3. DEPARTMENTS

3.1 DEPARTMENT OF CIVIL ENGINEERING

The Department of Civil Engineering has been offering a broad based four-year programme leading to Bachelor of Engineering (Civil) over the past several decades. The graduates from this department have not only earned distinctions in the practical field but many of them also have distinguished themselves as known researchers and scholars throughout the globe. Many of the final year projects have been of high academic and research value, and quite a few research papers have been published through these undergraduate research projects.

The Department of Civil Engineering has the honour to become the first department of the University to offer a programme leading to the 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 Transportation Engineering in Pakistan.

3.1.1 Departmental Facilities

Apart from undergraduate laboratories for Materials Testing, Structures and Soil Mechanics, which house the basic testing facilities, new postgraduate laboratories are in the process of development.

Advanced Structural Engineering testing facility already exists within 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 500 kN 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 have been over-hauled and calibrated.

New advanced Material Testing facility has recently been commissioned. It is 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 include 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. The facility is now shared and being administered by the Department of Earthquake Engineering.

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 and Hydraulic Laboratory features 12.5m long open channel to test various hydraulic structures. Newly procured hydraulic bench allows testing of pumps and pelton turbine 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. Rainfall Simulator provides an opportunity to study the surface water rainfall-runoff relationships.

Irrigation and Water Resources Engineering Laboratory has been established recently. 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.

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

The Department of Civil Engineering has special computing facilities housed in Postgraduate Computational Centre. The centre 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 and CSI Section Builder.

The Department has its main computer centre 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 specializations.

Research Centres and Linkages

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.

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 are 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.

The Water Modelling Centre (WMC) is a 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, softwares, and infrastructure to help students and researchers for solving water problems around the province and country.

NED-CEST (NED-Centre for Engineering Software and training) is also established which works in collaboration with the ACEMOS, AIT, Bangkok.

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 Engineering and Architecture and 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 of 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. Recently, the department has achieved ACI Outstanding University Award.

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. These endeavours have led to the establishment of the Department of Earthquake Engineering.

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

3.1.2 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 applicat ion 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 Management
- Building Information Modelling
- Sustainable Engineering and Construction
- Information and Communication Technology
- Risk Management in Pakistani Construction Industry
- Health and Safety Management in Pakistani Construction Industry
- 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
- Legal and Regulatory Environment in Construction Industry
- 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

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 and Management
- 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

3.1.3 Programme Structure

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

<table>
<thead>
<tr>
<th>Programme Streams</th>
<th>Specializations</th>
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</thead>
<tbody>
<tr>
<td>M.Engg. (Civil)</td>
<td>Structural Engineering</td>
</tr>
<tr>
<td></td>
<td>Geotechnical Engineering</td>
</tr>
<tr>
<td></td>
<td>Transportation Engineering</td>
</tr>
<tr>
<td></td>
<td>Coastal and Water Resources Engineering</td>
</tr>
<tr>
<td>MEM (Civil)</td>
<td>Construction Management</td>
</tr>
<tr>
<td></td>
<td>Water Resources Management</td>
</tr>
</tbody>
</table>

All these specializations 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 Independent Study Project (ISP) option.

Some of these specializations 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 dissertation 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 specializations 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.
3.1.2 Principal Faculty for the Programme

Chairperson
Prof. Dr. Asad-ur-Rehman Khan

Co-Chairperson
Prof. Rizwan Ul Haque Farooqui

Professors
1. Prof. Sarosh Hashmat Lodi
   B.E. (Civil) NED; M.S. USA;
   Ph.D. Heriot-Watt University, UK

2. Prof. Dr. Asad-ur-Rehman Khan
   B.E. (Civil) NED; M.S. (Civil) KFUPM, Saudi Arabia;
   Ph.D. KFUPM, Saudi Arabia

3. Prof. Dr. Muhammad Shafqat Ejaz
   B.E. (Civil) NED; M.S. (Civil) NED;
   Ph.D. Utah State University, USA

4. Prof. Dr. Syed Imran Ahmed
   B.E. (Agr. Engg.) SAU, Pakistan;
   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

5. Prof. Rizwan Ul Haque Farooqui
   B.E. (Civil) NED; M.S. (Civil) National University of Singapore;
   Ph.D. (Civil) Florida International University, USA

6. Prof. Abdul Jabbar Sangi
   B.E. (Civil) NED; M.Engg. (Civil) NED;
   Ph. D. (Civil) Heriot-Watt University, UK

7. Prof. Amanullah Marri
   B.E. (Civil) QUEST;
   M.E. (Civil) Asian Institute of Technology, Thailand;
   Ph.D. (Civil) University of Nottingham, UK

Associate Professors
1. Dr. Raza Ali Khan
   D.P.A. (Public Administration); M.A. (I.R.) UoK;
   M.A. (Economics) UoK; M.S.(Economics) SZABIST, Karachi
   Ph.D. (Civil) UTP, Malaysia

2. Dr. Haider Hasan
   B.Sc. (Math. & Computing) Kingston University
   M.Sc. (Env. & Ind. Modeling) University of Bristol, UK
   Ph.D. (Civil) University of Nottingham, UK

3. Dr. Huma Khalid
   B.E. (Civil) NED; M.Sc. (Computer Science) NED;
   Ph.D. Imperial College of Sc., Tech. & Medicine Uni, UK

4. Dr. Arjunmed Masood
   B.E. (Civil) NED; M.Engg. (Env. Engg.) NED;
   M.Engg. (Civil) NED; Ph.D. NED

5. Mr. Salman Hameed Siddiqui
   B.E. (Civil) NED; M.Sc. (Civil) NED

Assistant Professors
1. Dr. Farnaz Batool
   B.E. (Civil) NED; M.Engg. (Civil) NED;
   Ph.D. (Civil) University of Alberta, Canada

