely switched over to the OBE system in fall 2018. The implementation of this system will provide students with an education compatible with international standards to compete in the global job market.

Mission of Civil Engineering Department

To provide high quality civil engineering and technology education with the help of highly qualified faculty and state-of-the-art laboratories for the socio-economic development of Pakistan especially South Punjab

Program Educational Objectives (PEOs)

- **PEO 1:** Effective role towards civil engineering profession based on technical knowledge and analysis skills
- **PEO 2:** Capability of investigating, planning, designing and management of civil engineering projects through professional modern tools
- **PEO 3:** Effective communication skills with ethical values and teamwork to contribute in multi-disciplinary projects
- **PEO 4:** Passion for continuous learning in context of social, environmental and ethical aspects for the betterment of society

Laboratories

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

1. Engineering Mechanics Lab
2. Engineering Surveying Lab
3. Soil Mechanics Lab
4. Concrete & Materials Testing Lab
5. Environmental Engineering Lab
6. Structure Engineering Lab
7. Fluid Mechanics Lab
8. Hydrology and Hydraulics Lab
9. Transportation Engineering Lab
10. Computer and I.T. Lab
11. Drawing Hall

B.Sc. (CIVIL ENGINEERING) CURRICULUM
SEMESTER SYSTEM

SEMESTER-1			SEMESTER-2		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
CE-111	Civil Engineering Materials	2+1	CE-121	Engineering Surveying	2+1
CE-112	Engineering Drawing	1+2	CE-122	Computer Programming	1+1
CEID-113	Basic Electro-Mechanical Engineering	2+1	CENS-123	Engineering Mechanics	3+1
CENS-114	Applied Calculus	3+0	CENS-124	Applied Differential Equations	3+0
CEHU-115	Functional English	2+0	CENS-125	Engineering Geology	2+0
CEHU-116	Pakistan Studies	2+0	CEHU-126	Islamic Studies/Professional Ethics	2+0
	Total Credits	**16**		**Total Credits**	**16**

SEMESTER-3			SEMESTER-4		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
CE-231	Advanced Engineering Surveying	2+1	CE-241	Civil Engineering Drawing & Graphics	1+2
CE-232	Construction Engineering & Practice	2+0	CE-242	Mechanics of Solids-I	2+1
CE-233	Fluid Mechanics	2+1	CE-243	Soil Mechanics	3+1
CENS-234	Numerical Analysis	3+0	CENS-244	Probability & Statistics	3+0
CEHU-235	Organizational Behavior	2+0	CEHU-245	Business Communication	2+0
CEMS-236	Engineering Economics	2+0	CEMS-246	Hazards & Disaster Management	2+0
	Total Credits	**15**		**Total Credits**	**17**

SEMESTER-5			SEMESTER-6		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
CE-351	Engineering Hydrology	2+1	CE-361	Advanced Fluid Mechanics	3+1
CE-352	Structural Analysis-I	3+0	CE-362	Structural Analysis-II	3+0
CE-353	Mechanics of Solids-II	2+1	CE-363	Steel Structures	3+0
CE-354	Geotechnical & Foundation Engineering	3+1	CE-364	Quantity & Cost Estimation	1+2
CEID-355	Architecture & Town Planning	2+0	CENS-365	Geo Informatics	2+1
CEMS-356	Construction Planning & Management	2+1	CEMS-366	Construction Contract Management	2+0
	Total Credits	**18**		**Total Credits**	**18**

SEMESTER-7			SEMESTER-8		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
CE-471	Hydraulics Engineering	3+1	CE-481	Irrigation Engineering	2+1
CE-472	Reinforced Concrete Design-I	3+1	CE-482	Reinforced Concrete Design-II	3+1
CE-473	Environmental Engineering-I	2+1	CE-483	Environmental Engineering-II	2+1
CE-474	Transportation Engineering-I	3+0	CE-484	Transportation Engineering-II	3+1
CE-475	Repair & Maintenance of Structures	1+0	CEMS-485	Occupational Health & Safety Management	1+0
CEP-498	Civil Engineering Project (Part-A)	0+3	CEP-499	Civil Engineering Project (Part-B)	0+3
	Total Credits	**18**		**Total Credits**	**18**


HYDROSTATICS


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NFC INSTITUTE OF ENGINEERING & TECHNOLOGY
FEDERAL DEGREE AWARDING INSTITUTE
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DEPARTMENT OF

Petroleum & Gas Engineering

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7 years' experience of Industry & Teaching

Introduction

A key source of energy is oil and natural gas. The efficient recovery of these resources requires Petroleum Engineers with a sound knowledge of fundamentals and the latest technological developments relevant to this field. Upstream petroleum engineers are always in demand. Petroleum Engineering involves the production of oil and gas (hydrocarbons) from subsurface reservoirs which requires engineering to bring it to the surface, estimate its value and extract it, in other words, finding oil and gas, drilling and producing it. The mission of the Petroleum Engineering education is to produce graduates who can not only satisfy the current needs of the country's petroleum industry but are also able to develop technologies indigenously. Preparing effective and efficient professionals through research and to develop the methods to utilize all the available natural resources in order to fulfill the energy needs of Pakistan in coming years. This will contribute to the socio-economic development of Pakistan and the region.

Why Petroleum Engineering?

- Lectures are accompanied by the practical study in fluid and reservoir rock laboratories, geodynamic lab work and field trips to both service company offices and drilling sites.
- Petroleum engineers are among the highest-paid engineers in the world.
- Petroleum engineers are amongst the best-traveled professionals in the world.
- Excellent teaching staff, many with extensive academic and industrial experience and strong links with the national industries and international institutes.

Career Opportunities

Petroleum Engineer as a qualified petroleum engineer you will be well rewarded financially in one of the highest-paid engineering jobs, enjoy extensive travel opportunities and, as one of the most technically challenging jobs, benefit from being part of a prestigious worldwide community of professionals.

Mission

The mission is to produce qualified and well-versed Petroleum Engineers equipped with fundamental sciences, able to find viable solutions, and skills to enter executive technical positions in energy and public sector industry and organizations, R & D Institutes, and academia.

Program Objectives:

The program emphasizes building a strong base in Petroleum Engineering discipline and a detailed understanding of core areas with practical knowledge that comprehends with the use of professional software and laboratory practices. The program is competent to enhance capabilities for higher education and to fulfill the requirements of the petroleum industry. It is also oriented towards the Outcome-Based Education (OBE). The main objectives are to develop:

i) To develop Petroleum engineers with comprehensive engineering and scientific knowledge and technical skills to solve complex engineering problems.

ii) To develop critical thinking in graduates so that they can identify, analyze, solve, and design new problems using modern tools and simulation techniques.

iii) To develop a sense of responsibility, effective communication skills, and the ability to work independently as well in a team.

iv) To develop ethical values, management qualities, and innovative ideas that can promote sustainable development among graduates to continue life-long learning to meet future challenges.

FACILITIES

Buildings:

The current buildings and facilities were developed with financial assistance (Rs. 67.33 million) of the Ministry of Science and Technology (MoST) government of Pakistan. The department has a well-furnished building constructed by spending about Rs. 12 million. It caters fully the requirements of students, faculty, and administration.

Laboratories:

The Petroleum Engineering Department is well equipped with laboratories and facilities that are very conducive to learning and research, which allows students and researchers to integrate the principles of petroleum engineering. Numerous are available to apply and practice the principles taught in traditional classwork through our specialized laboratories.

- Geology Lab
- Integrated Research Lab
- Petrophysics lab
- Computer Simulation Lab
- Drilling Engineering Lab
- Reservoir Engineering Lab

A. Geology Lab

- Mohs hardness tester
- More than 70 rock samples
- Automatic Planimeter
- Microscopes
- Brunton Compass
- Subsurface Geological Models

B. Integrated Research

- Thermo-gravimetric Analyzer (TGA)
- Differential Thermal Analyzer (DTA)
- CHNS Analyzer
- Inductive Coupled Plasma
- Ash Fusion Tester
- RGA-GC
- GC
- Auto bomb Calorimeter
- Furnace
- Oven
- Micro Digester
- Flue Gas Analyzer

- Laboratory Fume Hood

C. Petro-physics Lab

- VINCI Liquid Permeability Meter
- VINCI Gas Permeability Meter
- VINCI Gas Porosity Meter
- Artificial Core Synthesis apparatus
- Soxhlet Extractor
- Oven for Core
- Steady-stage Gas Permeameter
- Dean Stark Apparatus
- Capillary Pressure Testing System
- Resistivity Meter
- Liquid Surface Tension Analyzer

D. Drilling Engineering Lab

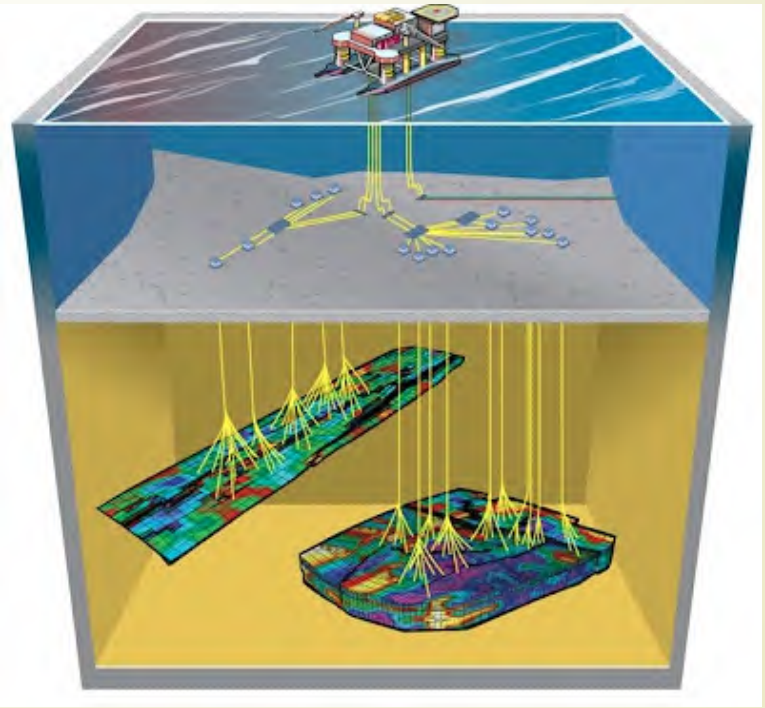
- Digital Viscometer
- Mud Filter Press
- Mud Balance
- Marsh Funnel
- Sand Content Kit
- pH Meter
- Retort Kit
- Core Cutter and Grinder
- Consistometer
- Multimixer

E. Reservoir Fluids Lab

- Aniline Point Tester
- Cloud Point and Pour Point
- Flash Point
- Vacuum Desiccator
- Moisture Analyzer
- Point Load Compressibility
- Open and Close Cup Weighing Balance

F. Allied Lab Facilities of Chemical and Civil Engineering

- Workshop Facilities
- Fluid mechanics lab
- Physics/Mechanics Lab
- Computer simulation Lab
- Instrumentation and Control Lab
- Electrical Lab



B.Sc. (Petroleum & Gas Engineering) CURRICULUM SEMESTER SYSTEM

SEMESTER-1			SEMESTER-2		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
HU-101	Functional English	2+0	HU-106	Pakistan Studies	2+0
HU-102	Islamic Studies	2+0	GEO-107	Applied Geology	3+1
PET-101	Fundamentals of Petroleum Engineering	2+0	CH-108	Applied Chemistry	2+1
PHY-103	Applied Physics	3+1	MA-109	Differential Equations	3+0
MA-104	Calculus	3+0	ME-110	Engineering Drawing	0+2
WS-105	Workshop Practice	0+2	HU-111	Communication Skills	2+1
CS-103	Computer Programming & Software App.	2+1			
	Total Credits	**18**		**Total Credits**	**17**

SEMESTER-3			SEMESTER-4		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
PG-205	Properties of Reservoir Fluids	3+1	PG-202	Drilling Engineering-I	3+1
PG-203	Petroleum Geology & Geophysical Exploration	3+0	PG-204	Petro-Physics	2+1
MA-215	Complex Variables & Linear Transform	3+0	EE-214	Principles of Electrical Engineering	2+1
CE-216	Fluid Mechanics	2+1	MA-218	Statistics	2+0
HU-217	Technical Writing & Presentation Skills	2+0	CE-220	Mechanics of Materials	2+1
CH-218	Applied Thermodynamics	2+1	HU-222	Social Sciences	2+0
	Total Credits	**18**		**Total Credits**	**17**

SEMESTER-5			SEMESTER-6		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
PG-306	Drilling Engineering-II	3+0	PG-307	Well Logging	3+1
PG-308	Reservoir Engineering-I	3+1	PG-309	Petroleum Production Engineering-I	3+0
PG-310	Natural Gas Processing & Pipeline Mgt.	3+1	PG-313	Reservoir Engineering-II	3+1
CS-321	Applied Numerical Methods	2+1	CH-	Elective-I	2+1
MAN-323	Environmental & Safety Management	3+0	MAN-324	Project Planning & Management	2+1
	Total Credits	**17**		**Total Credits**	**17**

SEMESTER-7			SEMESTER-8		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
PG-411	Well Testing	3+1	PG-412	Production Engineering-II	3+1
PG-416	Reservoir Simulation	2+1	OG-415	Principles of Enhanced Oil Recovery	3+1
PG-	Elective-II	3+0	PG-417	Petroleum Economics	2+0
PG-419	Field Development Planning-I	3+0	PG-420	Field Development Planning-II	2+1
PG-414	Final Year Project (Phase-I)	0+3	PG-418	Final Year Project (Phase-II)	0+3
	Total Credits	**16**		**Total Credits**	**16**

ELECTIVE-I		ELECTIVE-II	
Code	**Course Title**	**Code**	**Course Title**
CH-326	Petroleum Refinery Engineering	PG-410	Unconventional Reservoirs
CH-325	Instrumentation and Process Control	PG-413	Reservoir Geomechanics

NFC INSTITUTE OF ENGINEERING & TECHNOLOGY
FEDERAL DEGREE AWARDING INSTITUTE
NFC IET
MULTAN-PAKISTAN

PLOs for all Engineering Programs

Program's Learning Outcomes

PLOs

Prospectus-2022

PLOs for all Engineering Programs

Following are the Program Learning Outcomes for all Engineering Programs which were adopted based on recommendations given in PEC manual of accreditation 2014.

1. **Engineering Knowledge:** An ability to apply knowledge of mathematics, science, engineeringfundamentals and an engineering specialization to the solution of complex engineering problems.
2. **Problem Analysis:** An ability to identify, formulate, research literature, and analyze complexengineering problems reaching substantiated conclusions using first principles of mathematics, naturalsciences and engineering sciences.
3. **Design/Development of Solutions:** An ability to design solutions for complex engineering problemsand design systems, components or processes that meet specified needs with appropriate considerationfor public health and safety, cultural, societal, and environmental considerations
4. **Investigation:** An ability to investigate complex engineering problems in a methodical way includingliterature survey, design and conduct of experiments, analysis and interpretation of experimental data, and synthesis of information to derive valid conclusions.
5. **Modern Tool Usage:** An ability to create, select and apply appropriate techniques, resources, andmodern engineering and IT tools, including prediction and modeling, to complex engineeringactivities, with an understanding of the limitations.
6. **The Engineer and Society:** An ability to apply reasoning informed by contextual knowledge to assesssocietal, health, safety, legal and cultural issues and the responsibilities relevant to professionalengineering practice and solution to complex engineering problems.
7. **Environment and Sustainability:** An ability to understand the impact of professional engineeringsolutions in societal and environmental contexts and demonstrate knowledge of and need forsustainable development.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms ofengineering practice.
9. **Individual and Team Work:** An ability to work effectively, as an individual or in a team, onmultifaceted and /or multidisciplinary settings.
10. **Communication:** An ability to communicate effectively, orally as well as in writing, on complexengineering activities with the engineering community and with society at large, such as being able tocomprehend and write effective reports and design documentation, make effective presentations, andgive and receive clear instructions.
11. **Project Management:** An ability to demonstrate management skills and apply engineering principlesto one's own work, as a member and/or leader in a team, to manage projects in a multidisciplinaryenvironment.
12. **Lifelong Learning:** An ability to recognize importance of, and pursue lifelong learning in the broadercontext of innovation and technological developments.

NFC IET
MULTAN-PAKISTAN

DEPARTMENT OF Computer Science

Prospectus
2023

www.nfciet.edu.pk

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MISSION STATEMENT

The Department of Computer Science is dedicated to advancing the understanding and application of computing technology in today's fast-paced and ever-evolving digital world. We believe that computer science is at the forefront of solving some of the world's most complex problems and shaping the future.

Our mission is to provide students with a comprehensive education in computer science that combines theoretical foundations with practical experience. We strive to prepare students for careers in various fields, including software development, data science, cybersecurity, and artificial intelligence.

We are committed to fostering innovation and collaboration where students, faculty, and industry partners can collaborate to explore new ideas, test cutting-edge technologies, and bring about real-world impact. Our curriculum is designed to challenge students and inspire their creativity while providing a supportive and inclusive learning environment.

We believe that computer science has the power to transform our world for the better, and we are dedicated to producing graduates who are equipped to be leaders in this exciting and rapidly evolving field. Our ultimate goal is to ensure that our students are equipped with the skills, knowledge, and passion to shape the future of computing and positively impact society.

Degree Programmes Offered Under the Umbrella of Computer Science

I. **BS Computer Science**
ii. **BS Software Engineering**

Computing Science is a dynamic field that studies computers, computing systems, and computational processes. The above-mentioned computing science degree programs provide students with the knowledge and skills to understand, design, and build computer systems, software, and applications. A computer science degree is ideal for students interested in technology, with strong problem-solving skills and a passion for working with computers. With the growing demand for technology professionals, any of the above computing science degrees can lead to a rewarding and lucrative career.

The curriculum covers a range of technical courses such as computer programming, algorithms, and software engineering, as well as related fields like mathematics and statistics. Graduates of computer science programs can pursue careers in various industries like software development, data analysis, and cybersecurity.

What can I do with a Computer Science Degree?

If you have studied computer science, you will have gained many technical and non-technical skills that are highly valued by employers, from leadership to programming. The increasing scope of computer science means you have plenty of choices in a wide range of highly specialized areas. These include financial organizations, management consultancy firms, software houses, communication companies, data warehouse centers, multinational companies, government agencies, universities, hospitals, etc.

1- **Career Prospects for Computing Graduates:**

- IT Consultant
- Cyber Security Consultant
- Information Systems Manager
- Database Administrator
- Systems Analyst
- Games Developer
- Technical Writer
- Freelancer

2- **Are Computer Science Graduates in demand?**

Department of Computer Science at NFC-IET entertains students who possess the requisite intellectual caliber who are currently serving in the following organizations/ industries /software houses.

- Micro-Tech industry Pvt Ltd.
- Descon Engineering
- Softronicx PVT Ltd
- Pak Elektron limited
- Safe-city Project
- Nextbridge
- App technologies
- Software Technologies
- Punjab Information Technology Board
- MEPCO
- MUX Soft Tech
- Habib Bank
- Defense Housing Authority

3- **Program Objectives :**

The department of computer science missions by pursuing the following objectives:

- To teach students lifelong learning skills, which will allow them to successfully adapt to evolving technologies throughout their professional career.
- To prepare students for employment and advanced studies.
- To teach students effective teamwork, communication, and interpersonal skills
- To continue to pursue a high level of research productivity.

4- **OBE Based Education (PLO)**

The Bachelor of Science (B.S) degree in computer science is appropriate for students desiring a somewhat stronger concentration in the sciences, with more courses in computer science and computer engineering. Recipients of a BS-Computer science degree at NFC-IET are expected to have the following skills and experiences:

Knowledge for Solving Computing Problems by applying knowledge of computing fundamentals, computing specialization, mathematics, science, abstraction, and conceptualization of computing models from defined problems and requirements

Skill for Problem Analysis by making the students learn Identifying, formulating, analyzing 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 for complex computing problems, design and evaluate systems, components, or processes that meet specified needs with appropriate consideration for public health and safety keeping in view 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 Team Work: Function effectively as an individual and as a member or leader in diverse teams and 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

5- **Duration of the Program at NFC-IET:**

Bachelors in computer science (BSCS) this four–year degree program equips students with fundamental computing knowledge and the latest technology.

The department of computer science offers a four years program consisting of eight semesters. The program is designed to meet the growing need for computer science experts in the rapidly evolving 21st-century economy. This degree includes theory papers and laboratory practicals based on the mathematical and theoretical foundation of computing.

