



**NED UNIVERSITY**  
OF ENGINEERING & TECHNOLOGY



# POSTGRADUATE PROSPECTUS 2024

*Selected Pages from NED University Prospectus*

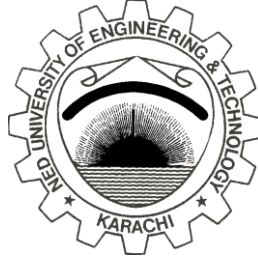
**Master  
Degree  
Programmes**

*Offered by Department of Civil Engineering*

*Leading to the Degree of*

*M. Engg., MEM,*





**NED UNIVERSITY**  
**OF ENGINEERING & TECHNOLOGY**  
KARACHI-75270, PAKISTAN

**SELECTED PAGES FROM NED PROSPECTUS**  
**FOR**  
**POST GRADUATE PROGRAMMES OFFERED BY**  
**DEPARTMENT OF CIVIL ENGINEERING**

**LEADING TO THE DEGREE OF**  
**M. ENGG (Civil)., MEM (CM)**

**2024`**



## 1 DEPARTMENT OF CIVIL ENGINEERING

The Department of Civil Engineering offers four-year programme leading to Bachelor of Engineering (Civil) and Bachelor of Civil Engineering (Specialisation in Construction) over the past several decades. The graduates from these programmes have not only earned distinctions in the practical field but many of them have also distinguished themselves as renowned researchers and scholars across the globe.

The Department of Civil Engineering has the honour of being the first department of the University to offer a programme in Master of Science in Civil Engineering from the session 1979-80 and also has the honour to start the Master of Engineering Programme for the first time in the area of Transportation Engineering in Pakistan. The M.Engg. Civil (Specialisation in Structural Engineering), and M.E.M (Construction Management) are one of the most popular Masters programmes in Pakistan which also have international acceptability, and recognition.

It is the first & only department in Pakistan offering M.Engg. Civil with Specialisation in Construction Engineering Law programme. Construction Engineering Law programme has distinction of being included in the Program listing of Society of Construction Law International (SCL). Moreover, the programme is also acknowledged by Chartered Institute of Arbitrators (CIARB) Pakistan.

### 1.1 Departmental Facilities

#### ❖ CLASSROOMS AND LECTURE HALLS

The department has three buildings, namely R-block, N-Block and A-block. These blocks house a total number of sixteen classrooms, one lecture hall and a state-of-the-art A/V facility named as Ashraf Habibullah A/V Hall. All the classrooms are equipped with multimedia facilities. Additionally, sound facility/equipment has also been provided at selected classrooms.

#### ❖ SMART CLASSROOMS (SCR)

The Smart Classrooms is a learning initiative by HEC that assists educators to make ICT integral to learning. These smart classrooms are equipped with high tech touch computing machines, provided with all accessories for student's studying remotely, Two Instructor Touch Smart Computers at front and back for having sense of Classroom. High end cameras and speaker systems which automatically senses any motion and place the camera to a person speaking or moving, Air-conditioning support, carpeted floors etc. Apart from these hardware supports, a unique software for learning management is specifically

designed for user needs and installed in all computers. The SCR has been established by Higher Education Commission under it's smart classroom project.

#### ❖ LABORATORIES

Apart from undergraduate laboratories for Materials Testing, Structures and Soil Mechanics, which house the basic testing facilities, new postgraduate laboratories have been developed.

##### • Material Testing Lab

Advanced Structural Engineering and material testing facility already exists with the Department, where research work and postgraduate studies leading to Ph.D. are being undertaken. The laboratories are equipped with state-of-the-art Times Group 2000 kN Universal Testing Machine, (Shimadzu 500kN / 1000kN Universal Testing Machine, Forney Compression Testing Machine of 2000 kN capacity, Tinus Olsen Universal Testing Machine of 60,000 pounds, a Forney Pipe Testing Machine of 300 kN capacity, apart from other equipment for testing and data acquisition. The laboratory equipment has been over-hauled and calibrated.

##### • Advanced Material Testing Lab

Advanced Material Testing facility equipped with state-of-the-art equipment, reaction floor and reaction wall, which is being used for testing of structures subjected to vertical and lateral loads. The laboratory has the facility to test pre-stressed girders up to 110 ft. long. Equipment includes a Portal Frame designed to work with the 5000 kN Pseudo Dynamic Test System. This system consists of 2 large structural H beams to provide the vertical support and is mountable to reaction floor. Complete system includes 5000 kN actuator, Hydraulic Power Supply, Hydraulic Service Manifold, Digitally supervised analogue servo controls, Pseudo dynamic application software, and a 300 channel data acquisition system. Other equipment includes Dynamic Hydraulic Linear Actuator 55 kip (250 kN), Dynamic Hydraulic Linear Actuator 110 kip (500 kN), Structural Test Hydraulic Actuator 220/335 kip (1000/1500kN), Hydraulic Linear Actuator 450/600 kip (2000 kN/2670 kN), 300 Channel Data Acquisition System, LVDTs, Load Cells. New addition in lab facility includes 06 hydraulic cylinders (600kN / 750kN / 1500kN / 1600kN). The facility is now shared and being administered by the Department of Earthquake Engineering.