2. Mr. Syed Salman Moeen (On Study Leave)
   B.E. (Civil) NED; M.Sc.(Structure) Uni of Alberta, Canada;

3. Ms. Saria Bukhary (On Study Leave)
   B.E. (Civil) NED; M.Engg. (Civil) NED;

4. Mr. Farhan Saleem (On Study Leave)
   B.E. (Civil) NED; M.C.S. University of Karachi;
   M.S. (Construction Management) Florida International University, USA

5. Dr. Sadaf Qasim
   B.E. (Civil) NED; M.Sc. (Env. Sc.) KU;
   M.Engg. (Civil) NED; Ph.D. (Civil) UTP Malaysia

6. Mr. Muhammad Saqib (On Study Leave)
   B.E. (Civil) NED; M.C.S. University of Karachi;
   M.Engg. (Civil) NED

7. Dr. Tehmina Ayub
   B.E. (Civil) NED; M.Engg. (Civil) NED
   Ph.D. (Civil) Universiti Teknologi PETRONAS, Malaysia

8. Mr. Haris Akram Bhatti
   B.E. (Civil) NED; M.Engg. (Civil, Water Resources) NED

9. Dr. Muhammad Aslam Bhatti
   B.E. (Civil) QUEST; M.Engg. (Civil) NED
   Ph.D. (Civil) Heriot-Watt University, UK

10. Mr. Aslam Faeqeer Muhammad
    B.E. (Civil) NED; M.Engg. (Civil) NED
    Ph.D. (Civil) Sapienza University of Rome, Italy

11. Mr. Fawwad Masood
    B.E. (Civil) NED; M. Engg. (Civil) NED

12. Dr. Farrukh Arif
    B.E. (Civil) NED; MEM (Civil) NED
    Ph.D. (Civil) FIU, USA

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 (Civil) 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: civilchr@neduet.edu.pk
3.2 DEPARTMENT OF ENVIRONMENTAL ENGINEERING

Established as the Institute of Environmental Engineering and Research thirty years ago to cater for the national need of professional training in environmental assessment and improvement at postgraduate level, the Department of Environmental Engineering has been effectively contributing in academics, research, training, and community based activities since its inception. The Department administers postgraduate programme leading to the degrees of Masters of Engineering (Environmental) and Master of Engineering Management (MEM) in Environmental Management. The programme is conducted both in morning and evening times and also a weekend programme has started from Fall Semester, 2015. The degree programme is structured so as to deepen and broaden the student’s knowledge in the field of Environmental Engineering. The Department of Environmental Engineering has the honour to start the master programme for the first time in Environmental Engineering in Pakistan and also has the honour to be one of the first departments of NED University to successfully offer Masters of Engineering programme in the morning. Though the Department is not administering any undergraduate level programme, it is providing all necessary support to its sister engineering disciplines in assessing, designing, and synthesising environmental impacts of engineering developments through class room training and laboratory practices.

Emphasis of the postgraduate programme is to equip students and practicing professional with advanced knowledge, information and data base so that they can cope with ever increasing environmental degradation of the country in general and of the city in particular. During these studies a student completes a number of courses in water, air, noise, and land pollution, industrial and municipal solid waste management, EIA, water quality management, marine pollution, sustainable development and other major and minor topics related to environment. Course work is supplemented with field investigation, seminars, and guest lectures to enable students to broaden their understanding of issues and remedies related to environment.

The students graduated with Environmental Engineering degree from the Department are actively participating in the development works at regional, national and international levels. They are holding key positions in public and private sectors in Pakistan and abroad utilising the knowledge gained during their studies in the Department.

The Department is also offering the postgraduate degree programme in Master of Engineering Management (MEM) in Environmental Management. The programme is conducted in morning, evening and on weekends. Some of the broad objectives of the programme are to equip students and future Environmental Managers with the ability to clearly understand and interact in Engineering as well as Management related activities and roles in Environmental Studies.

The Department is actively participating in community-based activities working together with Sindh EPA, NGOs, City District Government and other relevant organizations in different development works aimed at restoring and improving public sector services and infrastructures. In future also, the Department intends and plans to work in the advisory capacity for agencies responsible for environmental management of urban areas as well as the natural resources.

3.2.1 Departmental Facilities

The Department maintains Environmental Engineering Laboratories having adequate facilities to carry out essential environmental analysis and monitoring. These include air quality / emission monitoring, water chemistry analysis, water pollution and water quality monitoring and process design studies. A computer Lab for postgraduate students provides access to professional software in Environmental Engineering, internet surfing and retrieving data from other resources out side University. Department library contains selected books on various related topics, database, case studies and research documents of national interest for ready reference during course of studies.

Research Fields

The current fields of research encompass low-
cost water and wastewater treatment, bio
energy production from sustainable anaerobic
digestion and bio diesel. Independent research
projects in the fields described above are being
carried out under supervision of foreign qualified
faculty members. Moreover, the department is also
working on industry based problems and is in the
process of establishing research collaborations with
world class International Universities.

3.2.2 Principal Faculty for the Programme

Chairperson
Prof. Dr. Asif Ahmed Shaikh

Co-Chairperson
Dr. Atif Mustafa

Professor
Prof. Dr. Asif Ahmed Shaikh
B.E. (Civil) NED University;
M.E. (Civil) Nagasaki University, Japan;
Ph.D. Nagasaki University, Japan.

Associate Professors
Dr. Atif Mustafa
B.E. (Civil) NED University;
M.E. (Env. Engg.) NED University;
Ph.D. University of Edinburgh, UK.

Assistant Professors
1. Dr. Zuhail Siddiqui
   B.E. (Civil) MUET Jamshoro;
   M.E. (Env. Engg.) AIT, Thailand;
   Ph. D. University of Leeds, UK.

2. Dr. Mehmod Ali
   B.E. (Mechanical) NED University;
   M.E. (Env. Engg.) NED University.
   Ph. D. University of Glasgow, UK.

In addition to regular faculty members, qualified
professionals from other Departments and
institutions of Karachi may be engaged for post-
graduate teaching.