6- **STEM(Science, Technology, Engineering, and Maths) and Computer Science:**

Keeping the essential skills in view, the department of CS, at NFC-IET tries its best to inculcate the use of modern technology in students through seminars, conferences, and workshops that are conducted to boost up the problems sharing skills. These are:

- **Workshop – Graphic Design (by Mr. Noor Khan)**
  The workshop was organized by the Head of the Department, Dr. Naeem Aslam. In which the resource person conducts two different sessions keeping the purpose and assigning of the content. The children from 'SOS village Multan' and inter-university students were catered. They came to know about advanced features of adobe photoshop and adobe illustrate.
- **FIA - Cyber Crime Seminar by Muhammad Ali Hashmi**
  A seminar was conducted at NFC IET under the supervision of Dr. Naeem Aslam. The key features of the seminar were to aware the students and faculty about Cyber Crime, Cyber Laws, and how to keep oneself safe among the latest emerging social platforms.

- **Huawei - Cyber Security Seminar by Malik Muhammad Jawad**

  A seminar was conducted at the CS department under the Headship of Dr. Naeem Aslam. The key features of the seminar were to aware the students about the malware, ransomware attacks, data privacy, Cyber laws, and high-demand emerging technologies in these domains.

- **e-Rozgaar**

  In collaboration with Govt. of Punjab and PITB a State of the art lab 100 Computer System is established to train students for freelancing and new ways of online earning. The lab is fully equipped with high-speed internet and a co-working environment. The vision for this collaboration among PITB and NFCIET is to reduce unemployment and drive economic growth in Pakistan by increasing the inflow of foreign currency. This project is under the e-Rozgaar program of Govt. of Punjab.

  One of the major objectives of this project is to provide training opportunities to youth for self-employment using internet-based freelancing. Under the e-Rozgaar program, our center has graduated around 500 students in the recent sessions that are earning handsome amounts through freelancing. Many events have been organized for the awareness of e-Rozgaar and freelancing opportunities. The students have earned online more than 24000 USD during and after e-Rozgaar training since the start of this program.

- **NAVTTC**

  In collaboration with the Fedral Government under the vision of Prime Minister Kamiyab Nojvaan Program, NAVTTC has started its partner training program with NFC IET. It is free of cost technical training program for unemployed and unskilled youth.

  It has three domains of training programs designed such that to train the students to get them self-employed. Specifically for the first intake, there are three domains in which students are enrolled.

  i. Blockchain Programming
  ii. Artificial Intelligence (Machine Learning & Deep Learning)
  iii. Mobile/Web Development

DETAIL OF NAVTTC COURSES

Batch	Session	Courses	No. of Enrolled students	Total
1	2020	Blockchain Programming	50	185
		Artificial Intelligence	60	
		CIT Mobile Application & Web Development	75	
2	2021	Artificial Intelligence	25	50
		CIT Mobile Application & Web Development	25	
3	2022	CIT Cyber Security	25	125
		Industrial Automation (PLC)	25	
		Chemical Supervisor	25	
		CIT MobileApplication& Web Development	50	

7- Real-World Experience:

Real-world experience and project-based learning are crucial for students and help develop the lifelong skills they used to succeed. Giving students a chance to test their activities before learning to serve is optimum. The department of CS at NFC-IET organizes different field trips and industrial tours for the students to broaden their practical knowledge. In addition to this, students avail themselves of the opportunities to serve as internees at different renowned institutes and departments, such as PITB, Software houses, and multinational companies.

On-Campus Recruitment Test & Interviews

The organizations mentioned below are in contact with the Department of Computer Science for recruiting young professionals of Computer Science from NFC IET Multan. In the recent past tests and interviews were conducted by these organizations and many of our graduates were recruited even before completion of their degree. Many of our students that have not completed their degrees are doing paid internships in these organizations.

DETAIL OF COMPUTER LABS

Lab Name	Number of Systems	Processor	Graphics	Discrete (External)	Internal Memory (RAM)	External Memory (HDD/SSD)	LED	Security
FYP Lab Room 109	50	Core i7 8th Gen	Intel HD Graphics 630	NVIDIA GeForce GT 730, 2GB	16 GB	256 GB SSD	24"	Lock slot; Trusted Platform Module (TPM)
CS Lab 1 Room 111	50	Core i7 7th Gen	Intel HD Graphics	NVIDIA GeForce GT 730, 2GB	16 GB	1 TB HDD	22"	Lock slot; Trusted Platform Module (TPM)
CS Lab 2 Room 112	30	Core i5 7th Gen	Intel HD Graphics 3000	-	8 GB	1 TB HDD	22"	Lock slot; Trusted Platform Module (TPM)
CS Lab 3 Room 114	30	Core i7 10th Gen	Intel HD Graphics 3000	-	8 GB	256 GB SSD	19"	Lock slot; Trusted Platform Module (TPM)
Research Lab Room 103	8	Core i7 7th Gen	Radeon Pro 560, 4GB	-	16 GB	1 TB SSD	21.5"	Kensington Lock Slot
E-Rozgar Room 209	100	Core i3	SSD 256 RAM 8GB	-	8 GB	256 GB SSD	15.6"	-

BACHELOR OF SCIENCE (COMPUTER SCIENCE) CURRICULUM
SEMESTER SYSTEM

SEMESTER-1			SEMESTER-2		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
CS-111	Programming Fundamentals	3+1	CS-123	Digital Logic Design	3+1
CS-112	Introduction to ICT	3+1	CS-124	Object Oriented Programming	3+1
HU-111	English Composition & Comprehension	3+0	HU-122	Communication & Presentation Skills	3+0
MT-111	Calculus & Analytical Geometry	3+0	MT-122	Probability & Statistics	3+0
NS-111	Applied Physics	3+0	UE-121	University Elective-I	3
MT-110	Basic Mathematics*	0+0			
	Total:	**17**		**Total:**	**17**

* Deficiency course

SEMESTER-3			SEMESTER-4		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
CS-211	Computer Organization & Assembly Language	3+1	CS-224	Design & Analysis of Algorithms	3+0
CS-212	Data Structures & Algorithms	3+1	CS-225	Theory of Automata	3+0
CS-213	Discrete Structures	3+0	CS-226	Database Systems	3+1
HU-213	Islamic Studies/Ethics	2+0	MT-223	Linear Algebra	3+0
SC-211	Multivariate Calculus	3+0	HU-224	Pakistan Studies	2+0
			UE-222	University Elective-II	3
	Total:	**16**		**Total:**	**18**

SEMESTER-5			SEMESTER-6		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
CS-311	Compiler Construction	3+0	CS-324	Artificial Intelligence	3+1
CS-312	Operating Systems	3+1	CS-325	Computer Networks	3+1
CS-313	Software Engineering	3+0	HU-325	Technical & Business Writing	3+0
SC-312	Numerical Computing	3+0	CE-322	CS-Elective-II	3
CE-311	CS-Elective-I	3	CE-323	CS-Elective-III	3
	Total:	**16**		**Total:**	**17**

SEMESTER-7			SEMESTER-8		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
CS-411	Parallel & Distributed Computing	3+0	CS-412	Final Year Project-II	0+3
CS-412	Final Year Project-I	0+3	CS-423	Natural Language Processing	3+0
SC-413	Graph Theory	3+0	CS-424	Information Security	3+0
CE-414	CS-Elective-IV	3	HU-426	Professional Practices	3+0
CE-415	CS-Elective-V	3	UE-424	University Elective-IV	3
UE-413	University Elective-III	3			
	Total:	**18**		**Total:**	**15**

CS & UNIVERSITY ELECTIVE-I		CS & UNIVERSITY ELECTIVE-II		CS & UNIVERSITY ELECTIVE-III	
Course Title	**Credit Hrs.**	**Course Title**	**Credit Hrs.**	**Course Title**	**Credit Hrs.**
E-Commerce	3+0	Computer Graphics	2+1	Blockchain Technology and Application	2+1
Web Technologies	3+0	Business Communication	3+0	Cyber Forensics	3+0
Formal Methods for Software Engineering	3+0	Mobile Application Development	2+1	Games Design and Development	2+1
System Programming	2+1	System and Network Administration	2+1	Software Quality Assurance	3+0
Financial Accounting	3+0	Software Entrepreneurship	3+0	Digital Image Processing	2+1
Software Requirement Engineering	3+0	Component Based Software Engineering	3+0	Emerging Trends in Software Development	3+0
Fundamentals of Economics	3+0				

CS & UNIVERSITY ELECTIVE-IV		CS ELECTIVE-V	
Course Title	**Credit Hrs.**	**Course Title**	**Credit Hrs.**
Machine Learning	2+1	Theory of Programing Languages	3+0
Business Statistics	3+0	Internet of Things	3+0
Bioinformatics	3+0	Software Project Management	3+0
Green Computing	3+0	Data Science & Big Data Analytics	2+1
Data Mining	3+0		
Marketing Management	3+0		
Data Warehousing	3+0		

BS (SOFTWARE ENGINEERING) CURRICULUM
SEMESTER SYSTEM

SEMESTER-1			SEMESTER-2		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
CC-111	Programming Fundamentals	3+1	CC-122	Software Engineering	3+0
UE-111	Introduction to ICT	2+1	CC-124	Object Oriented Programming	3+1
HU-111	English Composition & Comprehension	3+0	HU-122	Communication & Presentation Skills	3+0
MT-111	Calculus & Analytical Geometry	3+0	MT-122	Probability & Statistics	3+0
NS-111	Applied Physics	3+0	CC-123	Discrete Structures	3+0
MT-110	Basic Mathematics	0+0			
	Total Credits	**16**		**Total Credits**	**16**

SEMESTER-3			SEMESTER-4		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
SC-211	Software Requirement Engineering	3+0	UE-222	Design & Analysis of Algorithms	3+0
CC-211	Data Structures & Algorithms	3+1	SC-223	Software Design & Architecture	2+1
SC-212	Human Computer Interaction	3+1	CC-222	Database Systems	3+1
HU-211	Islamic Studies/Ethics	2+0	MT-221	Linear Algebra	3+0
UE-211	Multi-Variate Calculus	3+0	HU-222	Pakistan Studies	2+0
			SS-221	Business Process Engineering	3+0
	Total Credits	**16**		**Total Credits**	**18**

SEMESTER-5			SEMESTER-6		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
SC-311	Software Construction & Development	2+1	SC-322	Software Quality Engineering	3+0
CC-311	Operating Systems	3+1	CC-322	Computer Networks	3+1
SE-311	Visual Programming	3+1	HU-321	Technical & Business Writing	3+0
SS-311	Formal Methods in Software Engineering	3+0	SC-323	Web Engineering	2+1
SE-312	Computer Graphics	2+1	SS-322	Simulation & Modeling	3+0
	Total Credits	**17**		**Total Credits**	**16**

SEMESTER-7			SEMESTER-8		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
SE-411	Agent Based Software Engineering	3+0	SC-422	Software Re-Engineering	3+0
SE-412	Mobile Application Development	2+1	CC-422	Information Security	3+0
SE-413	Big Data Analytics	3+0	HU-421	Professional Practices	3+0
SC-411	Software Project Management	3+0	UE-422	Artificial Intelligence	2+1
UE-411	Digital Image Processing	2+1	CC-411	Final Year Project-II	0+3
CC-411	Final Year Project-I	0+3			
	Total Credits	**18**		**Total Credits**	**15**


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DEPARTMENT OF
Architecture Design

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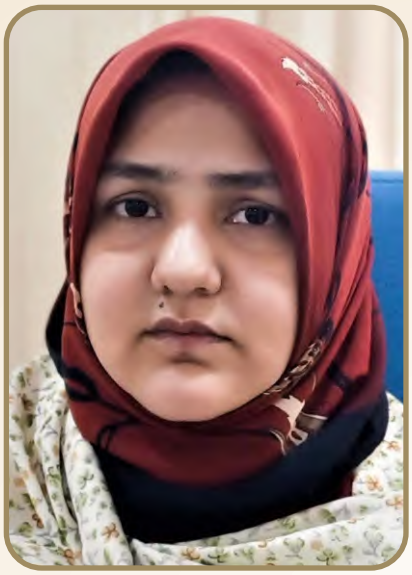

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Architecture Design at NFC-IET

Multan is a showcase for recent regeneration as well as rich historic context. Its history and age are characterized by the various names, rulers, invasions, cultures and religions, which span over a period of three thousand years. From the pre-Islamic era to modern times, culture of Multan has always been rich with literary and academic knowledge, which has caused it to be the center of learning throughout its history. The city recognizes the value of high-quality design, together with innovative and pragmatic approaches to resolving practical issues.

The Bachelor's degree of Architecture at NFC-IET Multan, introduces the various sub fields for architects. The scope of the program is broad. In five years, students will learn all the basic skills and techniques combining theory and design with latest technological advances. Students's own creativity and spatial insight play a major reole in this. Various design projects, both individually and in groups, will help them to learn about the way technology, culture and the living environment interact with each other. Students will develop analytical and creativity skills along-with spatial aptitude and will benefit from the practical expertise of specialists alongside research-active lectures, who provide a rich and stimulating environment in which to study architecture. We combine traditional lecture-based teaching with workshop and design studio sessions.

Project learning is the basis of architecture education, and the studio is where this learning takes place. B. Architecture graduates are highly valued for their confidence and creativity, and benefit from our strong links with national and international architectural practices.

Core Topics in Architecture Design

Architecture education needs are different for different regions within Pakistan. Our curriculum provides a broad outline and framework of knowledge areas with a built-in-flexibility. List of core topics are as under:

- Architecture Design Studio

- History of Architecture
- Materials & Construction
- Structures for Architects
- Building Conservation
- Energy and Environment
- Urban Design
- Landscape Design
- Technical Studies
- Participatory Design
- Internship

First Year

The first year of B. Arch education at NFC-IET Department of Architecture is designed to integrate our students with a work-intensive, shared space learning environment (architecture design studio which is the key component of any architectural pedagogy. Through individual and group projects, students are encouraged to enhance their creativity, critical thinking abilities and communication skills. The foundation and fine arts studios are further supplemented through courses in design theory linked with how design has historically been responsive towards shifts in history, culture and philosophy.

2nd & 3rd Year Formative Level:

The basic design skills are further honed in the next two years of architectural education with focus on site, context, solar orientation, scale, functional relationships and design concept for small to medium scale buildings dominating the discourse in the four studios on offer. However, the prospective architects need to ground their ideas in architectural reality through a sound understanding of structures, tectonics, materials and construction details which is imparted through lecture courses that complement the architecture studios.

4th & 5th Year Consolidation Level:

The later years of architectural education at NFC-IET focus on urban and philosophical issues related to the field of architecture. Identity through architecture, sense of ownership and properiety, role of traditions in the face of impending globalization, conservation/adaptive re-use of historical buildings, urban growth patterns and holistic policy making are some of the key questions

that future leading professionals must seek an answer to; and the rigorous course structure connecting studios to architecture history, archaeology and preservation, research, participatory design and documentation techniques ensures that our prospective graduates are best suited to take on these complex concerns and are able to present their designs and research to multiple viewers in a didactic and eloquent manner.

We at NFC-IET believe that only when an architect is able to integrate the abstract with the tangible in a harmonious manner then architecture is able to express its values to the fullest. It is with this thought in mind that we expect our graduates to envelop their responses to complex philosophical question in well-articulated buildings that are thoughtful in their relationship with the immediate urban context, the occupant/user and are clear in their utilization of structure, material, services and engineering systems.

Departmental Resources

Computer Graphics Lab

The computer graphics lab is located in Department of Architecture. The facility has a total capacity of 50 students and is the best equipped in the NFC-IET. The lab is utilized for many training programs conducted for students. The computers are fully optimized to run latest versions of drafting, rendering, image & video editing software. Lab is further supplemented by the following equipments such as plotter, multimedia podium rostrum, sound system, internet facility.

Departmental Library

Departmental library is equipped with Architectural books, national and international magazines and journals. The modern collection is superbly stocked and it is kept up to date with regular purchases. We aim to support undergraduate-level study in all the principal subjects studied by NFC-IET under graduates.

Extracurricular Activities

Your education goes well beyond your coursework. Extracurricular activities can form a vital part of your experience here at NFC-IET, creating unique opportunities for learning.

Industrial tours, site visits and educational tours are organized to enhance the exposure of students. Workshops on various subjects are also often conducted in the department.

Applicants

We actively seek candidates for the undergraduates Program who share our view that architecture is a cultural-and not only professional - form of human activity, enquiry and knowledge. Students also need to display critical reasoning, holistic thinking, basic background knowledge and skills pertaining to the professional as well as genuine willingness to want to work, learn and grow in a setting that demands near-constant levels of engagement, exchange and communication with the world's most diverse, active and intelligent architectural community.

Employment Prospects

Architects can work in different public and private sectors. These include:

- Private practice or Design consultancy
- Academia
- Building Projects
- Research Institutes
- Conservation and Rehabilitation Projects

Accreditation

NFC-IET is the first institute recognized by Pakistan Council of Architects and Town Planners (PCATP) in South Punjab Region. The accreditation is in process.

Eligibility Criteria

- Intermediate FA, FSC and DAE (Architecture) with 60% aggregate marks.
- Minimum 60% Marks in departmental aptitude test (DAT), interview and drawing test. Candidates are also advised to bring in their drawing portfolio at the time test & interview.
- Port-folio: Student must showcase skills, mandatory for Architecture candidates.

BACHELOR IN ARCHITECTURE DESIGN CURRICULUM
SEMESTER SYSTEM

SEMESTER-1			SEMESTER-2		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
Arch-101	Foundation Studio-I	1+5	Arch-162	Foundation Studio-II	1+5
Arch-161	History of Architecture-I	2+0	Arch-162	History of Architecture-II	2+0
HU-101	Islamic Studies/Ethics	2+0	Arch-152	Visual Communication-II	1+1
Arch-151	Visual Communication-I	1+1	Arch-124	Fine Arts-II	0+2
Arch-120	Fine Arts-I	0+2	Arch-121	Energy and Environment-I	2+0
HU-100	English (Functional English)	2+0	Arch-130	Materials & Construction-I	1+1
HU-104	History of Ideas-I	2+0	HU-102	English-II (Communication Skills)	2+0
QA-101	Mathematics for Architects	2+0	HU-107	Pakistan Studies	2+0
	Total Credits:	**20**		**Total Credits**	**20**

SEMESTER-3			SEMESTER-4		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
Arch-201	Architectural Studio-III	1+7	Arch-202	Architectural Studio-IV	1+7
Arch-231	Materials & Construction-II	1+1	Arch-232	Materials & Construction-III	1+1
Arch-220	Energy and Environment-II	2+0	Arch-242	Structures for Architects-II	2+0
Arch-241	Structures for Architects-I	2+0	Arch-243	Building Services & Systems-I	1+1
Arch-263	History of Architecture-III	2+0	Arch-264	History of Architecture-IV	2+0
Arch-290	Visual Communication-III	1+1	Arch-253	Digital Tools for Architects-I	1+1
	Total Credits:	**18**		**Total Credits**	**18**

SEMESTER-5			SEMESTER-6		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
Arch-301	Architectural Studio-V	1+7	Arch-302	Architectural Studio-VI	1+7
Arch-331	Materials & Construction-IV	1+1	Arch-341	Building Services and System-III	1+1
Arch-340	Building Services and Systems-II	1+1	Arch-366	Architecture in Pakistan	2+0
Arch-362	Theory of Architecture-I	2+0	Arch-363	Theory of Architecture-II	2+0
Arch-353	Digital Tools for Architects-II	1+1	Arch-354	Architectural Photography	1+1
Arch-455	Sustainable Design	2+0	Arch356	Digital Tools for Architects-III	1+1
	Total Credits:	**18**		**Total Credits**	**18**

SEMESTER-7			SEMESTER-8		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
Arch-401	Architectural Studio-VII	1+7	Arch-402	Architectural Studio-VIII (Focus Studio)	2+8
Arch-433	Urban Design	2+0	Arch-456	Architectural Research Methods	2+0
Arch-461	Surveying and GIS for Architects	1+1	Arch-434	Specification and Quantity Surveying	2+0
Arch-483	Project Management and BIM	1+1	Arch-458	Environmental Impact Assessment	2+0
Arch-405	Landscape Design	1+1	Arch-413	Building Conservation and Retrofitting	1+1
X	Elective-I	1+1			
	Total Credits:	**18**		**Total Credits**	**18**

SEMESTER-9			SEMESTER-10		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
Arch-501	Thesis Design-I	2+6	Arch-502	Thesis Design-II	2+8
HU-454	Technical English and Creative Writing	2+0	Arch-530	Building Laws and Professional Practice	2+0
Arch-504	Participatory Design	2+0	Arch-515	Adv. Architectural Presentation Techniques-II	0+2
Arch-505	Adv. Architectural Presentation Techniques-I	0+2			
XX	Elective-II	2+0			
	Total Credits:	**16**		**Total Credits**	**14**

* 6 weeks Internship is compulsory in Summer Break after 4th year as a pre-requisite for promotion to Final Year

NFC INSTITUTE OF ENGINEERING & TECHNOLOGY
FEDERAL DEGREE AWARDING INSTITUTE
NFC IET
MULTAN-PAKISTAN

DEPARTMENT OF

Business Administration

Prospectus
2023

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Introduction

Business Education at NFC-IET intend to impart broad knowledge of management and communicational skills in order to develop business decision making capabilities among future managers and executives.