##### • Soil Mechanics (Geotechnical) Lab

The postgraduate Geo-technical laboratory has acquired a Seismograph along with the already existing facilities comprising of Triaxial Testing Machine and Plate Loading Test equipment. The laboratory has been extensively utilised for postgraduate research leading to Ph.D.



- **Fluid Mechanics/Hydraulics Lab**

Fluid Mechanics and Hydraulic Laboratory features Hydrostatic bench that allows testing of static liquids. It also contains Hydraulic bench that may be used for testing of pumps and turbines at variable flows and configurations. Pipe network and pipe friction laboratory apparatus provide an opportunity to test various pipe materials and configuration of pipes in water supply network.

- **Water Resources Lab**

Irrigation and Water Resources Engineering laboratory features 7.5 m long open channel to test various hydraulic structures. Time Domain Reflectometry for irrigation scheduling, Channel loop for sediment transport, Acoustic Velocity meter for on spot flow measurement in stream, automatic water level recorder, GPS and computerised laboratory with GIS capabilities provide opportunities for conducting postgraduate studies and research. Rainfall simulator provides an opportunity to study the surface water rainfall – runoff relationships.

- **Durability Lab**

Durability lab is one of the state and art laboratory. This lab is being used for research purpose in undergraduate, postgraduate and doctorate program. The testing facilities includes concrete durability tests like; carbonation test, half-cell potential test, absorption test, chloride concentration etc. as per the standards. The testing facility for determining the water quality is also available using pH and TDS tests as per standard.

- **Foamcrete Lab**

The foamcrete lab is equipped with an array of equipment to provide a broad practical exposure to produce lightweight materials and to develop comprehensive understanding of their working principles and fundamentals. The lab is installed with an assembly of different operating units such as pumping, foaming and mixing systems all combined under one head, as Foam Concrete Generator System, to perform wide range of experiments and have detailed insights into manufacturing, methodology and behavior of lightweight materials in different varieties. These facilities offer diversified research opportunities to students and scholars for producing and exploring various novel material compositions and their behavior by adopting advanced technologies.

Laboratories' facilities of other departments may also be utilised for research purposes as well as other departments are also being benefited by the facilities mentioned.

- ❖ **COMPUTING FACILITIES**

- **Undergraduate Computer Lab (UGCL)**

Department of Civil Engineering houses undergraduate computer lab (UGCL). The Department's computer lab (UGCL) which runs under a System Manager and is equipped with 70 workstations along with scanning and printing facilities. It has a large number of licensed software related to Civil Engineering and its various specialisations. The labs is utilized as per need basis in the evening/weekend classes for postgraduate courses requiring computing and software use.

- **The Postgraduate Computer Centre (PGCC)**

The Postgraduate computer centre (PGCC) contains modern computing facilities, scanners, plotter, and laser printing facilities. The centre also contains a state-of-the-art Structural Engineering Software Library, which comprises of packages for analysis and design of RC structures including CSI software and TNO Diana. The CSI Package with network license consists of SAP 2000, ETABS, SAFE, CSI Section Builder and Perform 3D. The centre is mostly utilized for facilitating research assistants and students working on their thesis as part of their postgraduate studies.

- ❖ **RESEARCH CENTRES**

- **FIN Pakistan**

Department of Civil Engineering has also the honour of being the country's Information Node on FERROCEMENT. Ferrocement International Network (FINPAKISTAN) was established in the Department through International funding in 1990, and since then has been serving as National Node for disbursing research material, disseminating related knowledge and imparting know-how in ferrocement. The National node working under INTERNATIONAL NODE at IFIC-AIT-BANGKOK, has access related to the research endeavours in Ferrocement, and has links with researchers, and resource Persons in this field.

- **Cowasjee Earthquake Study Centre (CESNED)**

The Department of Civil Engineering established Cowasjee Earthquake Study Centre (CESNED) in year 2001 after the devastating Bhuj earthquake. The objectives of this endeavour include housing national and global data pertaining to earthquakes and act as a centre for disseminating accumulated knowledge, as well to respond to emergency needs and be able to provide guiding principles for pre and post-earthquake mitigation. Recently, CESNED has been strengthened with the installation of a 3m × 3m Shore Western Seismic Table and Syscom Strong Motion Recorder. Earthquake shaking tables is used extensively in seismic research, as they provide the means to excite structures



in such a way that they are subjected to conditions representative of true earthquake ground motions. The shake table system has been used to simulate earthquake loading on masonry structures. A scaled model of a typical block masonry house was recently tested to assess the seismic behaviour of block masonry construction. The activities of CESNED are now administered by the Department of Earthquake Engineering.