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

The Chairperson
Department of Environmental Engineering
NED University of Engineering & Technology
University Road, Karachi-75270, Pakistan
Ph. No. +92-21-99261261-8 Ext. 2211
Fax No. +92-21-99261255
3.3 DEPARTMENT OF ARCHITECTURE AND PLANNING

The NED University has remained the foremost institution in professional education in engineering and related disciplines. In its working, the university had developed a regulatory, academic and administrative framework for architecture and planning education which today provides a useful framework for appropriate education in these disciplines. The working strength of architects is much less than what is practically needed. Given the vast professional sphere in which the architects operate, the numerical strength is simply minimal. A technically sound and socially responsive breed of architects and planners need to be produced to fill this widening gap. Architecture and Planning Department at NED University has been attempting to these and several other related challenges in the professional domain.

The creation of a Department of Architecture and Planning has been a part and parcel of NED’s Master Plan. The present resources, facilities, spaces and technological backup are ample and adequate to support this purpose. Besides, the presence of various disciplines at the university act as a supportive factor for the Architecture Department. Ever since its creation in 2000, the Department has undertaken numerous research and outreach activities. The Journal of Research in Architecture and Planning, launched in 2001, has now been regularly published on bi-annual basis. The department was a collaborative partner with four international universities from Europe and South Asia in the European Commission funded Asia-Link and Asia-Urbs Programmes between 2004 and 2007. This linkage produced several research outputs in the field of urban design. Besides, the Department is the Secretariat of International Council of Monuments and Sites (ICOMOS) and local office of UNESCO University and Heritage Linkage. The Department collaborated with the United Nations Centre for Human Settlements (UN-HABITAT) for preparation of City profiles and plans of Larkana, Kech-Turbat, Sialkot, Gilgit, Mingora, Manserha, Landi Kotal and Muzzafarabad (in Azad Jammu and Kashmir) in 2011-12. The department collaborated with International Institute of Enviornment and Development (IIED) to undertake Karachi Land Study which will be published soon in a monograph form.

The Department has been conducting a Master of Urban and Regional Planning Programme since 2002. This programme was launched with the active assistance from University of Western Sydney, Australia. A significant need, was also found for the initiation of Master of Architecture Programme due to diversifying job market, enhanced demand of specialised capacity in the domains of theoretical and applicational spheres and development of teaching faculty in architectural theory and design pedagogy. It is also worthwhile to note that no postgraduate programme in architecture exists in the entire province of Sindh despite the fact that six architectural institutions are currently functioning. Master of Architecture Programme, initiated in 2009, is therefore aimed to serve a need of the country. The master in Real Estate Management aims to prepare the students to meet the emerging challenges in this field by equipping them with the appropriate knowledge and skills necessary to operate in this sector. This programme will start in 2016.

The department also benefits from scholarships to masters students granted by the Thariani family and heirs of Late Architect Akhlaq Hussain. These bursaries are granted on need cum merit basis.

3.3.1 Department Facilities

The Architecture and Planning Department is located at NED City Campus on Maulana Din Muhammad Wafai Road. It possesses adequately equipped computer labs with up-to-date hardware and relevant softwares. The Department also possesses an archive which houses the most recent literature, reading material and audio-visual aids related to architecture and urban and regional planning studies. A reference library is also available for the access of post graduate students to fulfil the need of text books, reference books, periodicals and journals. Due to links and networking of the department, the post graduate students can also obtain useful information material from private institutions such as the Urban Resource Centre.

3.3.2 Number of seats to be offered for Admission to the Programme

Total number of seats to the maximum of 25 each shall be offered by the Department for each programme. The admission to Master of Urban and Regional Planning shall be open to degree holders in the disciplines of Architecture, Urban Planning, Urban or Civil Engineering, however the maximum number of admissions to be offered shall not exceed a total of 10 per discipline. Candidates possessing M.Sc. in Geography and MA in Geography (with Mathematics Background at Undergraduate Level) are also eligible to apply. Master of Architecture Programme, only candidates possessing a Bachelor of Architecture or equivalent degree shall be offered admission. For Master in Real Estate Management minimum 16 years of education a mandatory require must for admission.
3.3.3 Principal Faculty for the Programme

Chairperson

Prof. Dr. Noman Ahmed

Professors

1. Prof. Dr. Noman Ahmed
   B. Arch; M.C.P. (METU, Ankara-Turkey); Ph.D. (Loughborough UK); MPCATP, AIAP

2. Prof. Dr. Anila Naem
   B. Arch; M.S. (Restoration and Historic Preservation) (METU, Ankara-Turkey); Ph.D. (Oxford Brookes, UK); MPCATP, AIAP

Associate Professors

1. Ms. Asia Sadiq
   B. Arch; M. Arch (KU-Leuven, Belgium), PhD Scholar (KU Leuven, Belgium); MPCATP, AIAP

2. Ms. Fariha Amjad Ubaid
   B. Arch; MCPUD (METU, Ankara-Turkey); MPCATP, AIAP

Assistant Professors

1. Ms. Fahmida Bano Sheikh
   B. Arch; MURP; PhD. Scholar (NED); MPCATP

2. Mr. Ravindar Kumar Ravi
   B. Arch; MUD; PhD. Scholar (NED); MPCATP

3. Ms. Shabnam Nigar Muntaz
   B. Arch; MUD; MPCATP

4. Mr. Salam Manzoor Hasan
   B. Arch; M. Arch; MPCATP

5. Ms. Masooma Mohib Shakir
   B. Arch; M. Arch (KU-Leuven, Belgium), PhD. Scholar (KU Leuven, Belgium); MPCATP, AIAP

6. Ms. Suneela Ahmed
   B. Arch; MUM (Canberra, Australia), PhD. Scholar (Oxford Brookes, UK); MPCATP

7. Ms. Saadia Bano
   B. Arch; MEM; MPCATP

8. Dr. Saeduddin Ahmed
   B. Arch; MURP; PhD (Cardiff, UK); MPCATP

9. Ms. Rabela Junejo
   B.Arch; M.S. in History of Architecture (METU, Turkey); PhD Scholar (METU, Turkey); MPCATP

In addition to regular faculty members, qualified personnel in the city are engaged for postgraduate teaching.