Core focus of our business programme is to develop critical thinking among students enabling them to gain strategic orientation to ensure organizational success and competitiveness. Students learn at NFC-IET essential management skills and conceptual framework necessary to apply them successfully in the field of Management and associated areas such as Marketing, Human Resource Management, and Finance.

Our students choose a specialization of their own interests, which further facilitate them to develop managerial skills in a particular sector. Moreover, the internship and industrial tours provide real-time organizational exposures to our students.

Aims and Objectives

The BBA Programme aims at developing graduates with through of the contemporary business environment in which the public and private sectors mainly operate. It helps students to develop decision making ability in difficult business situations.

Job opportunities / Future Prospects

As our course structure basically focuses on detailed study of business administration's foundational, functional and decisional areas, that's why our graduates are ready to meet the ever changing diverse challenges of the organizations in the region. Completion of four-year BBA programme allows students to start their careers as an Industrial Production Manager, Procurement Manager, Operational Manager, Purchasing Manager, Public Relation Officer, Quality Assurance Control Manager, facility Manager, Organizational Consultant, Supply Chain Manager or an Entrepreneur. Moreover, after BBA programme graduates may continue their further higher education at post-graduation level such as MBA or MS within the country or abroad.

Admission Eligibility

An individual holding a Higher Secondary School Certificate from a Pakistani Board or an equivalent certificate from any other Pakistani / foreign recognized institution is eligible for admission to Bachelor of Business Administration (BBA) Program of study at NFC-IET Multan.

BACHELOR OF BUSINESS ADMINISTRATION CURRICULUM
SEMESTER SYSTEM

SEMESTER-1			SEMESTER-2		
Code	Course Title	Credit Hrs.	Code	Course Title	Credit Hrs.
HM-101	Pakistan Studies	2	BBA-103	Macro Economics	3
HM-102	Functional English-I	3	HM-104	Functional English-II	3
MT-101	Business Mathematics	3	BBA-104	Introducton to Sociology	3
HM-103	Introducton to Computing	3	BBA-105	Principles of Management	3
BBA-101	Micro Economics	3	BBA-106	International Relations & Current Affairs	3
BBA-102	Introducton to Psychology	3	HM-105	Islamic Studies	2
	Total Credits	**17**		**Total Credits**	**17**
SEMESTER-3			**SEMESTER-4**		
Code	Course Title	Credit Hrs.	Code	Course Title	Credit Hrs.
BBA-201	Financial Accounting-I	3	BBA-205	Financial Accounting-II	3
BBA-202	Fundamentals of Marketing	3	BBA-206	Contemporary World	3
BBA-203	Business Communicaton -I	3	MT-202	Business Statistics-II	3
MT-201	Business Statistics-I	3	BBA-207	Business & Labour Laws	3
HM-201	Critical Thinking & Logic	3	BBA-208	Business Communicaton -II	3
BBA204	Human Resource Management	3	BBA-209	Business Finance	3
	Total Credits	**18**		**Total Credits**	**18**
SEMESTER-5			**SEMESTER-6**		
Code	Course Title	Credit Hrs.	Code	Course Title	Credit Hrs.
BBA-301	Cost & Management Accounting	3	BBA-306	Entrepreneurship	3
BBA-302	Marketing Management	3	BBA-307	Business Ethics	3
BBA-303	Organizational Behavior	3	BBA-308	Principles of Commercial Banking	3
BBA-304	Management Informaton System	3	BBA-309	Financial Management	3
BBA-305	Production & Operations Management	3	BBA-310	Major Issues in Pakistan Economy	3
				Internship (Non Credit)	
	Total Credits	**15**		**Total Credits**	**15**
SEMESTER-7			**SEMESTER-8**		
Code	Course Title	Credit Hrs.	Code	Course Title	Credit Hrs.
BBA-401	Business Research Method	3	BBA-404	Total Quality Management	3
BBA-402	Environmental Management System	3	BBA-405	Business Policy	3
BBA-403	International Business Management	3	BBA-406	Research Project	3
	Electve -I	3		Electve -III	3
	Electve -II	3		Electve -IV	3
	Total Credits	**15**		**Total Credits**	**15**

BUSINESS ELECTIVE COURSES:

SPECIALIZATION IN MARKETING

1. BBA-431 Distribution Management
2. BBA-432 Industrial Marketing
3. BBA-433 Marketing Research
4. BBA-434 Marketing of IT Products
5. BBA-435 International Marketing
6. BBA-436 Services Marketing

SPECIALIZATION IN HUMAN RESOURCE MANAGEMENT

1. BBA-407 Training & Development
2. BBA-408 Recruitment & Selection
3. BBA-409 Performance & Compensation Management
4. BBA-410 Leadership & Team Management

SPECIALIZATION IN FINANCE

1. BBA-426 Analysis of Financial Statements
2. BBA-427 International Finance
3. BBA-428 Investment & Portfolio Management
4. BBA-429 Financial Institutions
5. BBA-430 Credit Management


2k-21 welcomes our freshers of 2k-22

DEPARTMENT OF
Fashion Design

Prospectus
2023

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MCA-BZU, Multan.
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Ms. Fozia Ishaq
Lecturer
MBA of Business Administration
(NCBA & E Multan)
Bachelors of Textile and Apparel Design
(National Textile University Faisalabad)
7 years of teaching experience

Ms. Memona Farooq
Lecturer
BS Fashion Designing (NCBA & E Multan)
2 years of teaching experience

Mission

Nuturing individuals to transform potential into excellence, creativity and commercial savvy for success in the fashion industry.

Program Introduction

Make your creative designs stand out. The NFC Bachelor of Fashion Design provides you with the right skills to create innovative designs whether it be for the fashion shows of high couture or ready to wear garments. Participants gain the skills and knowledge necessary to work as a fashion designer and understand all aspects of the industry. Through challenging and studio-based projects, they can able to conceptualize their design, develop drawing skills, learn about texture, color and fabric, pattern making and garment construction, as they work towards turning raw materials into a unique finished product.

The degree focuses on the balance between theoretical and industry-relevant fashion design as you research and develop an innovative fashion design practice. Students are taught subjects related to fashion illustration, pattern making and cutting, sewing and stitching. The discipline put emphasis on strong communication and interpersonal skills to raise confident individuals, who can share their vision clearly and develop a better understanding of Fashion design.

I- Graduates have the ability to produce designs in Pret-o-Porter and Haute Couture.

II- Graduates can be able to work in the industry for import and export business in the garment as this domain is producing industry-oriented Designer as well.

III- Graduates can be able to provide services as a fashion accessories designer.

IV- Graduates can be able to work in the field of arts as a Textile Artist, Fabric Installation Artist, Digital Arts

Sculptur, Pattern Maker and Fashion Illustrations.

V- Graduates can have the ability to perceive designs and able to lead designs houses and studios.

VI- Graduates can be able to work as a Communication Designer particularly for the textile sector and the ability to work as a Marketing expert and Visual Merchandiser.

VII- Graduates are given the intense knowledge of Digital Technology and can work as computer Aided Designer in the market.

VIII- Graduates can have the ability to work interdisciplinary tasks in a team.

IX- Graduates can have the ability to play its role as a good citizen with code, conduct of society and religion.

Objective

The program focuses on the core objectives of providing the students with an integrated understanding and specialized perspective on the application of culture and professional practice in the fashion design industry. Throughout the degree course, the students are challenged to test their abilities from concept development to final execution of their design. Subjects like fashion illustration, pattern making and cutting, sewing and stitching help students to learn creative ways of developing their unique style in the field of fashion design. We aim to produce graduates who are creative, imaginative, innovative, versatile and competitive. This aim is achieved by:

I- Producing graduates who have acquired theoretical and practical knowledge of the fashion industry.

II- Producing graduates with critical and analytical problem-solving skills for the fashion design industry.

III- Preparing students for a broad range of related employment opportunities.

IV- Preparing students to show aesthetics and functionality at every phase of design sampling, marketing and merchandising.

V- Preparing students for quality research in advanced study related to the fashion design discipline.

VI- Preparing students to handle and run fashion brands.

VII- Preparing the students to learn the theoretical study of fashion design and its technical aspects.

VIII- To generate human resources in the field of design with the intense knowledge of technology and command on the creative process specifically to the sectors related to Fabric and Textiles to attire the look of the costume.

IX- To impart students about the importance of aesthetics and functionality at every phase of designing, sampling, production, marketing, and Merchandising.

X- To give knowledge of Research so they can apply it in further studies and advancement in the practical field.

XI- To teach the students about the moral and Ethical values of the society so they can contribute well to designers and Human beings.

Career Paths

After formal education graduates the ability to work as a Fashion Designer, Stylist, Illustrator and Costume Designer in the Fashion Industry. Also one can opt for career paths as a fashion designer, product developer, fashion manager, design manager, fashion merchandiser and fashion brand owner. Other diverse careers you can choose from after completing a Bachelor's degree in Fashion Design are:

I- Fashion Designer (Clothing, Footwear, Accessory, Costume)

II- Fashion Merchandiser

III- Fashion Marketing

IV- PR Specialist

V- Fashion Journalist

VI- Fashion Product Manager

VII- Fashion Production and Management

VIII- Advertising

IX- Fashion Technology

Admission Criteria

1- Intermediate/A-Level with a minimum of 50% marks.

2- A-Level with (minimum three subjects, no subsidiary) and O-Level with 8-subjects including five compulsory subjects are required.

3- Intermediate students awaiting results are also eligible for provisional admission. They should attach the attested copy of the part-I result card and also part-II roll number slips of their respective boards.

4- A-level students awaiting results are required to submit the statement of entry. However provisional admission, if granted will not be confirmed without equivalence certificate issued by IBCC with 50% marks.

5- High school diploma holders must submit IBCC equivalence.

BACHELOR IN FASHION DESIGN CURRICULUM
SEMESTER SYSTEM

SEMESTER-1

Code	Course Title	Credit Hrs.
ENG-101	Functional English-I	3+0
HU-102	Pakistan Studies (Compulsory)	2+0
FA-103	Basic Drawing-I	0+2
CS-104	Computer-I/Digital Communication-I	0+2
DES-105	History of Culture & Civilization-I	2+0
FA-106	Sculpture-I	0+3
DES-107	Fundamental of Design	1+2
SS-108	Quantitative Reasoning	2+0
	Total Credits	**16**

SEMESTER-2

Code	Course Title	Credit Hrs.
ENG-151	Communication & Presentation Skill English-II	3+0
HU-152	Islamic Studies	2+0
FA-153	Basic Drawing-II	0+1
CS-154	Computer-I/Digital Communication-II	0+2
DES-155	History of Culture & Civilization-II	2+0
DES-156	Mathematics (Geometry & Drafting)	1+1
DS-157	Fundamental of Design	1+2
SS-158	Anthropology	2+0
	Total Credits	**16**

SEMESTER-3

Code	Course Title	Credit Hrs.
MM-201	Marketing and Merchandising	2+0
FD-202	Flat Pattern-I	1+1
FD-203	Developments in Fashion Costume-I	0+2
SEW-204	Sewing-I (Machine Sewing & Hand Sewing)	1+2
FD-205	Digital Fashion Studio-I	0+1
FD-206	History of Costume-I	1+0
DRP-207	Draping-I	0+2
FA-209	Human Anatomy & Portrait Drawing	0+2
TD-208	Textile Basics & Fibers	2+0
	Total Credits	**17**

SEMESTER-4

Code	Course Title	Credit Hrs.
FD-252	Mathematics of Pattern-II	1+1
FD-253	Digital Fashion Studio-II	0+1
SEW-254	Sewing-II	0+2
ENG-255	Oral Communication English-III	3+0
FD-256	History of Costume-II	1+0
DRP-257	Draping-II	0+2
FD-258	Developments in Fashion Costume-II	0+2
TD-260	Textile Design-I	0+2
FD-259	Couture Finishes (Hand Sewing-II)	0+1
SS-261	Psychology	2+0
	Total Credits	**18**

SEMESTER-5

Code	Course Title	Credit Hrs.
FD-301	Mathematics of Pattern-III	1+2
FD-302	Fashion Design Studio-I	0+2
SEW-303	Sewing-III	0+3
TD-304	Advance Digital Design	0+2
FD-305	History of Costume & Fashion-III	1+0
DRP-306	Draping-III	0+2
TD-307	Textile Design-II	1+1
HU-308	Foreign Language (Chinese HSK-I)	3+0
	Total Credits	**18**

SEMESTER-6

Code	Course Title	Credit Hrs.
FD-351	Mathematics of Pattern-IV	1+2
FD-352	Fashion Design Studio-II	1+2
SEW-353	Sewing-IV	0+3
FD-354	Digital Fashion-IV (CAD/CAM)	0+1
FD-355	History of Costume and Fashion-IV	1+0
DRP-356	Draping-IV	0+2
TD-357	Textile Design-III	1+1
HU-358	Foreign Language (Chinese HSK-I)	3+0
	Total Credits	**18**

SEMESTER-7

Code	Course Title	Credit Hrs.
MM-401	Costing and Planning	1+0
FD-402	Pattern-V (Grading)	0+2
FD-403	Fashion Design Studio-V	0+2
SEW-404	Sewing-V	1+2
DRP-405	Draping-V	1+2
INT-407	Internship	0+2
FD-408	Photography	1+2
	Total Credits	**18**

SEMESTER-8

Code	Course Title	Credit Hrs.
ENG-451	English-VII (Dissertation)	2+0
	Collection/Final Project Product	0+10
FD-452	Collection: Pattern-VI	0+2
FD-453	Collection: Fashion Design Studio-V	0+2
SEW-454	Collection: Sewing-VI	0+2
DRP-455	Collection: Draping-VI	0+2
TD-456	Collection: Textile Design-V	0+2
	Total Credits	**12**

NFC IET
MULTAN-PAKISTAN

DEPARTMENT OF
Criminology

Prospectus
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Dr. Ahmed Saad
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Mr. Ali Raza Shamsi
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Why Study Criminology

With a bachelor of science in criminology, you'll form a better understanding of the historical and contemporary applications of law enforcement, as well as the environments, behaviors, and influences that contribute to criminal acts and behavior. You'll be prepared to enter a career in law enforcement as a detective, public administration as a social services provider or criminal law as a defense attorney.

What is a Degree in Criminology

In a bachelor of science in criminology program, you'll focus your studies on the psychology of crime. You'll learn why criminals commit acts of crime, form an understanding of how be process of imprisonment discourse future criminal acts. You'll study criminology and law to form a better understanding of the overall legal and justice systems in law enforcement and criminal sentencing.

A bachelor of science is a flexible degree that prepares you for work in a variety of law enforcement and judicial positions. Graduates may go into law enforcement, working as police officer, detectives, and crime scene investigators. With additional education, they may also find work later in their careers as criminal psychologists, defense attorneys and prosecutors, corrections counselors, or judges. They may also focus on criminal profiling, working for government agencies like the FIA etc.

What Courses Would I Take For A Major in Criminology?

- Introduction to Criminology
- Sociology of Law
- Social Problems
- Sociology of Violence
- Elite and Organized Crime
- Social Psychology
- Drugs and Society
- Juvenile Delinquency

What Jobs Can you Get with A Degree in Criminology?

Professionals in the forensic Science and criminal profiling fields are becoming increasingly necessary in identifying and capturing criminals who've left little evidence when committing crimes. As such, experienced criminologists are expected to be more in demand to assist with criminal investigations and criminal trials, the application of law enforcement, and in criminal and correctional counseling roles. Criminology majors should be competitive for open roles in federal agencies and as forensic scientists.

bachelors in Criminology will have a typical length of 4 years in a full time schedule.

BACHELOR IN CRIMINOLOGY CURRICULUM
SEMESTER SYSTEM

SEMESTER-1			SEMESTER-2		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
HS-111	English-I	3	HS-121	English-II	3
HS-112	Pakistan Studies	2	HS-122	Islamic Studies/Ethics	2
GS-113	Stat-I	3	GS-123	Stat-II	3
SS-114	Sociology	3	CR-124	Introduction to Law	3
SS-115	Social Psychology	3	MS-125	Economics	3
CR-116	Introduction to Criminology	3	SS-126	Sociology of Deviance	3
	Total Credits:	**17**		**Total Credits:**	**17**

SEMESTER-3			SEMESTER-4		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
HS-211	English-III	3	HS-221	English-V	3
CS-212	Introduction to Computer	2+1	HS-222	Organizational Behavior & Human Resource Development	3
SS-213	Social Problems of Pakistan	3			
SS-214	Media Studies	3	CR-223	Juvenile Delinquency	3
CR-215	Theoretical Perspectives on Crime & Criminals	3	CR-224	Criminal Psychology	3
			CR-225	Islamic Perspective on Crime & Punishment	3
	Total Credits:	**15**		**Total Credits:**	**15**

SEMESTER-5			SEMESTER-6		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
CR-311	Applied Criminology	3	CR-321	Patterns of Crime	3
CR-312	Criminal Justice System	3	CR-322	Research Methodology-I	3
CR-313	Penology	3	CR-323	Forensic Methodology-I	2+1
CR-314	Crime and Security	3	CR-324	Police and Policing	2+1
CR-315	Correctional Institutions	2+1	CR-325	Victimology	3
	Total Credits:	**15**		**Total Credits:**	**15**

SEMESTER-7			SEMESTER-8		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
CR-411	Procedure of Evidence in Criminal Law	2+1	CR-421	Thesis	6
CR-412	Research Methodology-II	3	CR-422	Community Justice & Crime Prevention	2+1
CR-413	Forensic Lab	0+4	CR-423	Methods of Criminal Investigation	3
CR-414	Organized Crime and Money Laundering	3	CR-424	Drug Abuse & Related Crimes/Human Rights	3
CR-415	Cyber Crime	3	CR-425	Violence and Terrorism	3
CR-416	Internship	3			
	Total Credits:	**19**		**Total Credits:**	**18**

NFC INSTITUTE OF ENGINEERING & TECHNOLOGY
FEDERAL DEGREE AWARDING INSTITUTE
NFC IET
MULTAN-PAKISTAN

DEPARTMENT OF
Environmental Science

Prospectus
2023

www.nfciet.edu.pk

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Ms.Sumbilah Shafique
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1 years experience of teaching

Mr. Arbaz Madni
M.Phil.(Environmental Sciences)

BS Environmental Science

Introduction

Environmental Science has been recognized as the science of sustainable development on earth. It is an emerging science of interdisciplinary academic fields that integrate physical and biological sciences to the study of environment. Environmental scientists bring a systematic approach to the analysis of environmental problems. They work on subjects like understanding of earth processes, development of alternate energy systems, pollution control and mitigation measures, cleaner production, environmental management systems, natural resources management, solid waste management and global climatic changes among others.

Importance

Achieving sustainable development by the coming years should be a top most agenda of Pakistan strategic planning to give birth to an environmentally sound and healthy nations. Introducing green economy, biodiversity and ecosystem services, conservation of natural resources and environmental governance are required to be incorporated in the management strata of the country to declare Pakistan an environmentally prosperous society. This entails a pressing need to start educating our young generation in environmental discipline and courses. Environmental professionals are on high demand in the world since countries have made mandatory employment of these professionals in order to meet international standards of environmental safeguards in their organizations and businesses.

Environmental Science at IET

Having realization of the fact that environmental discipline being a prerequisite for shaping a sustainable world, NFC-IET started BS-4 year Environmental Science Program (BSES) in 2011. IET having highly qualified faculty of Chemical Engineering and Basic Sciences Department with a blend of industrial and teaching experience proved a good supporting faculty to conduct environmental courses. Environmental Professionals trained by IET are already serving at good positions in many organizations of national and international worth.