- **Virtual Reality Center (VRC)**

The NED University of Engineering and Technology, Karachi has established a state-of-the art facility for integrating virtual reality in the education, research and practice. The facility that is named as “NED University Virtual Reality Center” housed at Department of Civil Engineering which is the first of its kind in the entire region (sub-continent). The facility houses systems including, virtual teaming system, walking VR systems, Projection VR system Passive 3D screen system, Augmented/Mixed Reality Systems, UAVs, Laser Scanning & Energy Efficiency Systems. The major objectives of VR Center are to gear up the performance, by being a capacity builder, solution provider & knowledge innovation hub. VR center is working on utilizing it for engineering, technology and science related visualization. The VR systems are exceptionally helpful in establishing a realistic learning and development environment for both academic institutions and professional practices. It has opened utilization in research and development based on the concept of innovation. The major objectives of VR Center are to gear up the performance delivery by being a capacity builder, solution provider and knowledge innovation hub.

- **Building Information Modeling Center (BIMC)**

Building Information Modeling (BIM) Centre established at the Department of Civil Engineering. NED’s BIM Centre is the first of its kind in Pakistan. It was gifted from NED Alumni Association of Tri-State (NEDATS), USA to students of the NED Varsity and the local AEC Industry. BIM Centre is aimed at bringing maturity in the local and regional construction industry for sustained improvement of project life cycle performance as well as enhancing academic, professional and employability skills of students at various levels.

- **Water Modelling Centre (WMC)**

The Water Modelling Centre (WMC) is new addition to the Department of Civil Engineering at NED University. The purpose of WMC is to develop modelling skills for fellow researchers and students to resolve water related issues, enhance water and environmental conditions throughout the country, perform flood and watershed management practices, and develops models for the upcoming environmental

challenges due to climate change. The WMC has capability of simulating different models including surface water models, coastal hydrodynamic and morphodynamic models, and groundwater models. Surface water modelling includes hydrological and hydraulic modelling. Groundwater models can evaluate the water quality and quantity present under the surface. The WMC has continuously improved since its inauguration in March 2013 in terms of modelling expertise, software, and infrastructure to help students and researchers for solving water problems around the province and country.

- ❖ **INTERNATIONAL LINKAGES**

The Department has formed a number of linkages with other Universities around the world. An international linkage has been established between the Faculties of Civil and Petroleum Engineering WEDC, Loughborough University, UK, through joint funding provided by the Higher Education Commission-Pakistan and the British Council.

American Concrete Institute (ACI) Pakistan Chapter has been established in the department to promote research activities in the area of concrete technology and reinforced concrete. The ACI chapter provides a platform to disseminate knowledge about concrete and latest development about the codes and specifications. The department has achieved ACI Outstanding University Award for last several years.

The Department has shown significant progress in the area of earthquake engineering over the last several years. It is part of several projects related to capacity building funded by UNDP and UNESCO on topics related to earthquake engineering, seismology and impact of tsunamis. Department has established linkages with Society of Construction Law International (SCL) & CIArb – Chartered Institute of Arbitrators w.r.t Construction Engineering Law Program.

Department of Civil Engineering subscribes to a number of international research journals to support the academics and research at the postgraduate level.

### 1.2 Research Fields

The current research interests of the Department are as follows:

- ❖ **STRUCTURAL ENGINEERING**

- Re-strengthening and repair techniques
- Constitutive modelling of reinforced concrete and ferrocement
- Tensile and compressive membrane action
- Behaviour of reinforced concrete in mixed moment field
- Post cracking tensile strength



- Bond in reinforced concrete
- Structural behaviour of cold formed steel sections
- Models for shear and flexural strength of ferrocement
- Ferro-cement application and its use
- Infilled masonry panels subjected to lateral loads
- Non engineered construction in the rural areas
- Ductility of reinforcing bars produced in Pakistan
- Structural use of recycled concrete aggregates
- Finite element analysis of reinforced concrete structures
- Impact loads on reinforced concrete structures
- Fire resistance of concrete structures
- Fibre reinforced polymers in Construction
- Behaviour and assessment of masonry structures

❖ **MATERIALS ENGINEERING**

- Design, development, production and assessment of materials in the transportation industry
- Design, development, production and assessment of materials in the construction industry
- Durability of bituminous materials under tropical conditions
- Evaluation of engineering properties of mineral compounds, super plasticisers, binders, polymeric compounds and stabilising agents
- Determination of rheological properties of cement pastes and bitumen
- Mechanical properties of recycle concrete aggregates
- Cement replacement materials
- Properties of locally manufactured reinforcing bars
- High strength and high performance concrete