Applications in response to advertisement for Master of Architecture Programme, Master of Urban and Regional Planning Programme and Master in Real Estate Management shall be duly completed and submitted, personally or by registered post to:

The Chairperson
Department of Architecture and Planning
NED University of Engineering & Technology
(City Campus)
Maulana Din Mohammad Wafai Road
Karachi-74200, Pakistan.
Ph. No:  +92-21-99213058
         +92-21-32620793
Fax No: +92-21-99213058
E-mail: crd@neduet.edu.pk
3.4. DEPARTMENT OF URBAN AND INFRASTRUCTURE ENGINEERING

A fundamental need for civilization in the 21st Century is the development of urban habitats that are both environmentally sustainable and functionally dependable for people and society. To meet these challenges Urban and Infrastructure Engineering Department has been introduced in NED University of Engineering and Technology in 2008. The department aims to provide students background of planning, design and management of the urban community. Its objective is to deliver capacity building and value addition to the youths of the society in the form of Urban & Infrastructure Engineer. This objective is well served with state-of-the-art teaching facilities and dedicated faculty members. The department also keeps close coordination with other local and international stakeholders such as City District Government, Karachi (CDGK), Jinnah Post-graduate Medical centre and University of Mississippi (USA) for research-based sharing of knowledge and service oriented activities. In December 2012, the department has signed MOU with Transport Research Institute University of Hasselt, Belgium, Institut voor Mobilitéit (IMOB) that includes collaborative research in the field of traffic congestion, faculty and student exchange (using virtual environment teaching), value addition short courses, joint PhD programmes, as well as the reduction of the annual tuition fee from 6000 Euros to 600 Euros (equivalent to European nationals) for students of NED for their Master’s study at Institut voor Mobiliteit (IMOB), Belgium.

The Department of Urban and Infrastructure Engineering, has now taken another initiative by introducing a post graduate degree programme (MEM) in Transportation Infrastructure Management. The major idea behind this programme is to link the concepts of management with the deriving engineering fields to produce professionals that are better capable of managing the engineering projects than the conventional business managers. Transportation Infrastructure Management is an attempt to strengthen the programme with another much needed derivative. Considering the wide scope of the field, this masters program is focused towards the management of transportation systems and their sustainable operation.

3.4.1 Departmental Facilities

The Department of Urban and Infrastructure Engineering manages the following laboratories:

- Surveying Laboratory possesses modern digital theodolites, digital levels, Electronic distance meters, Total stations and GPS equipment. The Department has in-house capabilities to handle these sophisticated instruments and at number of occasions, department has provided their services for various infrastructure projects within NED University and outside University.
- Transportation Laboratory possesses all types of basic testing facilities for pavement materials. Recently, the laboratory is equipped with a state-of-the-art wheel tracking device and number of research projects have been initiated to use this machine for testing of pavement defects.
- In addition to the above, the department envisions to establish ITS and Traffic Engineering as well as GIS and Geospatial Laboratories to carry out dedicated research in these emerging fields well connected to Transportation Infrastructure Management.

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

Computing Facilities

The Department of Urban and Infrastructure Engineering has special computing facilities housed in its computer centre. The centre contains good computing facilities, scanners, inkjet plotter, colour, and black & white laser printing facilities. The centre also contains a state-of-the-art transportation modelling softwares such as EMME/2, S-PARAMICS, GIS softwares such as ARC GIS etc.

Research Fields

The current research interests of the Department relevant to the Transportation Infrastructure Management Masters Programme are as follows:-

- Development of an ITS-based Traffic Management Model for Metropolitan Areas of Pakistan.
- Incorporation of Traffic Heterogeneity in Capacity Analysis of Multi-Lane Urban Arterials of Karachi through Development of a Simulation Mode
- Road Safety Research
- Incorporating rutting potential in pavement performance evaluation methodologies
- Traffic Congestion Costing
- Establishing Trips rate and Parking Ratios for selected Area of Karachi
- Development of Highway Pavement Maintenance Management System for Pakistan
- Pavement asset maintenance management through use of innovative materials.
3.4.2 Principal Faculty for the Programme

**Chairperson**
Prof. Dr. Mir Shabbar Ali

**Co-Chairperson**
Prof. Dr. Mohammed Raza Mehdi

**Professors**
1. Prof. Dr. Mir Shabbar Ali
   B.E (Civil); M.S (University of Oklahoma, USA);
   Ph.D in Transportation; Uni of Birmingham, UK

2. Prof. Dr. Adnan Qadir (On leave)
   B.E (Civil) NED University;
   M.Sc. (Civil) NED University;
   Ph.D. (Transportation) Middle East Technical University Ankara, Turkey.

3. Prof. Dr. Mohammed Raza Mehdi
   B.E (Civil); MS (Transportation) Maryland, USA;
   Ph.D. (Environmental Science) Karachi;
   Post Doc. (Geospatial Applications) Georgia, USA

**Associate Professors**
1. Mrs. Mah Talat Mirza
   B.E (Civil); M.Sc. (Civil) NED

2. Dr. Muhammad Adnan (On leave)
   B.E. (Civil) NED University;
   M. Engg. (Civil) by Research NED;
   Ph.D. (Transportation) (Leeds) UK

**Assistant Professors**
1. Syed Masood Kazim Jafri
   B.E (Civil) NED University;
   M.Sc. (Env Engg) NED University

2. Mr. Ashar Ahmad (On higher studies abroad)
   B.E (Urban) NED University;
   M.Engg. (Civil) NED University

3. Dr. Uneb Gazdar (On leave)
   B.E (Civil) NED University;
   M.Engg. (Civil) NED University
   Ph.D. (Transportation Planning), Kind Fahd University of Petroleum & Minerals, KSA.

4. Dr. Nida Azhar
   B.E (Urban) NED University;
   M.Engg. (Civil) NED University
   Ph.D. (Civil Engg), Florida International University, USA

5. Dr. Sana Muqeeem
   B.E (Urban) NED University;
   M.Engg. (Civil) NED University;
   Ph.D. (Construction Management)
   University Technology Petronas, Malaysia.