Aims & Objectives

The overreaching aim of BS Environmental Science is to develop human resource in meeting environmental challenges and issues with a broader objective of achieving sustainable development of the earth.

Job Opportunities

Completion of the course will allow graduates to enter as Environmental Professionals with excellent career options in industries, commerce and public and private sector services. This course prepares graduates to join organizations as Environmental Scientist and Manager, Environmental Auditor, Environmental Officers, Consultant & Advisor, Academician and Researcher. The program also enables graduates to continue their higher studies (Post-graduate Program) in environment and other relevant disciplines like Health, Safety and Environmental Management, Environmental Law, Environmental Policy & Management, Energy & Environment etc.

Directorate of Environmental Protection Agency (BPS-17 on ward) Federal and Provincial level

- Assistant Director (BPS-17)
- Environmental Inspectors (BPS-17)
- Environmental Protection Officer

Ministry of Climate Change

- Multiple Positions from BPS-14 to BPS-20
- Directorate of Chemistry
- Directorate of Climate Change
- Directorate of Hazardous Chemical and Ozone Protection.

University/Academic Institutes

- Lecturer-Professor (BPS-18 to BPS-21)
- Research Fellow (BPS-17)

Forest and Wildlife Department (BPS-14 on ward)

- Forest Officer
- Wildlife Management Officer
- Field Officer

Industrial Sector

- Environmental Safety Officer
- Environmental Protection Officer
- Environmental Chemist

Water Sanitation and Public Health Department

- Assistant Director on wards job (BPS-17)
- Field Officer Water Sanitation
- Field Officer Public Health

Program Structure

BS Environmental Sciences will lead to develop an understanding of earth systems, processes, problems and possible solutions. The program will be of 04 years duration consisting of 08 semesters. Students have to complete minimum 136 credit hours of which 130 credit hours are for course work and 06 credit hours for project as per HEC requirement.

The program is designed to provide a strong base for students by offering courses from other disciplines including Mathematics, Biology, Chemistry, Statistics, Economics, Earth Sciences, Law and Management. Students are also equipped with computing, research and presentation skills during their course work.

Laboratories

- General Purpose Chemistry Lab.
- Environmental Lab.
- Microbiology & Wastewater Treatment Lab.
- GIS & Remote Sensing Lab.
- Physics Lab.
- Computer Lab.

Eligibility

F.Sc. (Pre-Engineering/Pre-Medical) or equivalent with 45% aggregate marks.

BS ENVIRONMENTAL SCIENCES CURRICULUM SEMESTER SYSTEM

SEMESTER-1			SEMESTER-2		
Code	Course Title	Credit Hrs.	Code	Course Title	Credit Hrs.
1.	Introduction to Environmental Science	3+0	7.	Introduction to Earth Science	2+1
2.	Biology-I	2+1	8.	Biology-II	2+1
3.	Basic Chemistry	2+1	9.	Mathematics/Stat (University Optional)	3+0
4.	Mathematics/Stat-I	3+0	10.	Sociology/Anthropology	3+0
5.	English-I	3+0	11.	English-II	3+0
6.	Pakistan Studies	2+0	12.	Islamic Studies/Ethics	2+0
	Total Credits	**17**		**Total Credits**	**17**

SEMESTER-3			SEMESTER-4		
Code	Course Title	Credit Hrs.	Code	Course Title	Credit Hrs.
13.	Introduction to Computer	1+2	19.	Fundamentals of Ecology	3+0
14.	Environmental Chemistry	2+1	20.	Environmental Microbiology	2+1
15.	Environmental Physics	2+1	21.	Environmental Pollution	3+0
16.	Introductory Economics	3+0	22.	Climatology	3+0
17.	English-III	3+0	23.	Psychology	3+0
18.	Philosophy	3+0	24.	English-IV/(University Optional)	3+0
	Total Credits	**18**		**Total Credits**	**18**

SEMESTER-5			SEMESTER-6		
Code	Course Title	Credit Hrs.	Code	Course Title	Credit Hrs.
25.	Applied Ecology	2+1	31.	Environmental Biotechology	2+1
26.	Environmental Toxicology	2+1	32.	GIS & Remote Sensing	2+2
27.	Environmental Profile of Pakistan	3+0	33.	Environmental Management Systems	3+0
28.	Environmental Economics	3+0	34.	Biodiversity & Conservation	3+0
29.	Analytical Techniques in Env. Science	1+2	35.	Environmental Monistory	2+1
30.	Elective-I	3+0	36.	Elective-II	3+0
	Total Credits	**18**		**Total Credits**	**19**

SEMESTER-7			SEMESTER-8		
Code	Course Title	Credit Hrs.	Code	Course Title	Credit Hrs.
37.	Climate Chnage	3+0	43.	Environmental Laws & Policies	3+0
38.	Environmental Impact Assessment	3+0	44.	Health and Environment	3+0
39.	Natural Resource Management	3+0	45.	Pollution Control Technologies	2+1
40.	Research Methods in Env. Science	3+0	46.	Research Project/Internship	3+6
41.	Elective-III	3+0			
42	Elective-IV	3+0			
	Total Credits	**18**		**Total Credits**	**18**

ELECTIVES					
Code	Course Title	Credit Hrs.	Code	Course Title	Credit Hrs.
1.	Introduction to Biochemsitry	3+0	5.	Urban Planning & Management	2+1
2.	Water Resource Management	2+1	6.	Disaster Management	3+0
3.	Soil & Environment	3+0	7.	Energy & Environment	3+0
4.	Urban Environment	3+0	8.	Agro Ecology	2+1

DEPARTMENT OF

Bio-Medical Engineering Technology

Prospectus
2023

www.nfciet.edu.pk

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Introduction:

Biomedical engineering is one of the fastest-growing sectors in global health innovation and product development. In 2013, Forbes, a famous American magazine, placed biomedical engineering at the top of their "most valuable majors" list of university programs. The United States ranks the field first with USD 140-180 billion/year industry, which is more than one third of world market. Medical devices and technologies are growing at a rate of 10 per cent annually. Internationally, the medical devices market is a USD 327.7 billion industry whereas Canada ranks this field at number nine with USD 6.8 billion in estimated sales revenue.

Bio-engineering applies the basic principles of engineering to the development of innovative methods for the diagnosis and treatment of diseases and injuries as well as playing a crucial role in the advancement of medical devices and technologies. It is an interdisciplinary subject, which combines wide-ranging scientific knowledge with technological processes and engineering skills to provide systems for many applications.

An undergraduate program in Biomedical Engineering/Technology provides a strong foundation in the basic sciences, mathematics, engineering and life sciences. The educational foundation, coupled with opportunities for extracurricular experiences, research/internship opportunities, teaching, advising and mentoring, provides a broad pathway for students to pursue a wide variety of post-graduate opportunities such as:

- Utilization and enhancement of the engineering and biological training to solve problems regarding health and health care based on ethically sound principles
- Development of leadership in the respective career in biomedical engineering and clinical practices
- Indulge in lifelong learning by continue education in graduate or professional school or by means of opportunities for professional training
- Graduates are trained to apply knowledge of biosciences, mathematics, and engineering in practical domains
- Biomedical engineers/technologists are able to design and conduct experiments as well as to analyze and interpret data
- They can lay out a system to meet desired needs with realistic constraints such as environmental ethical, health safety
- Graduates are professionals capable to function effectively on multidisciplinary teams

Keeping in view the gap between supply and demand of biomedical engineering/technology professionals, BSc (Biomedical Engineering Technology) program at NFC Institute of Engineering and Technology was commenced in 2016. The program is maiden in Southern Punjab region, providing students deep theoretical and practical understanding of the key areas with the help of qualified teachers from academia & industry and on state of the art biomedical engineering equipment.

Program Education Objectives (PEOs):

- Apply biomedical engineering knowledge to identify and address technical and societal problems.
- Be able to take initiative and/or develop innovative ideas for technological and professional growth keeping in view their societal and environmental impacts.
- Learn continuously and work effectively as a team lead in a multidisciplinary environment while demonstrating interpersonal and managerial skills with ethical responsibilities.

Accreditation:

All batches of the program are accredited by the National Technology Council (NTC), Pakistan. Accreditation with NTC grants graduates a license to enter in their professional career either through employment or with their own relevant business.

Curriculum:

Keeping in view the regularly updating market requirements, curriculum for BSc Biomedical Engineering Technology program is being regularly updated right from its commencement in 2016. Presently it is as per the latest guidelines of Higher Education Commission and National Technology Council. Advanced courses are included according to the changing field requirements at both national and international levels. These courses provide quantitative training, emphases on problem-solving and design the phenomena from the molecular to the system level.

Laboratories:

Department has recently equipped following 08 state-of-the-art labs with modern equipment:

i- Human Physiology & Anatomy lab
ii- Computer lab
iii- Biomechanics lab
iv- Biomaterials lab
v- Electrical lab
vi- Bio Physics lab
vii- Bio Chemistry lab

Current Research Areas: Current research in this field encourages emerging areas by prominently discussing a wide range of topics, including but not limited to Biomechanics, Bio monitoring, Biomaterial engineering, Bioelectrical engineering, Biochemical engineering, Tissue engineering, Computational genomics and proteomics, Pharmaceutical engineering, Bio photonics, Medical devices, Novel Surgical Instruments, Medical imaging, Implants, Bionics, Clinical engineering, and Rehabilitation engineering.

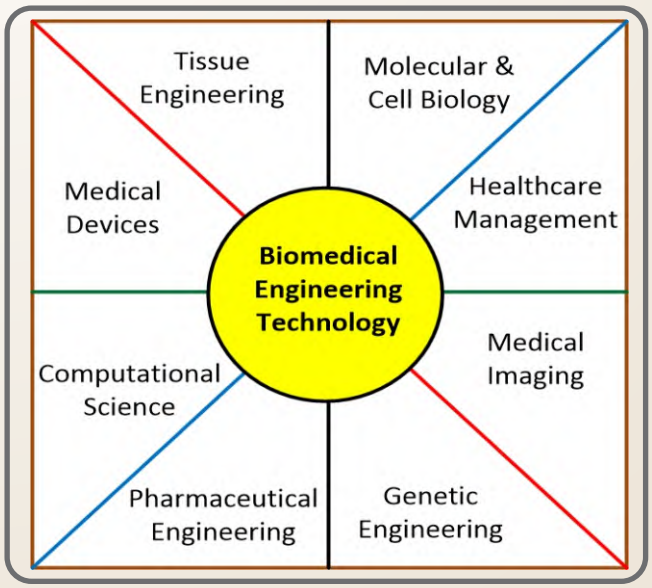
Specialized Tracks in Biomedical Engineering Technology:

Neural Engineering:

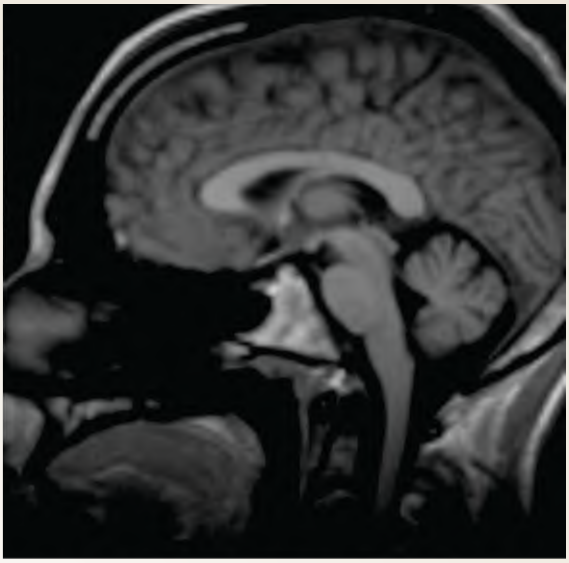
This area applies fundamental and applied engineering techniques to help solve basic and clinical problems in neuroscience. At a fundamental level, neural engineering seeks a better understanding of the behavior of individual neurons, their growth, signaling mechanisms between neurons, and how populations of neurons produce complex behavior. Obtaining such information improves understanding of the communication that occurs between the various parts of the nervous system and the brain. Such knowledge can lead to the development of replacement parts and other treatments for impaired neural systems.

Medical Imaging:

Medical imaging encompasses a wide range of technologies (including MRI, CT, ultrasound, PET, etc.) that permit visualization of the internal structure and function of the human body. Medical imaging is an essential part of today's health care, biomedical research, and drug development, and is one of the most important contributions that engineering has made to patient care. Cutting-edge areas of medical imaging

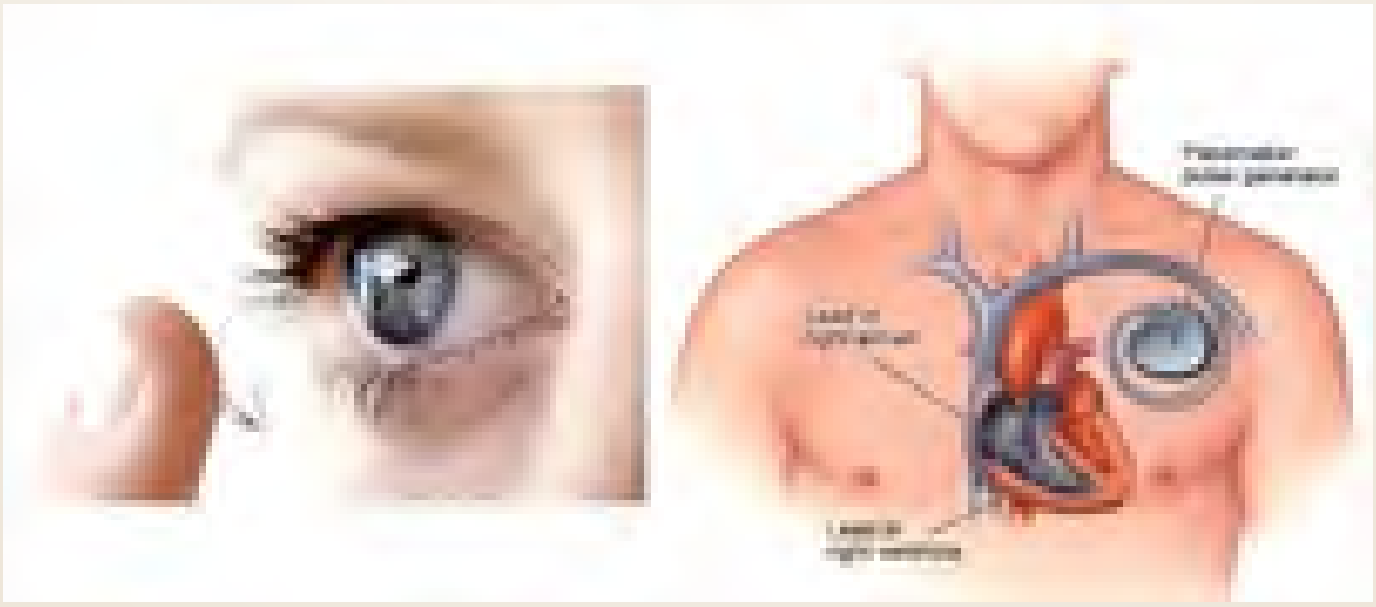


include development of new types of imaging, new hardware and computer software, and new ways of using, visualizing, and analyzing medical images.



Cell and Tissue Engineering:

This area seeks to understand and attack biomedical problems at the microscopic level and use such knowledge to engineer replacement tissues and organs from individual cells. Knowledge of anatomy, biochemistry and the mechanics of cellular and sub-cellular structures is needed to understand disease processes and to target interventions. Armed with such knowledge, new technologies have been, or are being, developed.



BACHELOR IN BIO-MEDICAL ENGINEERING TECHNOLOGY CURRICULUM SEMESTER SYSTEM

SEMESTER-1			SEMESTER-2		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
Phy-110	Applied Physics	2+1	ET-101	Electrical Technology	2+2
CS-101	Computing Fundamentals	2+1	BMT-121	Human Physiology & Anatomy-I	2+2
CY-100	Applied Chemistry	2+1	CT-114	Electronics Circuit Technology	2+2
BMT-111a/	Basic Biology/Basic Mathematics	2+1	MA-101	Applied Mathematics	3+0
BMT-11b		3+0	IS-102	Islamic & Pak Studies-II	3+0
IS-101	Islamic & Pak Studies-I	3+0			
HU-101	Communication Skills-I	0+1			
	Total Credits	**16**		**Total Credits**	**18**

SEMESTER-3			SEMESTER-4		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
BMT-212	Human Physiology & Anatomy-II	2+2	BMT-225	Biomechanics	2+2
ET-212	Digital Systems Technology	2+2	BMT-221	Introduction to Cell Biology	2+2
BMT-222	Biochemistry	2+2	ET-224	Introduction to Signals & Systems	2+2
MT-201	Technical Drawing	0+2	ET-222	Microcontrollers	2+2
ET-213	Electricomechanical Technology	2+2	HU-201	Communication Skills-II	0+1
	Total Credits	**18**		**Total Credits**	**17**

SEMESTER-5			SEMESTER-6		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
BMT-314	Biomaterials	2+2	BMT-316	Bioinstrumentation-II	2+2
BMT-311	Bioinstrumentation-I	2+2	BMT-321	Health Care Management	3+0
BMT-326	Biostatistics	3+0	BMT-337	Biomedical Imaging Techniques	2+2
MT-302	Workshop Practice	0+2	BMT-312	Industrial Biotechnology	2+2
Mgt-314	Entrepreneurship and Business Management	3+0	BMT-327	Project Based Learning Modules	0+3
	Total Credits	**16**		**Total Credits**	**18**

SEMESTER-7			SEMESTER-8		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
BMT-421a	Industrial Training	16	BMT-421b	Industrial Training	16
	Total Credits	**16**		**Total Credits**	**16**

NFC IET
MULTAN-PAKISTAN

DEPARTMENT OF
Chemistry

Prospectus
2023

www.nfciet.edu.pk

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Introduction:
We are living in science of change where chemistry is an integral part of everything that teaches every material in existence is made up of matter. Chemistry is sometimes called "the central science", it acts as a bridge between different areas of natural sciences. This field covers chemical forms, the interaction of these chemicals with each other, define our existence on universe. By studying the basic properties of substances and the many transformations they undergo, the chemist finds solutions to scientific challenges and contributes to the development of new technologies.
In modern industrial societies, chemistry is one of the foundations of the economy. Like other sciences, the advancements in chemistry have proven a blessing to the world, and have brought with them challenges to overcome. The stimulating career options opened by chemistry are wide-ranging and cover different aspects of the field etc. education sector, environment, industry, forensic, and pharmaceutical industry.

Department:
The department of chemistry started regular functioning in 2020 that assist in understanding the chemistry among students. The department of chemistry offers suggestive ways to utilize the conceptual knowledge in all areas of chemical forms through course work and laboratory experiments besides student's research projects in final semesters. We have qualified faculty, diversified and established chemical laboratories and research facilities for our learners.

Vision:
The Department of Chemistry of NFC IET, Multan is determined to excel in chemical education, research, and services.

Mission:
- To educate the students to investigate and solve the global environmental problems through the development of chemical education and research.
- To prepare competitive and professional undergraduates within an innovative, creative and, intellectually stimulating environment.
- To build proactive partnerships with industry and offer effective educational and technical

services to the society.

Specialization:

Department of Chemistry offers BS degree in Chemistry with specialization in the following four sub-areas.

- Organic Chemistry
- Inorganic Chemistry
- Analytical Chemistry
- Biochemistry

The first three years of BS program will be same for all students where they will be entertained with knowledge of all the disciplines of Chemistry. However, from the seventh semester, students will take courses in specialized areas of chemistry in accordance with their choice. In eighth semester, students need to complete a research project related to his/her specialized areas of chemistry that helps to enhance the knowledge and to have a proper understanding of the subject.

Laboratories:

Laboratory experience is an essential part of the educational process and a key factor to prepare students for real chemist's practical life. Hence, Department of Chemistry have laboratories, which are under establishing phase having necessary instruments and tools in the different chemistry areas like organic, inorganic, analytical, environmental and biochemistry that provides hands-on practice for students. These labs have secure environment for experimentation and research having a privilege enjoyed by our students. These laboratories provide a platform to the students to understand the basic necessities and practical concepts of chemistry, that helps the students in designing and purification techniques which addresses the needs of industries and improves research capabilities.

The following is the list of laboratories of Department of chemistry.

1. Inorganic and Organic chemistry Lab
2. Analytical and Physical chemistry Lab
3. Biochemistry Lab
4. Environmental Lab

Eligibility Criteria:

45 % marks in F.SC. (Pre-Medical/Pre-Engineering), General Science (with Chemistry) or DAE (with Chemistry).