❖ **GEO-TECHNICAL ENGINEERING**

- Numerical / Constitutive modelling of soils
- Evaluation of static and dynamic parameters of different soil strata
- Evaluation of sub soil geological conditions
- Indigenous methodologies for ground improvement techniques
- Development of indigenous methodologies and equipment to carry out experiments in the field and laboratories
- Static and dynamic stiffness of pile foundation

❖ **TRANSPORTATION ENGINEERING**

- Pavement distress evaluation and material characterisation
- Redesign and signal optimisation of roundabouts
- Capacity improvements of major urban and rural routes
- Road condition monitoring and development of remedial strategies
- Road design techniques in arid and coastal areas

- Geometric and structural design of flyovers in Karachi using software packages
- Stability analysis of highway embankments under waterlogged conditions
- Use of expert systems in geometric design of highways
- Analysis and design of urban road drainage systems
- Mechanistic and finite element analysis of major national highways in Pakistan
- Pavement condition monitoring and evaluation of roads and airport airside
- Non-linear behaviour of pavements under heavy axle loads
- Development of travel demand forecasting models for urban areas
- Economic appraisal of highway projects using HDM and RTIM models
- Application of Geographic Information System (GIS) for facility management

❖ **CONSTRUCTION ENGINEERING AND MANAGEMENT**

- Building Information Modelling
- Sustainable Engineering and Construction
- Information and Communication Technology
- Risk Management in Pakistani Construction Industry
- Health and Safety Management
- Quality Assurance in Pakistani Construction Industry
- Application of Artificial Intelligence to Construction Engineering and Management Issues
- Assets Management
- Productivity Improvement in Pakistani Construction Industry
- Cost Analysis and Control in Construction Projects
- Advance Methods in Construction Procurement
- Construction Contracts, Claims and Dispute Resolution
- Infrastructure Engineering and Management
- Energy Efficient Buildings
- VR/AR/MR for Construction
- Sustainable Construction
- LCA and LCCA
- Construction Waste Management
- Construction Supply Chain Management
- Financial Management and Economics in Construction Industry
- Construction Jobsite Management
- Crime Prevention through Environmental Design
- Surveying Applications in Construction Engineering and Management
- Construction Industry Stakeholder Management
- Innovation and Entrepreneurship in Construction Industry
- Management and Leadership Development in Construction Industry
- Capacity Building of Pakistani Construction Industry
- IoT in Construction.
- Artificial Intelligence and Machine Learning for applications in construction



❖ **CONSTRUCTION ENGINEERING LAW**

- Intellectual Property (IP) Protection and Professional Ethics
- Construction Contracts and Procurement Law and Claims
- Construction Specifications and Documentation
- Building Codes and Regulations and International Perspective of Construction Law
- Forensic Engineering
- Alternate Dispute Resolution
- Construction Law Case Studies
- Risk Management

❖ **COASTAL AND HARBOUR ENGINEERING**

- Morphology of Coastal Processes (waves, currents, tides, dredging, etc.)
- Port Planning Method and Models
- Development of Containerisation
- Computer Application in Port Containerisation
- Environmental Impact of Port development
- Port Economics

❖ **WATER RESOURCES ENGINEERING**

- Sectoral Water Allocation, Releases and Performance
- Barrage and Canal System, Watercourse Lining
- Water Supply: Domestic, Industrial, Agriculture, etc.
- Modelling Groundwater System
- Water Balance, Recharge/Discharge Areas Delineation
- Monitoring and Evaluation, Climatology
- Hydrologic and Hydraulic Modelling
- Simulation and Optimisation Modelling
- Tertiary Level Irrigation System in Indus Basin
- Water Accounting and Irrigation Scheduling
- Surface and Subsurface Drainage System

**1.3 Programme Structure**

The Department currently offers two degree programmes at the Master’s level: Master of Engineering (Civil) and Master of Engineering Management. Under these two programmes, a number of specialisations are currently in the offering as shown below:

Programme Streams	Specialisations
M.Engg. (Civil)	Structural Engineering Geotechnical Engineering Transportation Engineering Coastal and Water Resources Engineering Construction Engineering Law
MEM	Construction Management

All these specialisations are offered as part-time programmes i.e. classes being conducted during weekdays in the evening hours. Students enrolled in the part-time stream have an option to complete their degree requirements in a minimum duration of 2.5 years if they choose to take the coursework only option, or they may complete their degree requirements in a minimum duration of 2 years if they choose to take the coursework plus Thesis option.

Some of these specialisations are also offered as full-time programmes, wherein the students get involved with the Department on full-time basis during morning hours, thereby getting an opportunity to undertake research along with their coursework. This option is more suited for students who appreciate the importance of full-time study and are willing to spend a minimum of 1.5 years with the University to complete their degree requirements.