6. Syeda Madiha Zaidi
   B.E (Urban) NED University;
   M.Engg. by Research (Civil) NED University

7. Dr. SadaquatUllah Khan
   B.E (Urban) NED; M.Engg. (Civil) NED;
   Ph.D. (Structures) Malaysia

8. Dr. Afzal Ahmed
   B.E (Urban) NED; M.Engg. (Civil) Uni of Mississippi USA;
   Ph.D. (Transportation) UK

In addition to regular faculty members qualified personnel in other departments and in the city are engaged for post-graduate teaching.

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

**The Chairperson**

Department of Urban and Infrastructure Engineering
NED University of Engineering & Technology,
University Road Karachi- 75270, Pakistan.
Ph. No: +92-21-99261261 Ext: 2354
Fax No: +92-21-99261255
E-mail: cuid@neduet.edu.pk
3.5 DEPARTMENT OF EARTHQUAKE ENGINEERING

Large scale natural hazards cause enormous damage and transform socioeconomic setup of a given region. This is particularly true for earthquakes owing to their spatial and temporal unpredictability. While developed nations have achieved the minimum required levels to mitigate earthquake disaster, countries like Pakistan lag significantly behind, resulting in unprecedented human and monetary losses in earthquake events. These losses have emphasized the need of better preparedness in order to reduce the seismic threat faced by the Country. One of the key components of hazard preparedness is capacity building of professionals working in the construction industry by providing them necessary training and by transforming the indigenous research into best practice.

Recognizing the need of capacity building for pre- and post-earthquake disaster mitigation, the Department of Earthquake Engineering has initiated Master Degree programmes in Earthquake Engineering and Disaster Management and Sciences. The intent of these programmes is to produce professionals who are current with the latest developments in different aspects of disaster mitigation so that they are able to provide safer and economical built environment. Furthermore, it also aims at producing graduates who are well equipped to undertake research in earthquake engineering and disaster management both at national and international levels. These aims are reflected in the courses that have been designed for the programmes and in different research activities being conducted by the Department. A list of current research projects is available on our website.

3.5.1 Masters in Earthquake Engineering

Earthquake Engineering is a specialized field of knowledge that deals with understanding and implementation of ideas related to generation and propagation of earthquakes through various geological features and response of structures subjected to seismic loading. This field can be divided in three branches, namely: Structural Earthquake Engineering (SEE), Geotechnical Earthquake Engineering (GEE), and Engineering Seismology (ES). SEE comprises of the study of elastic and inelastic response of structures subjected to ground motion excitation and deals with seismic design and assessment of structures. GEE, on the other hand, comprises of the study of elastic and inelastic behaviour of seismic waves as they travel through the earth’s crust and surficial geology. ES deals with the core aspects of seismology which includes theoretical seismology, movement of active faults, signal processing and strong motion seismology, etc. The Department currently offers Masters Degree in Structural Earthquake Engineering; however, the plans to start the other two degree programmes are also under consideration.

3.5.2 Masters in Disaster Management and Sciences

Disaster management aims to reduce or avoid the losses from hazards. It also ensures that prompt and appropriate assistance to victims of disaster is provided to enable rapid and effective recovery. The disaster management is an ongoing process which enables the governments, businesses, and civil society to plan for the reduction of the impact of disasters by quickly responding to a disaster and taking steps to recover from it. The essential components of a disaster management programme include shaping of public policies and plans so that they either modify the causes of disasters or mitigate their effects on people, property, and infrastructure. This leads to greater preparedness, better warnings, reduced vulnerability or the prevention of disasters. The Programme of Master Science in Disaster Management and Sciences aims at creating human resource with a solid and holistic knowledge base so that they are able to understand the complex context of activities required before, during and after a disaster and are able to take up the challenge of minimising the losses.

3.5.3 Departmental Facilities

The Department currently owns two most modern laboratories in the Country. These include Shake Table Laboratory (STL) and Advanced Material Testing Laboratory.

The Shake Table Laboratory (STL) consists of a 3M x 3M seismic simulation table. The table has a linear hydraulic actuator with a fatigue rating of 110 kip (500 kN) which is guided by linear bearings. The stroke capability of the unit is ± 300 mm (± 12 in.) with a nominal peak velocity of 1 m/sec (40 in./sec) and average velocity of 1/2 m/sec (20 in./sec). The linear guide bearings are sized to test a 20 MT payload with a CG 3 M off the table surface. This may include 60 MT-M over turning moment at 1g.

The new Advanced Material Testing Laboratory is equipped with state-of-the-art testing equipment and is one of its kinds in the region. It has a 1m thick reaction floor and 1.3m thick reaction wall which can be used for testing of structures subjected to vertical and lateral loads. The Lab has the facility to test prestressed girders of up to 110 ft. length. The equipment include 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 mounted on reaction floor. Complete system includes 5000 kN actuator, hydraulic power supply, hydraulic service manifold, digitally supervised analog servo controls, pseudo dynamic application software, and a 300 channel data acquisition system. Other equipment include dynamic hydraulic linear actuators of capacity of 55 kip (250 kN) and 110 kip (500 kN), structural test hydraulic actuator of 220933 kip (1000/1500 kN), hydraulic linear actuator of 450/600 kip (2000/2670 kN), LVDTs, load cells.
CESNED is also a part of the Department of Earthquake Engineering. The objectives of the Center include housing national and global data pertaining to earthquakes, acting as a centre for disseminating knowledge as well as to respond to emergency needs and to provide guiding principles for post-disaster mitigation.

In addition, the Department shares laboratory facilities in Material Testing Laboratory administered by the Department of Civil Engineering. Similarly, laboratory facilities of other departments may also be utilized for research purposes.

3.5.4 Computing Facilities

The Department of Earthquake Engineering shares the computing facilities housed in Postgraduate Computational Centre with the Department of Civil Engineering. The centre also contains a state-of-the-art structural engineering software library including analysis and design of RC Structures using CSI Package and TNO DIANA. The CSI Package with network licenses consists of SAP 2000, ETABS, SAFE and CSI Section Builder.