BS CHEMISTRY CURRICULUM
SEMESTER SYSTEM

SEMESTER-1			SEMESTER-2		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
ENG-100	English-I (Functional)	3+0	ENG-200	English-II (Communication Skills)	3+0
OB-100	Organization Behavior	3+0	ISLS-200	Islamic Studies	3+0
STAT-101	Fundamentals of Statistics	3+0	MATH-200	Mathematics-I	3+0
BIOL-100	Functional Biology-I	3+0	ZOO-201	Cell and Molecular Biology	3+0
COMP-100	Introduction to Computer	2+1	COMP-200	Computer Programming	2+1
CHEm-151	Inorganic Chemistry	3+1	CHEM-161	Organic Chemistry	3+1
	Total Credits	**19**		**Total Credits**	**19**

SEMESTER-3			SEMESTER-4		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
ENG-300	English-III (Tech. Writing & Presentation Skills)	3+0	UQ-400	Understanding of Quran	3+0
PAKS-300	Pakistan Studies	2+0	BOT-401	Biodiversity and Conservation	3+0
PHYS-301	Modern Physics	3+0	ARCH-401	Visual Communication	0+3
PSY-302	Psychology	3+0	CHEM-111	Analytical Chemistry	2+1
CHEM-141	Environmental Chemistry	3+0	CHEM-121	Applied Chemistry	2+0
CHEM-171	Physical Chemistry	3+1	CHEM-131	Biochemistry	2+1
	Total Credits	**18**		**Total Credits**	**17**

SEMESTER-5			SEMESTER-6		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
CHEM-251	Inorganic Chemistry	3+1	CHEM-351	Inorganic Chemistry	3+1
CHEM-261	Organic Chemistry	3+1	CHEM-361	Organic Chemistry	3+1
CHEM-271	Physical Chemistry	3+1	CHEM-371	Physical Chemistry	3+1
CHEM-211	Analytical Chemistry	3+1	CHEM-331	Biochemistry	3+1
	Total Credits	**16**		**Total Credits**	**16**

SEMESTER-7			SEMESTER-8		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
	Paper-I	3+0		Paper-IV	3+0
	Paper-II	3+0		Paper-V	3+0
	Paper-III	3+0		Paper-VI	3+0
	Lab-I	1+0		Lab-II	1+0
	Research Project-I	3+0		Research Project-II	3+0
	Total Credits	**16**		**Total Credits**	**16**

Note: 7th & 8th Semester Specialization (Inorganic/Organic/Analytical/Biochemistry)

NFC INSTITUTE OF ENGINEERING & TECHNOLOGY
FEDERAL DEGREE AWARDING INSTITUTE
NFC IET
MULTAN-PAKISTAN

DEPARTMENT OF
Physics

Prospectus
2023

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Introduction:

The department of Physics was established in June 2020. The department presently offer undergraduate degree programs in the subject of pure physics. But in near future, we will plan to start the M.Phil. (Physics) program with several inter-disciplinary areas. During this short span of time, special focus is placed on preparing students equipped with basic concepts and hands on laboratory training at undergraduate and graduate level. Students are specially exposed to practical training in the scientific organizations and industry through a meaningful internship program. They are fully trained to join the job market as a valuable asset soon after completion of their degree and take up further study without any difficulty.

Specializations:

- **Traditional Physics:** This specialization is developed with a focus on fundamental physics combining physics to unlock the physical world around us. It is recommended for students considering an advanced degree, such as BS/MS in physics or other STEM-related areas. Courses include Mechanics, Modern Physics, Classical Mechanics, Mathematical Physics, Quantum Mechanics, Optics, and Statistical & Thermodynamics.
- **Materials & Nanophysics:** Materials science and nanophysics lead to well-paying careers in the high-technical industry and energy fields. Our faculty study semiconductors, magnets, superconductors, nano sensors, magnetic/photonic devices, and biomaterials which mean you have expert advice readily available when you launch your own career focused research. Courses include Quantum Mechanics, Electricity and Magnetism, Materials Science and Nanophysics, Modern physics, Optics and Lasers.
- **Computational Physics:** Physicists with a solid knowledge of computing are in high demand for various jobs, such as quantitative analyst and data scientist. The curriculum develops critical thinking, problem solving, and programming skills through physics and computer science classes. You might create a flight simulator program, or make computational models to study the ocean floor or stock market.
- **Biomedical Physics:** Medical physicists are scientists who work in healthcare to develop new medical technologies and radiation-based treatments. They might help to beat cancer, or develop a better MRI and other medical devices. They may deal directly with patients, test and maintain equipment. Students learn the physics behind the techniques and devices used in the life and medical sciences. The curriculum for this specialization includes courses in physics and Physical chemistry.

Program Mission:

- To develop a solid understanding of the fundamental principles of physics in students, including: a firm conceptual grasp of the central principles of physics, an ability to work with the concepts of experimental physics and functional understanding of these ideas play out in the real world.
- To create a flexible and creative problem-solving ability in students.
- To develop an integrated understanding of the unity of physics.
- To create a functional understanding of symbolic and numerical computation.
- To offer rigorous and comprehensive courses that allow them to perform at a high-level fostering curiosity and excitement about the physical world.
- To provide an exciting learning opportunity for non-physics and non-science majors that provides basic understanding of physics and problem-solving skills.
- To develop expertise in experimental methodologies in students.
- To maintain a research environment, in which key scientific and technical innovation are generated.
- To maintain healthy level of external research funds allowing us to provide financial support for undergraduate research and prepare them to academic, research, and industrial carriers.
- To build faculty that bring exciting and current research perspectives to the classroom.
- To prepare undergraduate students for graduate studies and for the technical careers as well.

Aims and Objectives:

The main educational objectives of BS (4-year) degree program are:

- To impart students with a conceptual understanding of the fundamental principles of physics, natural laws and their interpretation, as well as mathematical formulation of the physical phenomena in nature.
- To develop critical skills necessary for solving unknown problems from our physical surroundings.
- To develop the capability of analyzing, addressing and posing solutions to problems of natural importance and to instill a deep appreciation of the need for optimum utilization of natural resources and environment.
- To instill in students the habit of independent thinking, deep inquiry, and motivation for self-education.
- To sharpen our students' mathematical prowess making them capable of modeling, analyzing and predicting the behavior of physical processes.
- To enhance our students' skills in scientific communication and the ability to clearly present physics and science in simple and clear language.
- To introduce students the spirit of working in interactive groups with the necessary requirements of scientific and professional ethics.
- To develop hands-on experience in different laboratory techniques and modern instrumentation.
- To enhance students' competence in design, conduct of experiments, analysis and presentation of experimental data and results.
- To provide an in-depth understanding of some specialized area of physics through the option of elective courses.
- To equip students with the necessary skills set for pursuing careers in physics education, research and industry in government.

Content areas

At the simplest level, we have a list of all the topics that are covered somewhere in the major curriculum. Broadly speaking, the central topics match the required courses: classical dynamics, thermal physics, quantum physics, electricity & magnetism, and experimental methods. A more highly-specified list of essential topics for each course is provided in the appendix. We can then

state our learning goals in a straightforward manner. Physics majors will have a good understanding of the topics included in this list.

Experimental methodologies:

In addition to an understanding of presently known results, our students should also know the methods by which new knowledge is acquired and evaluated. Thus, along with a deeper understanding of physical principles, the laboratory component of our curriculum should also impart methodological knowledge and skills. For example, an understanding of how to use basic scientific equipment (multimeters, oscilloscopes, power supplies etc.) and an understanding of experimental uncertainty analysis are the learning goals of our curriculum.

About Physics labs:

The Physics labs at NFC-IET are well designed and establish to supplement degree course. The experiments in the Physics lab are providing to student's practical perspective to the theories and models that they study in the class. An integral part of the course is to develop critical thinking skills in students as they learn about trouble shooting problems in experiments. The lab experience will allow the students to further develop the ability to determine themselves what techniques and procedures students have to follow, what questions to ask, what the acquired data means, how reliable it is and what to do when things do not work as expected. They are continuously exploiting the data to derive interesting information from the experiments and increase scope and capacity. We often allow students to perform their own independent study on experiments if they have interesting ideas. As a result of these exercises, the Physics lab does not become stagnant but rather improves its standard and rigor after every semester. For this purpose, NFC-IET establish following labs:

- Mechanics lab
- Electricity & Magnetism lab
- Thermodynamics lab
- Optics lab
- Modern physics lab
- Electronics lab
- Electromagnetic lab

Admission Criteria

F. Sc (pre-engineering & pre medical, general Group with Physics), ICS, DAE or equivalent with minimum 45% marks from an accredited institution.

Career Opportunities:

After completing the degree, the graduates will avail the opportunity to work with the following:

- R&D Organization
- Multinational Industries
- Atomic energy Commission
- Khota Research Labs
- SUPARCO
- Aviation
- All engineering related areas
- Aerospace
- Teaching & Research

BS PHYSICS CURRICULUM
SEMESTER SYSTEM

SEMESTER-1			SEMESTER-2		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
ENG-101	English-I	3+0	ENG-102	English-II	3+0
OB-100	Organization Behavior	3+0	ISL-101	Islamic Studies/Ethics	2+0
MATH-101	Calculus-I	3+0	MATH-103	Calculus-II	3+0
CS-101	Introduction to Computer	2+1	PHYS-102	Electricity & Magnetism	4+0
PHYS-101	Mechanics	4+0	CS-102	Computer Programming	2+1
PHYS-103	Physics Lab.-I	0+1	PHYS-104	Heat & Thermodynamics	3+0
MATH-102	Mathematics-I	0+0	PHYS-106	Physics Lab.-II	0+1
			MATH-104	Mathematics-II	0+0
	Total Credits	**17**		**Total Credits**	**19**

SEMESTER-3			SEMESTER-4		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
ENG-201	English-III	3+0	ENG-202	English-IV	3+0
STAT-201	Probability & Statistics	3+0	MET-200	Meteorology	3+0
PHYS-203	Waves & Oscillations	3+0	MATH-224	Differential Equation	3+0
PHYS-204	Modern Physics	3+0	PHYS-205	Optics	3+0
MATH-223	Introduction to Linear Algebra	3+0	CHEM-271	Physical Chemistry	3+0
PSY-203	Psychology	3+0	PHYS-207	Physics Lab-IV	0+1
PHYS-202	Physics Lab-III	0+1	ISL-201	Understanding of Quran	0+0
	Total Credits	**19**		**Total Credits**	**16**

SEMESTER-5			SEMESTER-6		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
PHYS-351	Mathematical Methods of Physics-I	3+0	PHYS-352	Mathematical Methods of Physics-II	3+0
PHYS-321	Electromagnetic Theory-I	3+0	PHYS-322	Electromagnetic Theory-II	3+0
PHYS-311	Classical Mechanics	3+0	PHYS-392	Electronics-II	3+0
PHYS-391	Electronics-I	3+0	PHYS-361	Statistical Physics	3+0
PAK-301	Pakistan Studies	2+0	PHYS-331	Quantum Mechanics-I	3+0
PHYS-306	Physics Lab-V	0+2	PHYS-307	Physics Lab-VI	0+2
	Total Credits	**16**		**Total Credits**	**17**

SEMESTER-7			SEMESTER-8		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
PHYS-471	Methods of Experimental Physics	3+0	PHYS-476	Nanomaterial and Application	3+0
PHYS-433	Atomic and Molecular Physics	3+0	PHYS-477	Computational Physics	3+0
PHYS-474	Introduction to Nanoscience & Nanotechnology	3+0	PHYS-442	Solid State Physics-II	3+0
PHYS-432	Quantum Mechanics-II	3+0	PHYS-493	Nuclear Physics	3+0
PHYS-441	Solid State Phyysics-I	3+0	PHYS-500	Research Project	0+3
PHYS-406	Physics Lab-VII	0+2			
	Total Credits	**17**		**Total Credits**	**15**

DEPARTMENT OF
Food Science & Technology

Prospectus
2023

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Dr. Sadiq Hussain
Incharge, Department of Food Science and Technology
Ph.D. (Chem. Engg.)
M.Sc. (Chem. Engg.)
B.Sc. (Chem. Engg.), P.E.
31 years' experience in chemical industry, research & academia
sadiqhusain@nfciet.edu.pk

Dr. Subhan Azeem
Coordinator, Department of Food Science and Technology
Ph.D. (Chem. Engg.)
M.Sc. (Chem. Engg.)
B.Sc. (Chem. Engg.)
12 years' experience in Chemical Industry, research & academia
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Recognition & Appreciation Words

I am feeling honored and privileged to share that by the grace and mercy of Allah almighty and with the kindness of the Hon'ble Vice Chancellor of NFC Institute of Engineering & Technology, Multan, Prof. Dr. Malik Akhtar Ali Kalrou, The Institute has established a new Department of B.S Food Science and Technology. Indeed, this step of the worthy Vice Chancellor will turn up as a potential means to improve the food situation in the Country. Huge cheers and a sincere word of gratitude are due to the vice chancellor for this gift to the profession. The addition of a department to the assortment of current faculties will raise the Institute's standing in the industry. This program assists students with a strong comprehension of all aspects of food processing and food product development that are aligned with the latest processing and analytical techniques. Moreover, this food technology program is designed to provide the latest knowledge about novel functional foods, sensory evaluation techniques, food processing, & current food laws and regulations.

Regards
Dr. Sadiq Hussain
In charge Department of Food Science and Technology

Mission of the Department

We endeavor to produce quality food science graduates that are equipped with fundamentals of safety, food science & technology; leading to the food security of the country by maintaining the self-sustainability of the program.

Faculty of Food Science and Technology Department

1. Dr. Sadiq Hussain
   In Charge Department of Food Science and Technology
2. Dr. Muhammad Subhan Azeem
   Coordinator Department of Food Science and Technology
3. Dr. Sana Saeed — Assistant Professor
4. Dr. Maham Hussain — Lecturer
5. Mr. Tahir Zahoor — Lecturer
6. Mr. Wasim Javed — Lecturer
7. Mr. Muzaffar Riaz — Research Assistant
8. Ms. Samar Rubab — Lecturer (Visiting)
9. Ms. Arooj Nisar — Lecturer (Visiting)

Introduction

Food Science and technology is a branch of the food sciences that deals with the selection, preservation, processing, and packaging of food products using food chemistry, biology, engineering, and other scientific principles. The core of food science and technology programs is to develop mechanisms for ensuring the quality and safety of food. To produce highly qualified graduates in the field of food science and technology who, as a result of their training, will be well-equipped to support the food industries' rapid change and to maintain Pakistan's industrial and economic progress. Integrity, excellence, teamwork, discipline, and commitment to work are the basic values of the Institute, all of which are pursued in tandem with this mission.

Recognizing that Pakistan's food industry is still in its infancy, the Institute has continued its teaching and research agenda. Therefore, it is crucial that this program be made available to train the necessary manpower and expertise that will assist the industry and produce a healthy community that will contribute to accelerating the economic development of the country. Taking into account the evolving and dynamic needs of the food industry, the Institute chooses

courses that are meant to give students a solid understanding of the fundamentals of food technology. The course content of any undergraduate syllabus should cover the following five categories: Food Chemistry and Analysis, Food Safety and Microbiology, Food Processing, and Engineering, and Applied Food Science.

The faculty in the Department of Food Science and Technology is a blend of qualified persons rich in teaching, training, research, and industrial experience. The department is equipped with state-of-the-art scientific equipment and functional laboratories for students to obtain hands-on experience.

The Demand for BS Food Science and Technology in Pakistan

This field is so diverse, and it is one of the uppermost paying fields in Pakistan. With the passage of time, there has been an increase in the demand for food scientists in the Pakistani food industries, departments, and hotels. So, if an individual is pursuing this degree, it does hold a bright future.

Scope and Objectives

The main aim of this study program is to respond to the needs of society and the economy for a better-skilled workforce in food science and technology professions. In achieving this aim, the objectives of this study program are to:

- Offer a suitable and exciting study and learning environment for students that want to shape their future professions in food science, food technology, food processing, and agro-business;
- Provide flexible opportunities for students to study and gain relevant knowledge and skills that are demanded in the labor market and food industry;
- Provide opportunities for young people and other interested individuals in new professions that ensure a quick transition to employment;
- Combine international know-how and good praxes as well as the domestic potential for developing a cadre of skillful graduates that will supply skill gaps in the economy;

Why BS Food Science and Technology

Food technology involves various aspects of science to develop and design innovative processing technologies, improve food quality and nutritive value, and enhance the safety, wholesomeness & availability of our food supply. It involves the study of the characteristics of food, its nutritional composition, reactions and changes that take place at various levels of processing and storage, and microbiological aspects of food to prevent spoilage and enhance shelf life. Professionals work to improve manufacturing methods through new processing, preservation, and packaging technologies. Food

scientists study new ingredients with better nutrition and health benefits and develop new products or technologies to improve the shelf life of the product. A food technologist is not only involved in food processing but also in designing the food plant and various equipment used in processing. He/she is also involved in the safety and regulatory aspects of the developed product, inspection, and accreditation of the food plant, etc.

Jobs & Career in Food Science and Technology

Food science and technology study food preservation, selection, and production. It is the diversity of practical and scientific disciplines, including chemistry, engineering, biology, processing, packaging, and their worldwide distribution. Food science and technology studies also deal with foods such as fruits, vegetables, meat, eggs, milk, etc. There is a high demand for trained food professionals in both Government and Private sectors. One can enter these areas after graduation or post-graduation in Food Science & Technology.

Some of the Job profiles & Potential Employer include:

- Government Food Departments (Food Inspector)
- Punjab Food Authority
- Health and Safety Inspector
- Entrepreneurs
- Food technologist: Production/Operation/ QA/QC
- M/S Nestle
- Beverage Industry
- Baking Industry
- Continental Hotels
- R&D : New Product & Process Development
- Marketing & Sales, Business Development & Marketing Analysis
- Procurement & Supply chain management

Eligibility Criteria for Admission

BS Food Science and Technology is a 4-year degree program. An applicant seeking admission in BS Food Science and Technology must fulfill the following eligibility criteria.

I. Intermediate Science (F.Sc. Pre-Medical/Pre-Engineering) with 50% marks
II. A level or any other Foreign equivalent qualification approved by IBCC having a minimum of 50% marks
iii. DAE in Food Technology and all other equivalent DAE.