A limited number of specialisations are also offered as Weekend programmes, wherein the students get the option of completing their degree requirements in a minimum duration of 1.5 years through coursework only. Classes for this stream are conducted on Saturdays and Sundays during daytime.

**1.4 Principal Faculty for the Programme**

**Chairperson**

Prof. Dr. Abdul Jabbar Sangi

**Professor Emeritus**

Prof. Dr. Sahibzada Farooq Ahmad Rafeeqi  
*B.E. (Civil) NED UET; M.S. (Civil) KFUPM, Saudi Arabia; Ph.D. (Structures), Heriot-Watt University, UK*

**Professors**

1. Dr. Asad-ur-Rehman Khan  
*B.E. (Civil) NED UET; M.S. (Civil) KFUPM, Saudi Arabia; Ph.D. (Civil) KFUPM, Saudi Arabia*
2. Dr. Abdul Jabbar Sangi  
*B.E. (Civil) NED UET; M.Engg. (Civil) NED UET; Ph.D. (Civil) Heriot-Watt University, UK*
3. Dr. Syed Imran Ahmed (*ALEF Chair Professor*)  
*B.E. (Agri Engg.) Sindh Agriculture University; M.S. (Bio Resource Engg.) Oregon State University, USA; M.S. (Bio Systems Engg.) IOWA State University, USA; Ph.D. (Bio Systems Engg.) IOWA State University, USA*
4. Dr. Rizwan-Ul-Haque Farooqui (*On Foreign Leave*)  
*B.E. (Civil) NED UET; M.S. (Civil Engineering) National Uni. of Singapore; Ph.D. (Civil) Florida International University, USA*
5. Dr. Amanullah Marri  
*B.E. (Civil) QUEST, Nawabshah; M.E. (Civil) Asian Institute of Technology, Thailand; Ph.D. (Civil) University of Nottingham, UK*



### Associate Professors

1. Dr. Haider Hasan  
B.Sc.(Hons) (Math. & Computing) Kingston University;  
M.Sc. (Environmental & Industrial Modeling)  
University of Bristol, UK; Ph.D. (Civil) University of  
Nottingham, UK
2. Dr. Huma Khalid (On Leave)  
B.E. (Civil) NED UET;  
M.Sc. (Computer Science) NED UET;
3. Dr. Arjumend Masood  
B.E. (Civil) NED UET; M.Engg. (Env.) NED UET;  
M.Engg. (Civil) NED UET; Ph.D. (Civil Engg.) NED UET  
Ph.D. (Computational Mechanics) Imperial College, UK
4. Dr. Farrukh Arif  
**Postgraduate Coordinator**  
B.E. (Civil) NED UET;  
MEM (Construction Management) NED UET;  
Ph.D. (Civil) Florida International University, USA  
Post-Doc (Construction Engineering & Management)  
Florida International University, USA
5. Dr. Sadaf Qasim  
B.E. (Civil) NED UET;  
M.Sc. (Environmental Sciences) UoK;  
M.Engg. (Civil) NED UET; Ph.D. (Civil), UTP, Malaysia
6. Dr. Farnaz Batool  
B.E. (Civil) NED UET; M.Engg. (Civil) NED UET;  
Ph.D. (Materials, Structures) University of Alberta, Canada
7. Dr. Shamsoun Fareed  
B.E. (Civil) SSUET; M.Engg. (Civil) NED UET;  
Ph.D. (Civil) Heriot-Watt University, UK

### Assistant Professors

1. Dr. Syed Salman Mobeen  
B.E. (Civil) NED UET;  
M.Sc. (Structures) University of Alberta, Canada;  
Ph.D. (Structures) University of Alberta, Canada
2. Dr. Syeda Saria Bukhary  
B.E. (Civil) NED UET; M.Engg. (Civil) NED UET;  
M.S. (Civil) University of Nevada, USA;  
Ph.D. (Civil) University of Nevada, USA
3. Engr. Farhan Saleem  
B.E. (Civil) NED UET; M.C.S. University of Karachi;  
M.S. (Construction Management) Florida Int'l  
University, USA
4. Engr. Muhammad Saqib (On Foreign Leave)  
B.E. (Civil) NED UET;  
M.C.S. University of Karachi; MS (IT) PIMSAT;  
MEM (Construction Management) NED UET
5. Engr. Haris Akram Bhatti  
B.E. (Civil) NED UET; M.Engg. (Civil, Water Resources)  
NED UET; Ph.D. (In Progress)