3.5.5 Principal Faculty for the Programme

Chairperson

Prof. Dr. Muhammad Masood Rafi

Professors

1. Prof. Dr. Muhammad Masood Rafi
   B.E. (Civil) NED University; M. Sc. (Civil) NED University;
   Ph.D. (University of Ulster, UK)

2. Prof. Dr. Rashid Ahmed Khan
   B.E. (Civil) NED University; M. Sc. (Civil) NED University;
   Ph.D. (Heriot-Watt University UK.)

Associate Professor

Dr. Mukesh Kumar
   B.E. (Civil) NED University;
   M.E. (Civil) NED University.
   M.E. (Earthquake Engg.) Italy
   Ph.D. (Imperial College of London, UK.)

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

Applications in response to advertisement for Master of Engineering (Earthquake) and Master of Science (Disaster Management and Sciences) shall be duly completed and submitted, personally or by registered post to:

The Chairperson
Department of Earthquake Engineering
NED University of Engineering & Technology
University Road, Karachi 75270, Pakistan
Ph. No: +92-21-99261261-8 Ext: 2605
Fax No: +92-21-99261255
E-mail: rafi-m@neduet.edu.pk
3.6 MECHANICAL ENGINEERING DEPARTMENT

The Department of Mechanical Engineering was founded in 1937 at the former NED Government Engineering College campus. Currently both undergraduate and post-graduate programmes are offered by the department. The undergraduate programme is based on four years instructional education at the main campus of the University leading to the degree of Bachelor of Engineering (Mechanical). Theoretical instruction is reinforced with adequate laboratory and computational work. In addition to undergraduate program, Master of Engineering (M.Engg.) degree is offered in Design, Energy System, Renewable Energy and Mechatronics and Master of Engineering Management (MEM) is offered in Energy and PLant Management. The department has also started weekend programmes from fall semester 2016 in M. Engg. (Energy System) and MEM (Energy and Plant Management). The programs are aimed at preparing students to shoulder their professional responsibilities and enable them to pursue higher studies and research in Mechanical Engineering related fields.

The department also offers Ph.D. program. Interested candidates may enroll under the supervision of PhD supervisors through applications on forms as prescribed by the University in research areas mentioned afterwards.

3.6.1 Departmental Facilities

Laboratory and Computational Facilities

The Department of Mechanical Engineering has laboratories and workshops with a built-up area of about 5000 square meters besides teaching and faculty rooms covering an area of around 2000 square meters.

The department is equipped with a Computational Laboratory that has more than 50 PCs. All computers are connected through LAN to two HP-Compaq servers with high-speed network support and a separate user profile with full security for each user. Internet access is also available on all computers. Several licensed software like ANSYS, ProE, Solid Edge, Unigraphics, FLUENT, Matlab and AutoCAD are available for use by students. Many of these softwares are introduced as part of the curriculum in various courses in the Master of Engineering programme.

Post-graduate laboratories in the areas of Solar and Wind Energies, Desalination, Fluid Mechanics. Heat Transfer, Acoustics and Vibrations, Materials Engineering, Hydrogen Energy and Energy Conservation exist in the department and are open for students desirous of carrying out experimental research in these fields. In addition to the above laboratories the department has free access to all the facilities provided by the High Performance Computation Centre such as parallel computing and access to more than 40 licensed softwares.

Research Fields

Some of the research areas in which our faculty is currently engaged include: Solar and Hydrogen Energy, Energy conservation, Refrigeration and Air-conditioning, Desalination, Computational Fluid Dynamics, Fracture Mechanics, Mechanical Vibrations, Computer Aided Design and Manufacturing, Composite Mechanics, Mechanical Properties of Metals & Metallic Coatings.

3.6.2 Principal Faculty for the Programme

Chairperson

Prof. Dr. Mubashir Ali Siddiqui

Professors

1. Prof. Dr. Anjum Khalid  
   B.E (Mech); M.Sc (UK); Ph.D (NED)

2. Prof. Dr. –Ing. Naseem Uddin (On leave)  
   B.E (Mech); M.Engg (Mech); Ph.D (Germany)

3. Prof. Dr. Nasiruddin Shaikh (On leave)  
   B.E (Mech); M.Engg (Mech); Ph.D (Canada)

4. Prof. Dr. Mubashir Ali Siddiqui  
   B.E (Mech); M.S (USA); Ph.D (USA)

Associate Professors

1. Dr. Muhammad Shakaib  
   B.E (Mech); M.Sc.(Mech); Ph.D (NED)

2. Mr. S. M. Rizwan Azeem  
   B.E (Mech); M.Sc (Engg) (UK)

Assistant Professors

1. Dr. Maaz Akhtar  
   B.E (Mech); M.Engg (Mfg); Ph.D. (Oman)

2. Dr. Rashid Khan  
   B.E. (Mech); M.Sc. (Germany); Ph.D. (Oman)
3. Dr. Murtaza Mehdi  
B.E (Mech); M.Engg (Mech); Ph.D (Korea)  