BS FOOD SCIENCE AND TECHNOLOGY CURRICULUM SEMESTER SYSTEM

SEMESTER-1			SEMESTER-2		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
FST-101	Introduction to Food Science & Technology	2+1	ISL-101	Islamic Studies	2+0
CY-101	Organic & Inorganic Chemistry	2+1	FST-103	Stoichiometric Calculations	3+0
PKS-101	Pakistan Studies	2+0	STA-101	Statistics-I	2+0
CMPE-101	Introduction to Information Tech./Computer	2+1	FST-104	Principles of Human Nutrition & Dietetics	2+0
MA-101/	Basic Mathematics OR	3+0 or	FST-105	Fluid Mechanics	2+1
BIO-101	Basic Biology	2+1	MA-102	Applied Mathematics	2+0
FST-102	Physical Properties of Food	3+0	BIO-102	Applied Biology	1+1
QT-101	*Translation of Holy Quran-I	1+0	QT-102	*Translation of Holy Quran-I	1+0
	Total Credits	**16**		**Total Credits**	**16**

SEMESTER-3			SEMESTER-4		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
EN-201	Communication Skills	2+1	FST-206	Instrumental Techniques in Food Analysis	2+1
FST-201	Unit Operation in Food Processing	2+1	FST-207	Food Process Engineering-I	2+1
FST-202	Food Processing and Preservation	2+1	FST-208	Food Supply Chain Management	3+0
FST-203	Basic Agriculture	2+1	FST-209	Food Packaging	3+0
FST-204	Sustainable Food Products	2+0	FST-210	Food Chemistry	3+0
FST-205	Food Industrial Waste Management	3+0	STA-201	Statistics-II	2+0
QT-201	*Translation of Holy Quran-I	1+0	CMPE-202	Computer Applications	1+1
	Total Credits	**17**		**Total Credits**	**19**

SEMESTER-5			SEMESTER-6		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
FST-301	Food Quality Management	3+0	FST-308	Beverage Technology	2+1
FST-302	Sugar and Confectionary Technology	2+1	FST-309	Food Biotechnology	2+1
FST-303	Food Process Engineering-II	2+1	FST-310	Baking Technology	2+1
FST-304	Cereal Technology	2+1	FST-311	Occupational Safety, Health & Environment	3+0
FST-305	Post-Harvest Technology	2+1	FST-312	Fruit and Vegetable Processing	2+1
FST-306	Entrepreneurship	3+0	FST-313	Food Plant Layout	3+0
FST-307	Food Safety & Toxicology	2+0	FST-314	Food Microbiology	2+1
	Total Credits	**20**		**Total Credits**	**21**

SEMESTER-7			SEMESTER-8		
Code	**Course Title**	**Credit Hrs.**	**Code**	**Course Title**	**Credit Hrs.**
FST-401	Food Laws and Regulations	3+0	FST-408	Industrial Training/Internship/Research Project and Report Writing	0+12
FST-402	Food Product Development	3+0			
FST-403	Process Control in Food Industry	2+1			
FST-404	Meat & Dairy Technology	2+1			
FST-405	Sensory Evaluation of Foods	2+1			
FST-406	Extrusion Technology	2+0			
FST-407	Research Project and Scientific Writing	1+1			
	Total Credits	**19**		**Total Credits**	**12**

NFC IET
MULTAN-PAKISTAN

Prospectus 2023

Allied Offices

- Registrar Office
- Students' Affairs
- Industrial Liaison Committee
- Treasurer Office
- Commercial Department
- Controller Office
- Admission Committee

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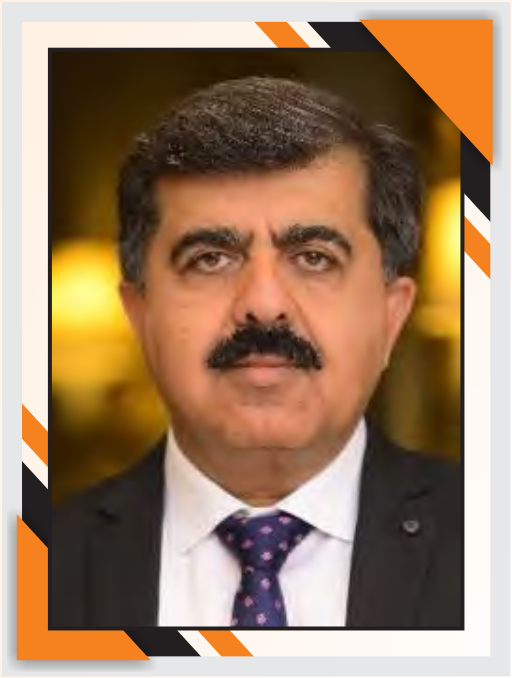
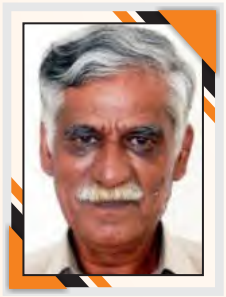
REGISTRAR OFFICE



Engr. Nasrullah Nawaz Khan Babar
Registrar

Mr. Tahir Hussain Meyo
Dy. Registrar (Admin)



Mr. Nazir Ahmad Chishti
Dy. Registrar (Legal)

Syed Nadeem Ahmed
Executive Admin

Mr. Muhammad Nadeem Sial
Assistant Admin.

Khurhseed Khan Babar
Assistant Admin.

Mr. Muhammad Azhar
PA to Registrar

Services

The Office of the Registrar Supports Teaching and Learning at NFC-IET by Maintaining the integrity of academic & research policies and serves as central administrative office of students, faculty and alumni. We provide data to internal and external constituencies, enabling these offices to make informed enrollment management and policy decisions. This office ensures adherence to academic policy, preserving academic integrity and safeguarding academic records. The office of the Registrar Provides exceptional service by valuing student and staff engagement, adapting to the needs of the campus community, and aligning our goals with "uplifting to the whole people."

Our mission philosophy is built upon providing quality education in a respectful manner. We believe in diversity of people, thought and opinion as we build community and explore, create and shape the future with innovative educational support strategies.

The Registrar's Office is located on the first floor of the Vice Chancellor Secretariat.

Responsibilities:

The Major responsibilities of the Registrar:

- To conduct of meetings of statutory bodies of the institute, viz: The senate, Syndicate, Academic Council, Affiliation Committee and selection Board.
- Monitoring and control of quality management system of the department for the betterment of the Institute.
- Management of all academic activities of the institute including admissions, enrolment and maintenance of student records.
- Monitoring and control of the security and general administrative matter to keep the environment smooth for the students, faculty members and other staff.
- Human resource management of Institute employees and related matters.
- Correspondence with external agencies.
- Formation of Senate and Syndicate.
- Maintenance of Graduate register and holding their elections.

STUDENT'S AFFAIRS

Dr. Maham Hussain
Director Student Affairs

Mr. Hammad Raza Sahoo
Dy. Director Student Affairs

Mr. Mohibullah Khan
Dy. Director Student Affairs

Directorate of Student Affairs

By acting as a liaison between students, teachers, and the university administration, the Directorate of Student Affairs (DSA) at NFC-IET actively strives to organize the multiple facets of student life and development. The Student Affairs staff collaborates with students in a comprehensive way, offering advice and assistance as they pursue their academic goals and grow personally in preparation for taking on the obligations of responsible adults.We want to streamline the process for students to incorporate their academic experiences with all other dimensions of university life.

SERVICES

Counselling and Guidance

The Student Affairs Office serves as a liaison between students, faculty, and administration. The Student Affairs Office is the central place for students to get assistance and confidential help with any problem they encounter on campus. It oversees student counseling, housing, societies, and discipline, with two Deputy Student Affairs available for counseling and guidance.

Extracurricular Activities

We offer a range of extracurricular activities to help students unwind and explore their interests. The Student Affairs Office promotes co-curricular activities that enrich our graduates and help them build strong relationships with peers, faculty, and administration. From literary and artistic events to sports and games, our activities provide healthy outlets for multi-dimensional growth.

Student Societies

NFC-IET provides a thriving platform of student societies that aim to nurture students' talents beyond the classroom. These dynamic societies, some of which are mentioned below, encourage leadership and professional development in the students.

- DSA Team
- Business Administration Literati Society(BALS)
- NFC Computing Society
- Chemical Department Technical Society
- Electrical Media and Tech Society
- Society for Civil Engineering and Technology
- Mechanical Literary Society

Major Events

NFC-IET offers a diverse range of events and festivities to provide students with opportunities to broaden their horizons, enhance their skills, and foster a sense of community spirit. Our goal is to provide the best possible educational experience for future leaders to achieve their full potential.

Celebrating Culture, Creativity, and Awareness: Festivities and Events at Our Institute

Our Cultural Festival and Spring Funfair promote aesthetics, creativity, and cultural awareness. These events highlight the rich diversity of Pakistan and promote national integration amongst students, while instilling a sense of pride in our heritageHeld in October and April, they highlight Pakistan's diversity and promote national integration, with activities such as concerts, exhibitions, and talent expos.

Our awareness sessions cover a wide range of topics, from health and wellness to social justice and environmental sustainability. We invite experts from various fields to share their knowledge and expertise with our students and encourage them to ask questions and engage in thoughtful discussions. Through these sessions, we aim to cultivate a sense of responsibility and empathy in our students towards the world around them.The institute oftentimes organizes

the Political Map Reading Competition, an event aimed at promoting geopolitical awareness and educating young minds about the evolving political landscape of the world.
At our university, we believe that participating in sports not only promotes physical health and wellness, but also builds character, leadership, and team spirit. We organize various sports events throughout the academic year to provide opportunities for students to showcase their athletic abilities and enhance their overall university experience.At our university, we believe that sports play an important role in shaping the character and personalities of our students, and we are committed to providing them with the best opportunities to excel in this a

Financial Assistance
All the scholarships in the following categories are available for engineering students:

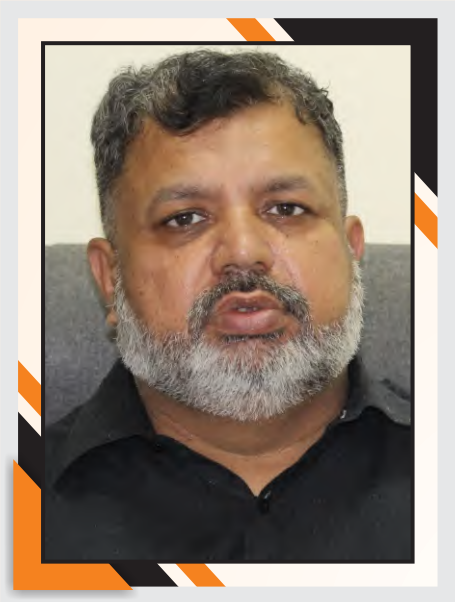
IET Merit Scholarships
IET has instituted merit scholarships for top position holders on the basis of results in all programs. In addition to merit scholarships, financial assistance is also available to needy students who excel in their studies and in their examinations. In addition to IET Scholarships, efforts are underway to attract talent scholarships from the industry for the top students to be awarded on the basis of their performance in engineering examinations.

Other Scholarships
These scholarships are awarded to such students who are needy and also show excellent results in their examinations. Some of the organizations offering financial assistance, in addition to NFC-IET, are:
M/s. Punjab Workers Welfare Board, Lahore.
M/s. Fauji Foundation Welfare Division, Rawalpindi
M/s. Gurmani Foundation, Lahore
Zila Council, Multan
Zila Council, Muzaffargarh
National Bank of Pakistan offers Qarz-e-Hasna to deserving students

Some other organizations that support needy students of NFC-IET are as follows:
Suncrops Group, Multan
Al-Hilal Vegetables, Multan

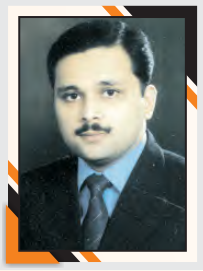
Though there are some possibilities for financial assistance, as mentioned above, IET does not guarantee any financial aid. The students and their guardians should note very clearly that they have to make their own arrangements for all financial obligations.

INDUSTRIAL LIAISON COMMITTEE



Dr. M. Kamran Liaqat Bhatti
Convener, Industrial Liaison Committee

Mr. Zahid Hussain Qaiser



Engr. Mujtaba Ashraf

Engr. Tahir Mehmood

Services

A productive interface between academia and industry is a critical requirement for inclusive growth. In such a quest to develop a strong association of institute with industry and technology, Industrial Liaison Committee has been formed by the Vice Chancellor. The Industrial liaison committee aims to foster close cooperation between industry and the institute through the Industrial Liaison Programme. This program will have the following scope of work:

- **Seminars**

To bridge the gap between industry and academia, ILC (Industrial Liaison committee), organizes monthly seminars for students to enrich the student's academic inputs with industry relevant information. Seminars are the pistons which drive the intellectual heart of the institute. Inviting eminent personalities who have achieved some feat in science and technology to take up some seminars for the students that will greatly help them interact with present and on-going advancements in the technical fields. It also gives them an opportunity to exhibit their skills and entrepreneurship ideas to their future employers.

- **Industrial Tours**

It is evident that Industrial/study tours are an essential part of the academic activity to help students learn Engineering activities being carried out in a commercial site plant Organization. Industrial visits are also essential in the development of practical and professional skills required by an engineer and an aid to prospective employment. Every year, IET spends a lot of funds and efforts for organizing industrial tours for first, second and third year students. Students are given an exciting opportunity to participate in intensive 5-7-day industrial visit to visit companies relating the diverse world of engineering whilst making in-depth discoveries about careers ranging from the communication sector to the automotive industries. The intellectually stimulating presentations and tours give students a unique opportunity to observe for themselves the practical aspects of engineering and witness how the different concepts they had previously studied are being applied in reality. To see the outcomes of these visits, an Industrial Tour report is also prepared by the students.

- **Internships**

In order to gain practical experience in an industrial organization, internships are considered essential for the students.4-8 weeks of training is arranged by the institute for the students. The student is required to submit a brief report on the work carried out during industrial training and the management is requested to supply a report on the adaptability and progress of each student.

- **Graduate Hiring Opportunities**

The ultimate goal of a graduate engineer is to work as a practicing engineer. In today's competitive market place , NFC-IET is not only geared to develop students in building the necessary skills for successful careers but also facilitate students with industry opportunities that would expose them to various fields in their specific engineering discipline prior to graduation. Whenever Employers submitted job postings, the program facilitated the recruitment process by organizing on-campus employer information sessions and interviews & eventually

presenting job offers to students.

- **Career Advisory Services**

The Liaison Office helps students in exploring employment opportunities that match their abilities and in making informed career choices. For this purpose, it offers a variety of services and facilities. It organizes workshops and advisory sessions to promote skills needed for interpersonal self presentation, management of interviews, and preparing effective CVs. The faculty coordinator makes him/her available to the students to discuss issues relating to the planning and development of their careers. The office encourages employers to visit the Institute and conduct their recruitment tests and interviews on the campus. It maintains a library of literature of some organizations which are the future employers of the graduates.

- **Feedback Analysis**

Feedback surveys are statistically compiled once a year by the committee including graduate exit surveys, alumni feedback, employer's feedback, tours feedback, ILC feedback and internship feedback.

Success of IET depends on the quality of its products. Over the years, the institute has produced bright, innovative graduates employed at some of the most respectable firms all over the world. It hopes to produce graduates who distinguish themselves by their professional competence, humanistic outlook and ethical rectitude, pragmatic approach to problem-solving, and organizational and managerial skills. Given these attributes, they should be able to respond adequately to the needs of Pakistan and be transformation. the vanguard of their techno-industrial

Contact Information

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   Tel: 061-9220012-16 Ext:2211
3. Engr. Tahir Mahmood
   Tel: 061-9220012-16 Ext: 2343

Our Employers

TREASURER OFFICE

M. Maghfoor Anwer Chughtai
Treasurer

Services

The Finance Department works under the supervision of "Treasurer ". This office is responsible for all Financial matters i.e receipt of fee & dues, payments, internal & external audit & preparation of financial Statements & Final Accounts.

Contact Information

M. Maghfoor Anwer Chughtai Treasurer	061-9220012-16 Ext: 5555 061-6302799 (Direct)
Mian Shafiq-Ur-Rehman Accounts Assistant	061-9220012-16 Ext: 2327
Faisal Amin Internal Auditor	061-9220012-16 Ext: 2276
Naveel Walayat Bhatti Accounts Assistant	061-9220012-16 Ext: 2303
Ms. Ishrat Maqsood Accounts Assistant	061-9220012-16 Ext: 2204
M. Rizwan Munawar Chughtai Fee Clerk	061-9220012-16 Ext: 2320

Mian Shafiq ur Rehman
Accounts Assistant

Mr. Faisal Amin
Internal Auditor

Ahsan Javed
Accounts Assistant

Ishrat Maqsood
Accounts Assistant

M. Naveel Walayat Bhatti
Accounts Assistant

Hafiz Wasif Hassan
Accounts Assistant

M. Rizwan Munawar Chughtai
Fee Clerk

Dues & Fee Structure*

Fees & Funds (for all categories)

Fee with Application Form:

Fee Type	All Engg. Programs & Architecture Design	BS Computer Science & Software Engg.	BBA, Bio-Medical Engg. Technology	BS Fashion Design	BS Food Science & Tech., Chemistry Physics, Criminology, & Env. Science
Admission Fee *	**Rs. 30,000**	**Rs. 15,000**	**Rs. 15,000**	**Rs. 15,000**	**Rs. 15,000**
Processing Fee*	**Rs. 2,000**	**Rs. 2,000**	**Rs. 2,000**	**Rs. 2,000**	**Rs. 2,000**
Sub-Total-I	**Rs. 32,000**	**Rs. 17,000**	**Rs. 17,000**	**Rs. 17,000**	**Rs. 17,000**

After confirmation of Admission:

Fee Type	All Engg. Programs & Architecture Design	BS Computer Science & Software Engg.	BBA, Bio-Medical Engg. Technology	BS Fashion Design	BS Food Science & Tech., Chemistry Physics, Criminology, & Env. Science
Tuition Fee for three months	Rs. 37,170	Rs. 24,066	Rs. 21,885	Rs. 18,225	Rs. 13,230
Caution Money (refundable)	Rs. 6,000	Rs. 6,000	Rs. 6,000	Rs. 6,000	Rs. 6,000
Registration Fee	Rs. 1,500	Rs. 1,500	Rs. 1,500	Rs. 1,500	Rs. 1,500
Alumni Contribution	Rs. 1,000	Rs. 1,000	Rs. 1,000	Rs. 1,000	Rs. 1,000
Student Functions	Rs. 1,500	Rs. 1,500	Rs. 1,500	Rs. 1,500	Rs. 1,500
IET Welfare Trust Fund	Rs. 1,100	Rs. 1,100	Rs. 1,100	Rs. 1,100	Rs. 1,100
Annual Dues	Rs. 19,000	Rs. 19,000	Rs. 19,000	Rs. 19,000	Rs. 19,000
Sub-Total-II	**Rs. 67,270**	**Rs. 54,166**	**Rs. 51,985**	**Rs. 48,325**	**Rs. 43,330**
Grand Total (at the time of Admission)	**Rs. 99,270**	**Rs. 71,166**	**Rs. 68,985**	**Rs. 65,325**	**Rs. 60,330**

*** Civil Engineering (after confirmation of Admission) Rs.73,270/- and Total Rs.105,270/-.**

Detail of Annual Dues	**All Programs**
Students Fee	Rs. 1000
Sports Fee	Rs. 500
Library Membership	Rs. 700
Transport Fee	Rs. 6,000
Examinations etc.	Rs. 600
Industrial Tours	Rs. 3,000
Internet charges	Rs. 1,500
Student Societies Fee	Rs. 500
Magazine Fee	Rs. 200
Utilities*	Rs. 3,500
Generator Fuel Charges	Rs. 1,000
Miscellaneous	Rs. 500
Total: (For All other Programs)	**Rs. 19,000**
Survey Camp Fee only for Civil Engineering	Rs. 6,000
Total: (Annual Dues for Civil Engineering)	**Rs. 25,000**

* The dues are subject to review from time to time. Tuition Fee will be increased @ 5% of its existing rate every year for all students.

- Fee for all Engineering & B. Architecture is Rs.12,390/- per month.
- Fee for BS(CS) and Software Engineering is Rs.8,022/- per month.
- Fee for BBA & Bio-Medical Technology Program is Rs.7,295/- per month.
- Fee for BS Fashion Design is Rs.6,075/- per month
- BS Physics, Chemistry, ES, Criminology & Food Science and Technology is Rs.4,410/- per month
- Annual Dues for Civil Engineering are Rs.25,000/- per year.
- Annual Dues for all other programs are Rs.19,000/- per year.

* AC in class room will be allowed for 60 days in season.

* **Note:** (i) Dues are payable on 1st of every quarter. A fine of Rs.50/- per day will be charged after 10th of the month of that quarter. Student will have to deposit a fine equal to Admission fee after end of month otherwise he/she will not be allowed to attend the classes. (ii)The students are expected to clear all their dues before taking any examination. No student shall be allowed to appear in the Examination without formal clearance of the Accounts Department (Fee Section).

Category "K & S" Candidates

An additional amount in Lump sum as overseas/self-supporting fees:

- Civil, Mechanical Engineering — Rs. 500,000/-
- BS (Computer Science) — Rs. 200,000/-
- Electrical, Chemical, Petroleum Engineering, BBA, SFE B. Architecture and Bio-Medical Tech. — Rs. 100,000/-
- All other programs — Rs. 50,000/-

Note: (i) This Fee will be paid in 4 installments, 25% at the time of Admission, 25% each at 2nd, 3rd and 4th quarters respectively.
(ii) Students admitted in "K & S" category will also pay taxes as per Govt./FBR policies.