6. Dr. Aslam Faqeer Muhammad  
B.E. (Civil) NED UET; M.Engg. (Civil) NED UET;  
Ph.D. (Structural Engg.) Sapienza Univ. of Rome, Italy
7. Dr. Fawwad Masood  
B.E. (Civil) NED UET; M. Engg. (Civil) NED UET;  
Ph.D. (Civil) NED UET
8. Engr. Muhammad Umer (On Study Leave)  
B.E. (Urban) NED UET; MEM (Construction  
Management) NED UET; Ph.D. (In Progress) USA
9. Dr. Sajjad Ali  
B.E. (Civil) NED UET; M. Engg. (Civil) NED UET  
Ph.D. (Civil) NED UET
10. Engr. Shoab Ahmed (On Study Leave)  
B.E. (Urban) NED UET; M.Engg. (Civil) NED UET  
Ph.D. (In Progress) USA
11. Engr. Syed Muhammad Noman  
B.E. (Urban) NED UET;  
M.S. (Transportation) Hasselt University, Belgium
12. Dr. Rana Rabnawaz Ahmed  
B.E. (Civil) NED UET; MEM (Construction) NED UET;  
Ph.D. (Civil) Hong Kong University of Science and  
Technology
13. Dr. Wajeeha Mahmood  
B.E. (Civil) NED UET; M.Engg. (Civil) NED UET;  
Ph.D. (Civil) NED UET
14. Dr. Areba Syed  
B.E. (Urban) NED UET;  
M.Engg. (Water Resources) NED UET;  
Ph.D. (Agri & Bio Systems Engg.) IOWA State  
University, USA
15. Dr. Fatima Khalid  
B.E. (Civil) NED UET; M.Engg. (Civil) NED UET;  
Ph.D. (Civil) NED UET

In addition to regular faculty members, qualified personnel in other departments and in the industry may be engaged for post-graduate teaching.

Applications in response to advertisement for Master of Engineering and Master of Engineering Management shall be duly completed and submitted, personally or by registered post to:

**The Chairperson**  
**Department of Civil Engineering**  
**NED University of Engineering & Technology**  
**Karachi 75270, Pakistan**  
**Ph. No: +92-21-99261261-8 Ext: 2205**  
**Fax No: +92-21-99261255**  
**E-mail: ccd@neduet.edu.pk**





## COURSES OFFERED

### M.Engg. in Civil Engineering

#### (a) Structural Engineering

##### Compulsory Courses

Course No.	Course Title	Credit Hrs	Course No.	Course Title	Credit Hrs
CE-501	Advanced Structural Analysis	3	CE-504	Advanced Engineering Mathematics	3
CE-502	Mechanics of Solids	3	CE-511	Structural Dynamics	3
CE-503	Advanced Reinforced Concrete	3			

##### Elective Courses

Course No.	Course Title	Credit Hrs	Course No.	Course Title	Credit Hrs
CE-505	Prestressed Concrete Design	3	EQ-521	Displacement Based Seismic Design	3
CE-506	Finite Element Method	3	EQ-522	Performance Based Seismic Design	3
CE-507	Advanced Concrete Technology	3	EQ-523	Seismic Design of Steel and Composite Structures	3
CE-508	Computer Methods in Structural Analysis	3	EQ-524	Seismic Design and Assessment of Masonry Structures	3
CE-509	Theory of Plates and Shells	3	EQ-525	Loss Estimation and Hazard Mitigation	3
CE-510	Structural Stability	3	EQ-526	Fundamentals of Fire Dynamics	3
CE-512	Bridge Analysis and Design	3	EQ-527	Seismic Vulnerability Assessment of Bridges	3
CE-513	Seismic Analysis and Design	3	EQ-528	Finite Element Method	3
CE-514	Design of Tall Structures	3	EQ-529	FRP Reinforced Concrete Design	3
CE-515	Design of Steel Structures	3	EQ-530	Fracture Mechanics of Concrete	3
CE-516	Repair Maintenance And Strengthening of Reinforced Concrete Structures	3	EQ-531	Structural Fire Engineering	3
CE-517	Performance-based Seismic Design	3	EQ-532	Fire Safety and Management	3
CE-519	Advance Cementitious Materials	3	CE-5022	Forensic Engineering	3
CE-5002	Thesis	6			

#### (b) Geo-technical Engineering

##### Compulsory Courses

Course No.	Course Title	Credit Hrs	Course No.	Course Title	Credit Hrs
CE-531	Advanced Soil Mechanics	3	CE-534	Soil Investigation & Testing	3
CE-532	Foundation Engineering	3	CE-540	Earth Retaining Structures	3
CE-533	Soil-Foundation Dynamics	3			

##### Elective Courses

Course No.	Course Title	Credit Hrs	Course No.	Course Title	Credit Hrs
CE-535	Earth Structures	3	CE-541	Computer Applications in Geo-technical Engg	3
CE-536	Soil Stabilisation	3	CE-542	Geo-environmental Engineering	3
CE-537	Rock Mechanics	3	CE-543	Transportation Geotechnics	3
CE-538	Groundwater and Seepage	3	CE-5002	Thesis	6
CE-539	Subsurface Hydrology	3	CE-5022	Forensic Engineering	3