4. Mr. Muhammad Akhlaque  
B.Sc.; B.E (Mech); M.Sc. (Env)  

5. Mr. Muhammad Kamal Pasha  
B.E (Mech); M.Sc. (Env)  

6. Mr. Imran Sikandar  
B.E (Mech); MSME (USA); Member ASME  

7. Mr. M. Danish Haneef (On higher studies abroad)  
B.E. (Mech); M.Engg (Mech)  

8. Mr. Umair Najeeb Mughal (On higher studies abroad)  
B.E. (Mech); M.Engg (Mech)  

9. Mr. M. Ehtesham ul Haque (On higher studies abroad)  
B.E. (Mech); MSME (USA)  

10. Mr. Muhammad Waseem (On higher studies abroad)  
B.E (Mech); M.Engg (Mfg)  

11. Mr. Muhammad Uzair (On higher studies abroad)  
B.E (Mech); M.Engg (Mech)  

12. Mr. Masood Ahmed Khan  
B.E (Mech); M.Sc. (Comp. Sc.); M.Engg (Mfg)  

13. Mr. Saeed Ahmed (On higher studies abroad)  
B.E (Mech); M.Engg (Mfg)  

14. Mr. M. Faisal Alam (On higher studies abroad)  
B.E (Mech); M.Engg (Mfg)  

15. Mr. Naveed ur Rehman (Ph.D in Progress)  
B.E (Mech); M.Engg (Mech)  

16. Mr. Tariq Jamil (On higher studies abroad)  
B.E (Mech); M.Engg (Mech)  

17. Ms. Erum Khan  
B.E (Mech); M.Engg (Mech)  

18. Mr. Kashif Noor  
B.E (Mech); M.Engg (Mech)  
(Ph.D in Progress)  

19. Ms. Mahrurkh (On higher studies abroad)  
B.E (Mech); M.Engg (Mech)  

20. Mr. Muntaz Hussain Queshi  
B.E (Mech); M.Engg (Mech)  

21. Mr. S. Ahmad Raza  
B.E (Mech); M.Engg (Mech)  

22. Mr. Muhammad Muzamil  
B.E (Materials); M.Engg (Mech)  

23. Mr. Saqib Sharif  
B.E (Mech); M.Engg (Mech)  

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

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

The Chairperson  
Mechanical Engineering Department  
NED University of Engineering & Technology  
Karachi 75270, Pakistan  
Ph. No: +92-21-99261261-8 Ext: 2206  
Fax No: +92-21-99261255  
E-mail: cmved@neduet.edu.pk
3.7 DEPARTMENT OF INDUSTRIAL & MANUFACTURING ENGINEERING

Industrial and Manufacturing Engineering education has become pivotal in establishing a competitive posture across the entire spectrum of Metal working and Manufactured parts’ industry in Pakistan. Both the reality and perception of domestic production points to the need for a stronger, more productive manufacturing industry in this country producing high quality parts at low cost. In view of the fast changing technology and scenario the University started this separate Department. Industrial and Manufacturing Engineering spans a broad spectrum of engineering topics such as: Computer Aided Design (CAD); Computer Aided Manufacturing (CAM); Numerical Control (NC); Computer Integrated Manufacturing (CIM); Flexible Manufacturing System (FMS); Robotics & Automation; Product Design; Tools and Machines; Manufacturing Processes; Quality Control; Production and Inventory Control; and Economics Analysis.

This Department was initially started under the auspices of Mechanical Engineering Department in October 1999 and started as a separate Department in October 2000 with the name of Industrial & Manufacturing Engineering Department. The Department is offering Master of Engineering (by course work) with the Specialisations in Manufacturing Engineering and Engineering Management. The Engineering Management program further offers choices of Specialisation in Industrial Management and Quality Management. The Department of Industrial & Manufacturing Engineering has highly qualified and experienced regular and visiting faculty members.

3.7.1 Departmental Facilities

Department of Industrial & Manufacturing Engineering have following laboratories:

- CAD
- Industrial Automation
- Advance Manufacturing
- CAM
- Industrial Safety
- Metrology & Gauging
- CAE
- Methods Engineering
- Computation Laboratory
- Tool Design

These laboratories are equipped with sophisticated equipment and state of the art software. EDM Machine, Wire-Cut EDM, Five-axis Machining Centre, Injection Moulding Machine and Robotic Arm with five degrees of freedom, are some of the equipment available in these laboratories. Flexible Manufacturing Cell is in process and soon be available at the Department. Industrial Automation related equipment including PLC’s are available at the Department.

Computer Language laboratory is equipped with personal computers with P IV & Core-2 Duo processors along with Scanning, Printing and Plotting facility. Advanced Designing & Simulation software including Unigraphics, Pro-E, Solid Edge, AutoCAD, Mechanical Desktop, ANSYS, Lathe CAM Designer, Mill CAM Designer are also available in the Department & being fully utilized by the students at undergraduate & postgraduate level.

Other Supporting Facilities

Department of Industrial & Manufacturing Engineering has been facilitated with PRODUCT DEVELOPMENT CENTRE (PDC). This centre is fully equipped with complete range of sophisticated equipment and software to be used for REVERSE ENGINEERING. Starting from CKD part to its 2D drawing and 3D model, further to its prototype up to making the mould using CNC machines, this state of the art facility is a right place for the industry.

Product Development Centre is facilitated with a 3D scanning system and Rapid prototyping system.

Research Field

The current Research interests of the Department are as follows:

- CAD / CAM / CAE
- Industrial Automation & Robotics
- Operations Research
- Advanced Manufacturing Processes
- Rapid Prototyping (Reverse Engineering)
- Composite Materials
- Computer Aided Project Planning
- Simulation and Modeling
- Supply Chain Management
- Project Management
- Sustainable Manufacturing Processes.