Dues payable alongwith Application Form*

All categories except "K & S":

- All Engg. & Architecture programs — Rs. 32,000
- All other Programs — Rs. 17,000

With "K & S" Categories

"K & S" Category for Civil and Mechanical Engineering	Rs. 157,000
"K & S" Category for Electrical, Chemical & Petroleum Engineering and B.Architecture	Rs. 57,000
"K & S" Category for BS (CS)	Rs. 67,000
"K & S" Category for Bio-Medical Technology, BBA & SFE	Rs. 42,000
"K & S" Category all other programs	Rs. 29,500
Candidates applying all programs (all categories) (Subject to revision any time without notice)	Rs. 157,000

Hostel Charges:

Hostel Fee for one year allotment will be 30,000/- PKR as mentioned below:

(a)	Room Rent (per resident per year)	Rs. 16,500
(b)	Electricity charges (per resident per year)	Rs. 11,400
(C)	Housekeeping Charges (per resident per year)	Rs. 4,000
(d)	Maintenance/Breakage	Rs. 500
(e)	Provision of Security	Rs. 2,000
(f)	Generator Fuel Charges	Rs. 600
	Total:	**Rs. 35,000**

Electricity charges for over and above load extension:

(a)	Room-Coolers	(1 May - 30 Sep)	Rs. 3,000/month/room
(b)	Refrigerator	(1 Jan - 30 Dec)	Rs. 2,000/month/room
(c)	Dispenser	(1 Jan - 30 Dec)	Rs. 300/month/room
(d)	Microwave Oven (Jan 01 to Dec. 31)	(Non-cooking)	Rs. 500/month/room

Note:

I) Mess security and mess dues are in addition to above charges.

ii) Mess security is Rs.5000/- (refundable)** and Mess dues are roughly Rs.4000/- per month for two meals a day.

iii) Maximum stay of a student in the hostel shall be 4-years from the date of his/her admission in IET.

**Subject to production of original receipt.

Schedule of Fee Payment

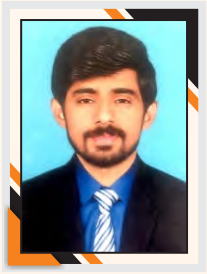
Quarter	**Last Date**
1st quarter	At the time of admission
2nd quarter	before January 10, 2024
3rd quarter	before April 10, 2024
4th quarter	before July 10, 2024

COMMERCIAL DEPARTMENT

Engr. Tafzeel Khaliq
Chairman Purchase Committee

Engr. Sadaqat Ali
Incharge Commercial

Mr. Sabahat Wazir Bukhari
Assistant Commercial



Mr. Ali Aun Muhammad
Assistant Commercial

Services of Commercial Department

The Commercial Department is responsible for buying goods & services from external source to IET. In addition to finding supplies and negotiating contracts for the supplies, Commercial department is also responsible for monitoring the supplier's performance, monitoring delivery times, quality, and maintains cost control strictly . The Commercial department is also responsible for all aspects of the bidding process.

Contact Information:

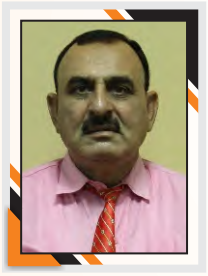
- Engr. Sadaqat Ali
  Incharge Commercial
  Direct: 061-630-2499
  PABX: 061-9220012-16 Ext: 2317

SPORTS DEPARTMENT

Dr. Suleman Khan
Chairman Sports Committee

Members of Sports Committee

Dr. Maham Hussain
Dy. Chairman



Engr. M. Nawaz Joiya
Member

Mrs. Shahida Rehman
Member

Engr. Tahir Mehmood Bhatti
Member

Mr. Khushnood Ali
Member

Services of Sports Department

"A healthy body keeps a healthy mind"

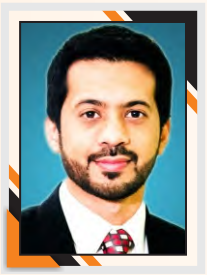
To achieve this target sports exercises are essential. The sports Committee provides the facilities required for the games like Cricket, Football, Badminton, Table Tennis etc. For the healthy and active life style of students a Fitness Gym is well equipped with Electric Trade Mill, Butterfly Machine, Recumbit Bike, Multiple Exercise Machine, Chest Press, Ab-king Machine and Dumble weight set etc.

The Sports Committee also organizes the annual sports week according to the scheduled academic calendar.

1.	Dr. Suleman Khan	Chairman
2.	Dr. Maham Hussain	Dy. Chairman
3.	Engr. M. Nawaz Joiya	Member
4.	Mrs. Shahida Rehman	Member
5.	Engr. Tahir Hussain Bhatti	Member
5.	Mr. Khushnood Ali	Member/Secretary

DOCUMENT & IT SECTIONS

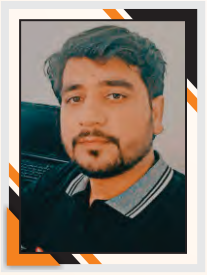
Engr. Dr. M. Kamran Liaqat Bhatti
Incharge Document/IT Sections



Dr. Omer Ali
Assistant Professor

Mr. S.M. Ahsan Shah
Network Administrator

Engr. Ali Raza Manzoor
Programmer



Engr. Muhammad Junaid Tahir
Programmer

Muhammad Imran Khan
Assistant Network Admin.

Nazar Abbas
Assistant Document Section

Introduction

The IT Division is focused on delivering a wide range of high-quality IT Services throughout the campus to all Academicians, Staff & Students. Providing a smart & robust environment where everyone has easy access to all IT services round the clock. The IT Division also ensures a secure, reliable, and efficient IT environment where optimized results would be attained.

Vision

Our vision is to provide instant, efficient & reliable cutting-edge wireless information technology solution and services up to the satisfaction of our potential users.

Mission

The IT Division mission is to provide highest quality technology-based services & solutions that will elevate mission vision and goals of NFC-IET.

Services

We are responsible for installing and managing the IT infrastructure across the university, to maximize the throughput of university employees and learning of students.

The facilities under the umbrella of IT Division are:

- Network Administration
- System Administration
- Web Administration
- Email Administration
- Audio Visual Facilities
- Video Conferencing
- Committee Rooms connectivity
- Seminar Hall connectivity
- Internet Connectivity (PERN-II)
- Wireless Connectivity between Blocks
- Service Request Forms
- Biometric Attendance System
- Admission System
- Registration System
- Fee Vouchers Generation
- Examination Management System
- Online Admission System
- Budget Management System

CONTROLLER OFFICE

Engr. Rasool Ahmad
M.Sc. (Chem. Engg.)
Controller of Examinations

Engr. Sadaqat Ali
MSc (Electrical Engg)
Deputy Controller of Examinations

Services

The Examinations Office works under the supervision of Controller of Examinations. This office is responsible for preparing date sheets, holding semester examinations, maintenance & compilation of results, issuance of degrees, transcripts, result cards, language proficiency certificates and the general academic setup.

Contact Information

- Controller of Examinations:

  Tel: 061-9220012-16 Ext: 2249
  Direct: 061-6302788

- Deputy Controller of Examinations
  Tel: 061-9220012-16 Ext: 2349

- Office
  Tel: 061-9220012-16 Ext: 2244 & 2344

Syed Zeeshan Saleem
Sr. Assistant Examination

Tahawar Hussain
Assistant Examination

Amjad Ali
Data Entry Operator

Muhammad Zafar
Computer Operator

Syed Umair Kaleem Ahmad
PA to Controller

RULES & REGULATIONS FOR UNDERGRADUATE PROGRAMS

(As adopted by Bahauddin Zakariya University, Multan)

Requirements for Degree

1. The minimum duration of the B.Sc. Engineering degree programs shall not be less than four academic years.
2. No candidate shall be admitted to an Examination after the expiry of 07 academic years from the date of his admission in the Institute.
3. The medium of instructions and examinations shall be English for all subjects except Islamic Studies and Pakistan Studies for which the medium of instructions and examinations shall be either Urdu or English.
4. The courses of studies, the number of credit hours allotted to each course and the detailed syllabus shall be according to the proposals made by the Board of Studies concerned and approved by the Syndicate on the recommendations of the Board of Faculties and Academic Council.

Part-I (Theory Paper):

- Sessional Marks in Theory Papers may consists of attendance, Quiz, Sessional Tests or any other assignment as determined by the teacher concerned and shall carry 20% of the total marks allotted to Part-I of the subject. In each semester there will be a mid term of 30% marks which will be conducted by the teacher concerned under the semester system rules. The remaining 50% of the marks shall be allocated for the end-term written examination.

Part-II (Practical & Viva-Voce):

- Sessional work may consist of attendance, laboratory, design, quiz, studio work and any other assignment as determined by the teacher concerned and shall carry 50% of the total marks allocated to Part-II of a subject and the remaining 50% of the marks shall be for end term practical and Viva-Voce examinations.

Final Result of Each Semester

- Final result (GPA, SGPA & CGPA) will be calculated for each Semester as per Semester System rules.

Attendance Requirements

- The attendance requirement for appearing in Semester examination will be minimum 75% of the total lectures delivered.

Application for Examination

a. A candidate who wishes to seek admission to an examination shall submit an application in the prescribed form to the Controller of Examinations through the Head of Department.

A Candidate shall be admitted to the Degree if:

a. He has passed all the papers of the degree program in the relevant discipline, and,
b. He has attended and satisfactorily completed at least 04 to 06 weeks Industrial Training where applicable as Certified by the Vice Chancellor NFC Institute of Engineering & Technology, Multan.
c. A CGPA of 2.20 on scale of 4.00 at the completion of all course work as prescribed by the department.

Provisional Promotion of Higher Semester

a. All the BZU and NFC IET amended rules relating to Semester promotion/relegation/ probation will be followed.
b. Student will have to submit an affidavit on provisional promotion to next Semester that if he fails to fulfill the condition of promotion, he will be relegated/dropped and he will not claim any compensation/refund of fee.

Examinations and Grading System

Theory Papers:

a) Sessional	20 Marks
b) Mid Term	30 Marks
c) End-term Exam	50 Marks

Practical & Viva-Voce:

a) Sessional	50 Marks
b) End-Term Exam	50 Marks

Note: Minimum Pass Marks for promotion to next semester are 50% (C-Grade), both in theory and practicals.

Grading

In rating of the students, three passing grades shall be used A,B,C and one failing grade F. In Terms of their numerical equivalence, the letter grades denote the following:

a) In rating of the students seven passing grades shall be used A+,A,B+,B,B-,C+ and C and one failing grade F. In Terms of their numerical equivalence, the letter grades denote the following:

Alphabetical Grade	Marks	G.P.A.
A+	90-100	4.00
A	80-89	3.70
B+	75-79	3.30
B	70-74	3.00
B-	65-69	2.70
C+	60-64	2.30
C	50-59	2.00

b) A cumulative grade point average (CGPA) shall be computed at the end of the course for all students.

Ready Reckoner Table

90-100	4.00	A+
89	3.90	A
88	3.90	A
87	3.90	A
86	3.90	A
85	3.80	A
84	3.80	A
83	3.80	A
82	3.70	A
81	3.70	A
80	3.70	A
79	3.60	B+
78	3.50	B+
77	3.40	B+
76	3.30	B+
75	3.30	B+
74	3.20	B
73	3.10	B
72	3.10	B
71	3.00	B
70	3.00	B
69	2.90	B-
68	2.80	B-
67	2.80	B-
66	2.70	B-
65	2.70	B-
64	2.60	C+
63	2.50	C+
62	2.40	C+
61	2.40	C+
60	2.30	C+
59	2.20	C
58	2.20	C
57	2.20	C
56	2.20	C
55	2.10	C
54	2.10	C
53	2.10	C
52	2.00	C
51	2.00	C
50	2.00	C
Below 50		Fail
Incomplete		I

Good Standing

i) In order to remain on the rolls of the Department, a student has to continuously maintain "Good Standing" namely a satisfactory standard of attendance and academic performance, as well as of conduct and discipline.

ii) To remain in "Good Standing" at the end of first semester a student besides meeting attendance and conduct requirements, must also maintain a minimum CGPA of 2.00 on a cumulative basis. However, a student having CGPA less than 2.0 but greater than 1.75 will be on probation. Any student with a CGPA of less than 1.75 will be dropped from the roll of the Department forthwith.

iii) At the end of the first Semester, a student must obtain a minimum grade point average (SGPA) of 2.00 to be promoted to the second Semester. In case a student is able to obtain GPA of 1.75 or more, but less than 2.00 he will be promoted to the second semester on probation. This opportunity is provided only in Ist Semester.

iv) (a)At the end of each Semester, other than Ist semester, a student must obtain a minimum cumulative grade point average (CGPA) of 2.00 and must also pass at least 50% of the courses taken by him in the semester in order to be promoted to next Semester. If any of the proceeding two conditions is not complied with by a student, he shall be removed from the rolls of the Department.
(b) However, if a student fails to comply with any of the conditions in third & subsequent semesters in four years program, he will be detained in that semester & he will repeat the semester. He will be promoted to the next semester on attaining a CGPA of 2.00. The students will have to complete their courses within the stipulated time (07 academic years) for completion of degree.

v) A student shall be deemed to have lost his/her "Good Standing" if his conduct and behaviour is found objectionable from the disciplinary point of view.

Incomplete Grade

No make up Examination shall be given to a student who does not appear in Mid-Term Examination. In case a student is unable to appear in one or more courses in the End-Term Examination of Semester on medical ground, he may be allowed to appear in the special final Examination to be arranged by the Department provided:

i) He/She fulfills the conditions of having attended the prescribed number of lectures as laid down in the

Regulations.

ii) He/She is laid down as an indoor patient of a recognized hospital, or if he/she is not hospitalized as defined above, the candidate shall be examined by the Medical Superintendent of Civil Hospital who may certify the inability of the student to appear in the examination or otherwise.

iii) Application of the student must reach the Department on or before the day of Examination. Late application shall not be entertained

iv) Such a student shall be given incomplete grade ("I" Grade). He shall be required to appear in the special End-Term examination of that Semester to be held within Four weeks from the Commencement of the next Semester.

v) He shall also be required to follow the schedule of the next Semester.

vi) The student shall have to pay prescribed fee per course for special End-Term examination.

Change of Course

i) No student shall change a course except with the written approval/reassignment by the Head of Department. The time period for such a change shall be 07 days from the commencement of the course.

ii) The Department may switch the courses of different Semester according to needs or the availability of teaching facilities.

Semester Break

In case a student (other than first semester student) due to some unavoidable circumstances (prolonged illness or such other genuine reason) is unable to continue his studies, he/she may apply for a semester break. The case will be put up to the departmental examination committee for consideration. In case, the committee recommends it, semester break will be allowed. The semester break will be allowed for a maximum period of one year. The total time period for completion of the programme will however, remain the same as already provided in rules.

STUDENTS CONDUCT & DISCIPLINE

Rules Relating to Discipline

No student shall;

(i) utter, do, or propagate anything repugnant to Islam within and outside the precincts of the Institute,

(ii) say or do anything which might adversely affect the honour and prestige of Pakistan or Institute and Teachers,

(iii) smoke in the Classroom, Laboratory, Workshop, Library and Examination Hall.

(iv) form, or associate with an organization/ Society/Club, or any other body, promoting cast distinctions and inciting parochial/linguistic/ regional feeling,

(v) organise, or hold any function within the precincts of the Institute except with prior approval of the Competent Authority,

(vi) collect money or receive donations or pecuniary assistance for or on behalf of the Institute except with the written permission of the Competent Authority,

(vii) stage, incite, or participate, in a walkout, strike or any other form of agitation which might create or is likely to create law and order problem for the Institute and affect or is likely to affect its smooth functioning,

(viii) indulge in immoral activities, use indecent language, wear immodest dress, make indecent remarks, jokes or gestures or behave in an improper manner,

(ix) cause disturbance to others,

(x) keep or carry weapons, narcotics, immoral or subversive literature,

(xi) disturb peace and tranquility of the Institute,

(xii) use insalutary or abusive language or resort to violence against a fellow student or employee of the Institute,

(xiii) attend the class work/practical without wearing prescribed dress / Protective during the course of his studies at the Institute.

(xiv) indulge himself/herself in copying during the Examination/Tests and unlawful help to any other person during the Examinations/Tests.

Disciplinary Action

Disciplinary action by the Vice Chancellor of the Institute/ Disciplinary Committee against the students may be taken in one or more of the following forms depending upon the severity of the offence;

(i) A written warning may be issued to the students concerned and a copy of the same may be displayed on the Notice Board.

(ii) The matter may be reported to the Parents/ Guardians and they may be called, if necessary.

(iii) A student may be fined. The fine imposed shall have to be deposited with the Treasurer under intimation to the Vice Chancellor/Chairman Disciplinary Committee (constituted by the Vice Chancellor) as the case may be.

(iv) A student may be placed on probation for a fixed period not exceeding 6 months. If during the period of probation he/she fails to improve his/her conduct, he/she may be rusticated or expelled.

Rustication and Expulsion

Rustication, whenever, imposed on a student, shall always mean the loss of one academic year in so far as his/her appearance at a University examination is concerned. the period of absence from the Institute will, however, depend upon the time of the year when the penalty is imposed. The student under rustication may at the discretion of the Vice Chancellor of the Institute be permitted to rejoin the class in the beginning of the next academic year.

Notwithstanding anything to the contrary contained in

the regulations above, a student shall continue to be under the disciplinary jurisdiction of the Vice Chancellor of the Institute till the completion of his final year examination including the practicals and submission of the thesis research report, design project etc. and final clearance from the Institute.

Cancellation of Admission

- If a student fails to attend classes for one week continuously after the start of the session, his/her admission shall stand cancelled automatically without any notice, and his/her seat will be offered to candidate next in merit.
- If a student is unable to attend classes for ten days or more during the session without getting prior permission from the head of department, his/her admission shall also stand cancelled.
- The NFC-IET Management reserves the right to cancel the admission of any student if he fails to abide by the disciplinary rules and regulations of the Institute issued by the Institute's Management from time to time.

Code of Honour

1. All Muslim Students must show, in words and in deeds, their full faith in Islam.
2. All students must have faith in and respect for the deology of Pakistan.
3. All students must in matters of religion, respect the convictions of others.
4. Every student is expected to;
   - (i) be loyal to Pakistan,
   - (ii) obey the law of the Land as well as the Rules and Regulations of the Institute.
   - (iii) maintain law and order as well as the dignity and prestige of the Alma Mater,
   - (iv) have respect for morality and personal honour and rights of others.
   - (v) practice honesty and integrity in dealings with fellow students, teachers and all others both on and off the Institute.
   - (vi) help in protecting the life, dignity, honour and the property of the Institute and that of the employees and fellow students,
   - (vii) respect teachers, all elders and persons in authority in the Institute.
   - (viii) work hard and complete the course of study within the prescribed period, and
   - (ix) endeavour to positively contribute towards creating an atmosphere conducive to healthy academic pursuit.

Uniform

All the students from session 2015 onward should come to the Institute in approved uniform. During practical in laboratories students of B.Sc. Chemical Engineering are required to wear white cotton overalls. The students are expected to wear white Safety Helmets while working at Miniature Plant and Safety Goggles while working at Engineering Workshop. Overalls, Helmets and Goggles are available at prescribed stores in Multan city.

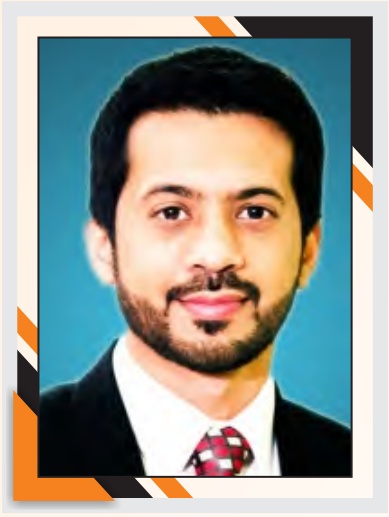
Punctuality

The Institute expects its students to keep excellent record of class attendance. However, in case of emergency/ sickness, students may take leave from the Head of the department by submitting an application supported by Medical Certificate in case of sickness, and by requesting him/her in writing in case of urgent work. Any unauthorized absence from class work may attract a fine of Rs.20/= per period.

Abbreviation/Definitions

(a) 'BZU' is an abbreviation for the Bahauddin Zakariya University, Multan.
(b) 'IET' is an abbreviation for the NFC Institute of Engineering & Technology, Multan.
(c) 'VC' is an abbreviation for the Vice-Chancellor of IET.
(d) 'Faculty' means the academic staff of the IET.
(e) 'Subject' means a course of studies as prescribed in the detailed Syllabi, whose successful completion shall be the requirement of B.Sc. Engineering degree in the relevant discipline. It shall consist of Part-I (Theory) and/or Part-II (Sessional Work, Practical and Viva-Voce). Each part shall be considered a separate paper for the purpose of Examination.
(f) 'internal examiner' normally means the teacher/person appointed by the Competent Authority who has been teaching the subject to the class/section during the semester for which the examination is being conducted.
(g) 'External Examiner' means a person appointed by the Competent Authority, holding suitable qualifications in the relevant discipline who is neither a teacher in the IET nor has taught the subject to the class/section during the semester for which the examination is being held.
(h) The person 'he' and its derivatives are used for both male and female persons.