#### (c) Transportation Engineering

##### Compulsory Courses

Course No.	Course Title	Credit Hrs	Course No.	Course Title	Credit Hrs
CE-561	Urban Transportation Planning	3	CE-564	Probability and Statistics	3
CE-562	Geometric Design of Highways	3	CE-569	Pavement Analysis & Design	3
CE-563	Advanced Traffic Engineering and Management	3			

##### Elective Courses

Course No.	Course Title	Credit Hrs	Course No.	Course Title	Credit Hrs
CE-565	Traffic Flow Theory	3	CE-571	Waterway Transportation	3
CE-566	Highway Materials & Construction	3	CE-572	Transportation Systems Evaluation	3
CE-567	Public Mass Transportation	3	CE-573	Road Maintenance Management System	3
CE-568	Airport Planning & Design	3	CE-575	Railway Track Engineering	3
CE-570	Transportation Economics	3	CE-5002	Thesis	6
			CE-5022	Forensic Engineering	3



**(d) Coastal and Water Resources Engineering**

**Coastal Engineering**

**Water Resources Engineering**

**Compulsory Courses**

**Compulsory Courses**

Course No.	Course Title	Credit Hrs	Course No.	Course Title	Credit Hrs
CE-521	Introduction to Ocean and Coastal Engg.	3	CE-580	Applied Hydrology	3
CE-518	Mathematical Methods for Engineers	3	CE-518	Mathematical Methods for Engineers	3
CE-555	Design of Marine Structures	3	CE-579	Water Quality Management	3
CE-523	Coastal Processes	3	CE-577	Irrigation System Design and Management	3
CE-524	Coastal Management	3	CE-583	Groundwater Engineering	3

**Elective Courses**

Course No.	Course Title	Credit Hrs	Course No.	Course Title	Credit Hrs
CE-522	Port Planning and Design	3	CE-556	Water Resources Planning and Management	3
CE-525	Soil Mechanics in Coastal Engineering	3	CE-557	Legal & Financial Aspects of Water Resources	3
CE-551	Marine Geology	3	CE-558	Sustainable Water Resources Management (SWRM)	3
CE-552	Marine Dredging	3	CE-559	Remote Sensing in Water Resources	3
CE-553	Off-shore Engineering Analysis	3	CE-560	Reservoir Operations	3
CE-554	Computational Hydraulics	3	CE-578	Ground Water Resource Management	3
EN-520	Marine Pollution and Control	3	CE-581	Hydro climatology	3
CE-5002	Thesis	6	CE-582	Water Resources Modelling	3
CE-5022	Forensic Engineering	3	CE-584	Drainage Engineering	3
			CE-585	Advanced Hydraulic Engineering	3
			EN-528	Urban Water Supply and Sewer System Design	3
			CE-5002	Thesis	6
			CE-5022	Forensic Engineering	3

\* The degree will be offered in two streams i.e. Coastal Engineering and Water Resources Engineering.

+ Offered in collaboration with Panjwani-Hisaar Water Institute (PHWI)

**(e) Construction Engineering Law**

**Compulsory Courses**

Course No.	Course Title	Credit Hrs	Course No.	Course Title	Credit Hrs
CE-5011	Fundamentals of Law and Legal Structures	3	CE-5013	Construction Contracts and Procurement Law	3
CE-5012	Intellectual property (IP) protection and Professional Ethics	3	CE-5014	Construction Claims Preparation and Analysis	3
			CE-5015	Construction Disputes	3

**Elective Courses**

Course No.	Course Title	Credit Hrs	Course No.	Course Title	Credit Hrs
CE-5016	Fundamentals of Environmental Laws for Construction Industry	3	CE-5020	Construction Law and Risk Management	3
CE-5017	Construction Specifications writing and Documentation	3	CE-5021	International Perspectives of Construction Law	3
CE-5018	Construction Law Case Studies	3	CE-5022	Forensic Engineering	3
CE-5019	Building Codes and Regulations	3	CE-5024	Tort in Engineering	3
			CE-5025	Public-Private Partnerships	3
			CE-5002	Thesis	6



## Master of Engineering Management (MEM) Programme

The above programme is offered in the following areas of specialisation.