ADMISSION COMMITTEE



Dr. Omer Ali
Chairman, Admission Committee

Dr. Kamran Liaqat Bhatti

Engr. Rasool Ahmad

Mr. Muhammad Rashid Khan

Mr. Malik Muhammad Arshad

Mr. Qamar Hussain Bhatti

Mr. Babar Masoomy

Services

The Admission Committee works under the supervision of Chairman Admission Committee. This office is responsible for collection of Admission Forms, display of Merit List and all functions related to the Admission.

Contact Information

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- Admission Cell

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  - Mr. Qamar Hussain Bhatti
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  - Mr. Babar Masoomy
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ELIGIBILITY CRITERIA

Program	Qualification Required	Minimum % Marks	Entry Test
B.Sc. Engineering Programe	F.Sc. Pre Engineering (Physics, Chemistry, Math), ICS or D.A.E. in relevant Discipline	60% in F.Sc. or D.A.E.	ECAT/NAT/HEC/ IET Entry Test
B. Architecture	F.Sc. Pre-Engineering, Pre-Medical, ICS, General Science or DAE (Civil/ Architecture) on Reserved Seats	50% aggregate (Inter + DAT)	IET Test Only
BS Computer Science, BS Software Engineering	F.Sc. Pre-Engineering, Pre-Medical, ICS, General Science or DAE	50% in Intermediate or equivalent	ECAT/NAT/HEC/ IET Entry Test
BS Environmental Science, Mathematics, Physics and Chemistry	F.Sc. Pre-Engineering, Pre-Medical, I.Com., ICS, General Science or DAE in Electrical, Electronics & Mechanical	45% in F.Sc. or D.A.E.	ECAT/NAT/HEC/ IET Entry Test
BS Bio-Medical Engineering Technology	F.Sc. Pre-Medical, Pre-Engg., ICS, General Science or DAE in Relevant field	50% in F.Sc. or D.A.E.	ECAT/NAT/HEC/ IET Entry Test
BD Fashion Design, BS Criminology, BBA	F.Sc., ICS, F.A., or I.Com General Science	45% in Intermediate	ECAT/NAT/HEC/ IET Entry Test
BS Food Science & Technology	F.Sc. Pre-Medical, Pre-Engineering or DAE in Food Technology	50% in Intermediate or equivalent	ECAT/NAT/HEC/ IET Entry Test

Note: (i) In case any candidate did not attempted ECAT or NAT Test, he shall be provided an opportunity to appear in NFC-IET Entry Test.
(ii) In case any candidate attempted both ECAT or NAT Test, the higher score shall be considered for merit determination.
(iii) Provisional Admission will be offered on First Year basis subject to providing undertaking that candidate completely qualifies the eligibility criteria for admission. The Admission Committee will reserve the right to cancel all such admissions that do not meet the prescribed eligibility criteria.
(iv) Students from other than Punjab can provide Entry Test of main UETs of their provinces/region (for detail contact Admission Cell)

Determination of Merit

1) Matriculation marks (15% weightage)
2) Intermediate marks (50% weightage)
3) Entry Test marks (30% weightage)

Note: Provisional admissions based on F.Sc. or equivalent (First year marks will be offered.
In case of two or more applicant have equal percentage of marks (upto three places of decimal) in the comparative merit, the order of merit between them shall be determined in following preferences:
a) Matriculation marks
b) Intermediate marks
c) Entry Test Marks
d) Age (candidate older in age being treated as higher in merit)

Entry Test

- NFC-IET will conduct two Entry Tests for admission session 2023 **(First Entry Test: 24.06.2023 and Second Entry Test: 15.07.2023)**
- For all programs, ECAT (conducted by UET, Lahore) or NAT (conducted by NTS).
- B-Architechture Program department aptitude test conducted in NFC-IET.
- If a student attempted more than one Entry Test, highest %age will be counted to merit determination.

RELEVANT DISCIPLINES OF DAEs FOR ADMISSION IN BACHELOR OR ENGINEERING PROGRAMS

Sr. #	Engineering Programs	Relevant Disciplines	
1.	Civil Engineering	i. Civil ii. Land & Mine Surveying	iii. Architecture
2.	Mechanical Engineering	i. Mechanical ii. Mechanical (Power) iii. Mechanical (Production) iv. Precision Mechanical & Instrument	v. Auto & Diesel Technology vi. Dies & Mould vii. Refrigeration and Air Conditioning viii. Automation
3.	Electrical Engineering - Power - Electronics - Computer	i. Electrical ii. Telecommunication iii. Electronics iv. Avionics	v. Instrumentation vi. Information Technology vii. Precision Mechanical & Instrument
4.	Chemical Engineering	i. Chemical ii. Chemical Processing Technology iii. Chemical (Sugar Technology)	iv. Petrochemical v. Petroleum
5.	Petroleum & Gas Engineering	i. Chemical ii. Petrochemical iii. Petroleum	

Choice of Disciplines
Candidate will have to mention his/ her preference for different programs. In case candidate is interested in only one or two of the programs then he/ she should indicate on the application form accordingly. Preference once given will not be ordinarily changed except in inevitable cases provided merit is not disturbed. A re-processing fee of PKR. 1000 will have to be paid in each case. Please put a cross (X) against discipline in which you are not interested.

Category "A" through "J"
It is based on comparative merit against domicile of candidate. The candidates applying on these categories must submit an attested copy of their domicile certificate along with the application form; otherwise their application form will be rejected. For Category-H (Balochistan) candidates who are under 21 years of age must submit an attested copy of domicile certificate of their father showing the candidates name and age along with the application form, failing which their application form will be rejected. Those applying against B categories must also apply against category 'A'.

Category "K" (Foreigners/Overseas Pakistanis)
It is based on comparative merit irrespective of Nationality or domicile. Foreign Nationals can also apply against this category and are required to provide proof of equivalence of their qualifications and also clearance from Economic Affair Division, Govt. of Pakistan.

Candidate with Pakistani nationality applying on overseas category (K) shall have to provide copy of Passport with valid working visa of his/her parents/Guardian or real brother/sister and submit it along with the application form failing which he/she not be considered for admission on category "K" overseas.
Overseas Fee for Engineering & BS programs are as follows:

B.Sc. Civil & Mechanical Engg	Rs. 500,000
B.Sc. Electrical, Chemical Engineering	Rs. 300,000
B.Sc. Petroleum Engineering & BSCS	Rs. 200,000
B. Architecture, B.Sc. Environment Engg. & Biomedical Engg. Tech.	Rs. 100,000
All other programs	Rs. 75,000

Note:
1. Candidate in this category will pay above mention fee plus Normal Fee of the programs and Govt. Taxes as per FBR policies.

Category "N" (Professional Engineers)
It is also based on comparative merit within the category. Valid registration of Pakistan Engineering Council is required from father/Mother in order of priority of candidate applying against category "N".

Category "O "
These seats are reserved for real sons/daughters, real brothers/sisters, real nephew/nieces (son and Daughter of real brother and sister) and nephew/nieces (son and daughter of first cousins) in order of priority of NFC IET regular/Deputation/ Contract basis, working/ex-Employees in order of priority. Minimum Service for in service employee/Ex-employee is 5 years of service at NFC IET Multan. Candidates must fill in a Performa (available at Admission Cell of NFC IET) and submit it along with the application form. Also such application should be duly signed by the IET Employee and verified by Registrar.

Category "P"
Reserved for nominee of children of employee of armed forces. GHQ shall nominate the candidates for admission after verification of their credentials which shall be sent to admission committee for final approval two weeks before commencement of class work.

Note:
a. All nominations on category of "P" should be received two weeks before start of class work, otherwise IET reserved the right to fill these seats amongst the remaining candidates of Categories.
b. Candidates applying against category M, N, O & P seats must also apply against respective provincial open seats.
c. For "O" category fee of real son or the daughter of employee will be normal fee and for all other nominees will be self-supporting fee.

Category "Q" (B.Tech (Hons) & BS Technology) For admission against seats reserved for B.Tech (Hons) & B.S. Technologies the applicant should have passed the D.A.E. examination from a Board of Technical Education in the relevant technology with 60% Marks or F.Sc. Pre Engineering with 60% Marks. The seats reserved in this category are on all Pakistan bases in engineering programs. Candidate admitted in this category are eligible for admission to 3 Semester of B.Sc. Engineering in relevant discipline. Such candidates wait for start of 3rd Semester in the session in which he/she admitted.

Category "S" (Self Supporting)
Some seats are offered on self-support basis. The eligibility for Self-finance seats is payment of under noted schedule in addition to meeting other eligibility conditions. This amount is not refunded in case of candidate is offered admission against the category. Fee for Engineering & BS programs are as follows:

B.Sc. Civil & Mechanical Engg	Rs. 500,000
B.Sc. Electrical, Chemical Engineering	Rs. 300,000
B.Sc. Petroleum Engineering & BSCS	Rs. 200,000
B. Architecture, B.Sc. Environment Engg. & Biomedical Engg. Tech.	Rs. 100,000
All other programs	Rs. 75,000

Note:
1. Candidate in this category will pay above mention fee plus Normal Fee of the programs and Govt. Taxes as per FBR policies.

Application Procedure
The application form for all programs are enclosed as in a prospectus. The candidate may apply against many categories as he/she desires. In such case he/she must indicate preference on the application form.

Un-Utilized Seats
Decision regarding un-utilized seats in each category shall be made by the admission committee.

Variation in Seats
The Admission Committee may exercise their right at any time to increase or decrease the number of seats allocated to any category or create/abolish any category and there shall be no appeal against such a decision. Rules applicable to admission will also be applicable to such variation.

Equivalent Examinations
The following examinations are considered as equivalent to the Higher Secondary School Certificate Examination with Chemistry, Mathematics and Physics of the Pakistan boards of intermediate and secondary education:

1. Intermediate (Pre-engineering) examinations of the board of intermediate and secondary Education, Azad Kashmir.
2. Cambridge Overseas Higher Secondary Certificate with Physics, Chemistry and Mathematics.
3. British General Certificate of Education (Advanced Level) with physics, chemistry and Mathematics.
4. F.Sc. (Pre-Medical) with mathematics as an additional subject.
5. 12th Grade of American school

Provisions about admission on the basis of B.Sc. degree
Given the qualifications and restrictions stated below, a person who is not over age, is eligible for admission to the Bachelor's course at IET on the basis of degree of Bachelor of Science. A person possessing a B.Sc. degree is NOT eligible for admission to the Bachelor degree engineering course at the IET unless he has also passed F.Sc. (pre-engineering) securing at least 60% marks.

Scope of Eligibility for B.Sc.'s with F.Sc. (Pre-Engineering)
For admission to the B.Sc. course in engineering an applicant may have passed B.Sc. examination with any combination.

Age Restrictions Criteria
A candidate must not have attained the age given below on the last date fixed for receipt of applications for admission to all undergraduate disciplines:

i. 26 years (On the basis of FSc or equivalent)
ii. 28 years (On the basis of Bsc)
iii. 42 years (On the basis of DAE, B.Tech (Hon) or B.S. Technology)

Employee Candidates
Employed candidates shall have to take full leave from their organization and provide NOC for confirmation of admission.

Medical Fitness
All candidates will furnish a certificate from a registered medical practitioner, declaring that they do not have any serious disease with may be harmful to them or others during the course of their studies at IET.

DETERMINATION OF MERITS

Examination Treated Par
for purposes of admission to the bachelor degree courses and the determination of merit the following examination are treated at par;

a) F.Sc. (pre-engineering)
b) Cambridge overseas Higher School Certificate with physics, chemistry and mathematics
c) British General Certificate of Education (advance level physics, chemistry and mathematics). The comparative merits of the applicant are determined on the basis of marks obtained by them in these examinations plus marks obtained in entry test.

Highest percentage of marks counted
If an applicant has passed more than one of the above examinations/Entry Test, his position on the merit list is determined on the basis of the examination in which he has the highest Percentage of the marks

Deduction of marks For examination passed by part/subject improved
If an applicant has passed an examination by parts or subject improve, (5) marks has deducted from his aggregate marks. While determining his/her merit Merits of F.Sc.'s (Pre-Medical) with Mathematics in determining the merit of an applicant having F.Sc. (Pre Medical) with mathematic as an additional subject;

a) It is deemed that he has passed the examination by parts as such 5 marks shall be detected from his/her aggregate marks for the determination of his/her merit.
b) The marks obtained in the subject of biology are replaced by those obtained in the Mathematics

Merits of 12th Grade of American School
To determine the merit of applicant who has passed the 12th grade of the American (with mathematics, physics, and chemistry) the aggregate marks obtained by him are reduced to 85/100 (as per IBCC equivalent)

Merits of B.Tech (Hons) ThroughSemester System
Candidates having passed their B.Tech (Hons) degree through semester system must get their CGPA's converted to %age marks from their respective institutes. The %age marks shall be multiplied by 0.85 to calculate the marks for the merit list. Candidate who submit their CGPA's without getting them converted to %age marks shall not be considered for admission on B.Tech (Hons) basis.

Credit for Hafiz-e-Quran
A Hafiz-e-Quran will be credited 10 marks for determining the overall merits. A certificate from recognized institution and passing oral test arranged by NFC IET Multan is required.

Seat Break-up of Engineering Program

(Subject to approval of the Admission Committee)

	Category	CHEMICAL	ELECTRICAL with specialization in: (Computer, Electronic & Power)*	MECHANICAL	CIVIL	PETROLEUM & GAS
Punjab	A	24	24	08	08	08
Multan, Bahawalpur & DG Khan Division	B	12	12	04	04	04
Sindh	E	09	09	03	03	03
Khyber Pakhtoonkhawa	G	06	06	02	02	02
Baluchistan	H	03	03	01	01	01
FATA	I	06	06	02	02	02
AJK/PATA	J	03	03	01	01	01
Overseas Pakistanis	K	09	09	02	02	03
Female (All Pakistan Basis)	M	03	03	01	01	01
Professional Engineers	N	03	03	01	01	01
NFC-IET Employees	O	07	07	04	04	03
Armed Forces	P	02	02	01	01	01
B. Tech (Hon)/BS Technologies	Q	03	03	01	01	01
Self Supporting	S	30	30	09	09	09
TOTAL		**120**	**120**	**40**	**40**	**40**

* Admission in Electrical Engineering will be overall basis. Distribution in specialization will be after 2nd year on the basis of overall performance in 2 years and preference given by student within their categories.

Seat Break-up of B.S. Engineering Technologies

(Subject to approval of the Admission Committee)

	Category	Bio-Medical Engg. Technology	BS Food Science & Technology
Punjab	A	14	14
Multan, Bahawalpur & DG Khan Division	B	08	08
Sindh	E	04	03
Khyber Pakhtoonkhawa	G	03	02
Baluchistan	H	02	02
FATA	I	02	01
AJK/PATA	J	01	01
Overseas Pakistanis	K	01	01
Female (All Pakistan Basis)	M	01	01
IET Employees	O	04	03
Self Supporting	S	05	04
TOTAL		**45**	**40**

Seat Break-up of Science Programs

(Subject to approval of the Admission Committee)

	Category	Archi-Tecture Design	BS(CS)	BBA	B. Fashion Desing	Criminology	BS Physics/ Chemistry	BS Soft.Engg.
Punjab	A	07	45	16	09	09	09	20
Multan, Bahawalpur & DG Khan Division	B	04	25	12	06	06	06	12
Sindh	E	02	12	04	02	02	02	04
Khyber Pakhtoonkhawa	G	01	10	02	01	01	01	02
Baluchistan	H	01	10	02	01	01	01	02
FATA	I	02	08	02	02	02	02	04
AJK/PATA	J	01	08	02	01	01	01	02
Overseas Pakistanis	K	01	12	05	01	01	01	04
DAE	L	04	-	-	-	-	-	-
Female (All Pakistan Basis)	M	01	15	04	01	01	01	03
IET Employees	O	05	15	05	05	05	05	05
Armed Forces	P	01	05	01	01	01	01	02
Advocate	R	-	-	-	-	-	-	-
Self Supporting	S	10	100	25	10	10	10	40
TOTAL		**40**	**250**	**80**	**40**	**40**	**40**	**100**

CALENDAR OF ACTIVITIES

Admission Schedule

✉ Last date for First Entry Test Registration	22.06.2023
➢ First Entry Test	24.06.2023
✉ Last date for Second Entry Test Registration	13.07.2023
➢ Second Entry Test	15.07.2023

LAST DATE FOR RECEIPT OF APPLICATIONS WITH DUES
25.07.2023

Note:
1. The schedule can be revised on sole description of IET Admission Committee, if so required

COMMENCEMENT OF CLASS
01.09.2023

ACADEMIC SCHEDULE

*	First Semester	September 2023 - January 2024
*	Second Semester	February - June 2024
*	Summer Semester	July - August 2024

CALENDAR OF ACTIVITIES MS PROGRAM

Admission Schedule

✉ Last date for receipt of applications with dues	31.08.2023
➢ Entry Test	08.09.2023
➢ Interview	20.09.2023 to 21.10.2023
➢ Display of Merit List	28.09.2023
➢ Start of Classwork	06.10.2023

* Email: nfciet@nfciet.edu.pk

TERMS & CONDITIONS

1. The candidates who are not overage and are seeking admission in Engineering Program and scoring 60% marks or more in F.Sc., Pre-Engineering/DAE/ICS/ B.Tech (Hons) or equivalent examinations and appeared in ECAT/NTS/ NFC-IET Test becomes eligible for admission. **As such, the eligible candidate should deposit the dues alongwith his application form on time. No application form shall be accepted without the dues.**
2. A candidate seeking admission in engineering program and securing less than 60% in F.Sc./DAE etc. becomes ineligible. Applications of ineligible candidates shall not be accepted.
3. The candidates seeking admission in BD Fashion Design, BS Criminology, BS Sciences, and BBA programs and scoring 45% or more in F.Sc. Pre-Engineering/Pre-Medical/ DAE/Intermediate with Computer Science/General Science/Commerce or equivalent and appeared in ECAT/NAT (NTS) becomes eligible for admission. The eligible candidate should deposit the dues alongwith the application form on time. Application forms shall not be accepted without the dues.
4. Overseas candidates may send their Application Forms through online/e-mail till last date and provide photocopies of the draft and testimonials besides showing original certificates at the time of admission.
5. All Candidates should bring their original testimonials for submission on or **before 21.08.2023** also deposits remaining dues for admission.
6. **Erroneous admission due to typographical/ computer error will be corrected accordingly and candidate is bound to accept the decision.**
7. **It should be clearly understood that the dues deposited shall be refunded strictly in accordance with refund policy under lined below.**
8. **It will be candidate's own responsibility to get registered in relevant Entry Test.**
9. **Candidates applying in engineering as well as non-engineering programme could give NFC-IET Entry Test.**

REFUND POLICY

As per HEC policy: Letter No.10-1/HEC/A&C/2015/6542 Dated: December 7, 2015

Full (100%) Fee Refund except processing fee	- Upto 7th day of commencement of classes.
Half (50%) Fee Refund except processing fee	- From 8th - 15th day of commencement of classes
No Fee (0%) Refund Except caution Money	- From 16th day of commencement of classes

CHECK LIST OF
Documents to be attached with the Application Form

1. Attested photocopy of Matric/Equivalent Certificate ☐
2. Attested photocopy of F.Sc./Equivalent Certificate. ☐
3. Attested photocopy of B.Sc./Equivalent Certificate (for MS Programs) ☐
4. Recent Passport Size Photograph (3 Nos.) with your name and Form No. on the back of photo. ☐
5. Medical Certificate from a Registered Medical Practitioner declaring the Candidate Fit (physically & mentally) for the course. ☐
6. Attested photocopy of Hafiz-e-Quran Certificate ☐
7. a) **Attested photocopy of Domicile Certificate. The candidate must submit an attested photocopy of his/her domicile certificate alongwith the application form, otherwise his/her application form will be rejected.** ☐

   b) **For candidates who are under 21 years of age and are applying on Balochistan seat (category H), an attested copy of domicile certificate of their Father, showing the candidates name and age must be submitted with the application form, otherwise their application form will be rejected.** ☐
8. **For the candidates applying on the overseas seats (category-K) attested photo copies of the passport and work permit of their parents/brother/sister/guardian must be attached with the application form, failing which their admission will not be considered on category-K seats.** ☐
9. Proof of Registration of parent with Pakistan Engg. Council (for category N). ☐
10. **For category-O (IET employees) duly filled in performa must be attached. Performa is available in the admission cell of NFC-IET, Multan.** ☐
11. **NOC from employer/organization in case of any employment.** ☐
12. Attested copy of Entry Test Result ☐