- |  |   |
|--|---|
| (i) Construction Management                    | offered by Department of Civil Engineering                            |
| (ii) Water Resources Management                | offered by Department of Civil Engineering in collaboration with PHWI |
| (iii) Transportation Infrastructure Management | offered by Department of Urban and Infrastructure Engineering         |
| (iv) Energy and Plant Management               | offered by Department of Mechanical Engineering                       |
| (v) Industrial Management                      | offered by Department of Industrial & Manufacturing Engineering       |
| (vi) Quality Management                        | offered by Department of Industrial & Manufacturing Engineering       |
| (vii) Supply Chain Management                  | offered by Department of Industrial & Manufacturing Engineering       |
| (viii) Textile Management                      | offered by Department of Textile Engineering                          |
| (xi) Energy Management                         | offered by Department of Electrical Engineering                       |
| (x) Chemical and Process Management            | offered by Department of Chemical Engineering                         |
| (xi) Environmental Management                  | offered by Department of Environmental Engineering                    |
| (xii) Urban Water Management                   | offered by Panjwani-Hisaar Water Institute (PHWI)                     |
| (xiii) Climate Change Management               | offered by Panjwani-Hisaar Water Institute (PHWI)                     |

### Compulsory Courses

Course No.	Course Title	Credit Hrs
EM-501	Organisational Systems	3
EM-502	Accounting and Financial Management	3
EM-503	Strategic Planning and Decision Making	3
EM-504	Project Management Framework and Tools	3
EM-505	Operations Research	3

### Common Elective Courses

Course No.	Course Title	Credit Hrs
EM-511	Total Quality Management	3
EM-512	Project Evaluation and Feasibility Analysis	3
EM-513	Research Methods in Engineering Management	3

### Elective Courses

#### (a) Construction Management

Course No.	Course Title	Credit Hrs	Course No.	Course Title	Credit Hrs
CE-544	Quantitative Tools for Engg. Management	3	CE-591	Cost Engineering and Control	3
CE-545	Construction Claim Management	3	CE-592	Decision Making and Risk Management in Construction	3
CE-546	Vulnerability Analysis and Hazard Mitigation	3	CE-593	Construction Operations and Development of Tech.	3
CE-547	Housing for Developing Countries	3	CE-594	Bidding Strategy and the Legal Construction Env.	3
CE-548	Occupational Health and Safety in Construction	3	CE-595	Technical Entrepreneurship and the Management and Marketing of Construction Services	3
CE-549	Value Engineering in Construction	3	CE-596	Public Infrastructure Management	3
CE-550	Construction Productivity Management	3	CE-597	Real Estate Management	3
CE-587	Human Resource Management in Construction Industry	3	CE-598	Construction Failure Analysis	3
CE-588	Leadership in Construction Management	3	EQ-532	Fire Safety and Management	3
CE-589	Supply Chain Management in Construction Industry	3	CE-5002	Thesis	6
CE-590	Advanced Topics in Project Management	3	CE-5022	Forensic Engineering	3
CE-5023	Building Information Modeling (BIM) for Construction Industry	3			

#### (b) Water Resources Management

Course No.	Course Title	Credit Hrs
CE-556	Water Resources Planning and Management	3
CE-557	Legal & Financial Aspects of Water Resources	3
CE-558	Sustainable Water Resources Management (SWRM)	3
CE-559	Remote Sensing in Water Resources	3
CE-560	Reservoir Operations	3
CE-576	Water Services Management	3
CE-577	Irrigation System Design and Management	3
CE-578	Groundwater Resource Management	3
CE-579	Water Quality Management	3
CE-5002	Thesis	6
CE-5022	Forensic Engineering	3



**NUMBER OF SEATS, FEES AND DEPOSIT**

**(a) NUMBER OF SEATS TO BE OFFERED FOR ADMISSION TO THE PROGRAMME**

Number of seats available to candidates in respective department who fulfill the requirements for eligibility as specified in the regulations shall be notified by each Department separately.

**(b) UNIVERSITY FEES AND DEPOSIT**

The following are the University fees:

**1- Fee Payable at the time of admission to the Programme**

(i)	Admission / Re-admission Fee	Rs. 5000.00
(ii)	Enrolment fee (alongwith form fee)	Rs. 2500.00
(iii)	Security Deposit	Rs.10000.00
(iv)	Documents Verification Fee	Rs. 3000.00

**2- Fee Payable in each semester**

(i)	Tuition & Examination Fee per Course	
-----	--------------------------------------	--

**EVENING**

a)	M.Engg. Programme	Rs.17000.00
b)	MS Programme	Rs.17000.00
c)	MEM Programme	Rs.17000.00

**WEEKEND**

a)	M.Engg. Programme	Rs.26000.00
b)	MS Programme	Rs.26000.00
c)	MEM Programme	Rs.26000.00
(ii)	Library Fee	Rs. 1000.00
(iii)	Registration Fee / Semester	Rs. 1500.00
(iv)	Internet Fee	Rs. 1500.00
(v)	Late Fee, if applicable	Rs. 1500.00
(vi)	Equivalence Fee, if applicable	Rs. 1500.00
(vii)	University Endowment Fund	Rs. 400.00
(viii)	I Grade Examinations Fee (Per Course), if applicable	Rs.10000.00