3.7.2 Principal Faculty for the Programme

Chairperson

Prof. Dr. Syed Amir Iqbal

Professors

1. Prof. Dr. Muhammad Tufail
   B.E. (Mech); M.Sc. (UK); Ph.D. (UK);
   Mem. ASME; Asso. Mem. IMechE; Mem.ASM;

2. Prof. Dr. Syed Amir Iqbal
   B.E. (Mech); M.E.(Mech.) with
   Mfg. Enng. Specialisation; Ph.D. (UK)

Associate Professors

1. Dr. Maqsood Ahmed Khan
   B.E. (Mech); M.E. (Mech) with
   Mfg. Enng. Specialisation; Ph.D. (Canada)
2. Dr. Muhammad Fahad  
B.E., (Ind. & Mfg.); M.Sc. with Mgt. Specialisation (U.K); Ph.D. (UK)  
Assistant Professors  
1. Mr. Mohammad Shoailb  
B.E. (Mech); M.E. (Mech) with Mfg. Engg. Specialisation;  
2. Mr. Ali Sulqarnain  
B.E. (Mech); M.E. (Mech) with Mfg. Engg. Specialisation;  
3. Ms. Sadia Majeed  
M.A. (Economics), M.A.S. M. Phil. (Industrial Economics)  
4. Dr. Muhammad Wasif  
B.E. (Mech); M.E. (Mfg.); Ph.D. (Canada)  
5. Dr. Syed Mehmood Hasan  
B.E., (Ind. & Mfg.); M.S. with Engg. Mgt. Specialization (U.K); Ph.D. (UK)  
6. Ms. Shaheen Perween  
B.E. (Mech); M. E. (Mfg.); Ph.D. (in Progress)  
7. Dr. Aqueel Ahmed  
B.E. (Mech); M. E. (Mfg.); Ph.D. (Canada)  
8. Mr. Asim Zaheer  (On higher studies abroad)  
B.E., (Mech); M.Sc. with Engg. Mgt. Specialisation (USA)  
9. Mr. Shakeel Ahmed  (On higher studies abroad)  
B.E. (Ind. & Mfg.); M. E. (Mech)  
10. Ms. Rabia Siddiqui  
B.E. (Ind. & Mfg.); M. E. (Mfg.)  
11. Dr. Anis Fatima  
B.E. (Ind. & Mfg.); M. E. (Mfg.); Ph.D. (UK)  
12. Ms. Sheheryar Mohsin Qureshi  
B.E. (Ind. & Mfg.); M. E. (QM.); Ph. D (Korea).  

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

Applications for M. Engg. (Industrial & Manufacturing, MEM Industrial Management and MEM Quality Management) Programmes duly completed are required to be submitted, personally or by registered post to:  
The Chairperson  
Department of Industrial & Manufacturing Engineering  
NED University of Engineering & Technology  
Karachi – 75270, Pakistan  
Ph No. 92-21-99261261-8 Ext: 2361  
Fax No. 92-21-99261255  
Email: cid@neduet.edu.pk
3.8 DEPARTMENT OF TEXTILE ENGINEERING

The Textile Engineering Department was established in NED University in 1996, department has been offering program of Bachelor of Engineering (BE) in Textile since 1996. At Postgraduate level, department offers two programs i.e. Master of Engineering (MEngg) in Textile & Master of Engineering Management (MEM) in Textile Management. Department has eighteen (18) faculty members out of which eleven have doctoral degrees and seven have M. Engg. (Textile) degrees.

The postgraduate programs are evening programs designed to accommodate working textile engineers who are in quest of broadening their knowledge and deepening their technical & managerial skills to work out problems of Textile Industry.

The programme of Master of Engineering (MEngg) in Textile was started in year 2005. The courses of this program are designed to incorporate the advance contents of physical and chemical aspects of Textile Engineering and Technology, and are at par with any similar program offered in developed countries. The program aims to produce qualified textile professionals who would not only take-up maintenance / operational functions of a Textile mill but would cover other aspects such as product development, process analysis, quality assurance and environment. Courses are designed to meet the requirements of Pakistan Textile Industry in particular and the textile business sector at large.

The Textile Engineering graduates come across various management responsibilities during their professional career. In today's world it is getting difficult for organisations to remain competitive and profitable. Today's market requires not only technically sound engineers but also excellent managers who can work in competitive and tough environment and still produce desired results. Realizing the importance of management skills for Textile Engineers, the department has introduced program of Master of Engineering Management (MEM) in Textile Management. This program aims to educate the next generation of engineers to plan and manage the textile industry, improve the production and quality of textile products and lead the industry. The courses are structured in such a way to provide technical knowledge along with management skills to empower the textile engineer to lead the team and manage complex textile industries.

3.8.1 Departmental Facilities

The Department has following functional laboratories:

- Yarn Manufacturing Laboratory
- Fabric Manufacturing Laboratory
- Dyeing and Finishing Laboratory
- Fibre Testing Laboratory
- Yarn Testing Laboratory
- Fabric Testing Laboratory
- Textile Chemistry Laboratory
- Computer Laboratory

Computing Facilities

The Department has two computing facilities, the general purpose "Computer Laboratory" and the specialized "Computation, Simulation & Design-CSD Laboratory" equipped with a cumulative node count of more than sixty high-end workstations. These workstations have been installed with the latest software packages for scientific and engineering problem solving including Matlab®, Autodesk Inventor®, Ansys Fluent, DesignScope Victor® Jacquard etc. The laboratories are connected with the national HEC-Perin network through high speed fibre optic link and all online information resources including the University Portal and the National Digital Library are accessible from within the Departmental LAN.

RESEARCH FIELDS

The current research interests of the Department are as follows:

- Conventional textiles
- Technical textiles
- Novel wet processing techniques
- Conductive textiles
- Textiles sensors
- Protective Textiles
- Textiles composites
- Finite modelling & simulation
- Biomechanical engineering of textiles
- Yarn texturing process using Air-Jet technique
- Nonwovens development
- Image processing in textiles
- Thermal properties of textiles

3.8.2 Principal Faculty for the Programme

Chairperson
Prof. Dr. Muhammad Tufail

Professor
Prof. Dr. Khalid Pasha
B.Sc. (Hons); M.Sc. (Chemistry); Ph.D. (Textile, UMIST, UK)

Associate Professors
1. Dr. Sheraz Hussain Siddique
   B.E (Textile Engg);
   M.Sc. (Textile & Clothing, Germany);
   Ph.D. (Textile) University of Manchester UK
2. Dr. Salma Farooq  
B.Sc. (Textile Engg); M.Engg. (Textile);  
Ph.D. (Textile, Heriot Watt University, UK)

3. Dr. Bilal Zahid  
B.E. (Textile Engg); M.Engg. (Textile);  
MBA (Textile Management)  
Ph.D. (Textile, University of Manchester, UK)

4. Dr. Fareha Asim  
B.E (Textile Engg); M. Engg. (Textile);  
Ph.D. (Textile, NED University)

Assistant Professors

1. Mr. Fariduddin Ahmed  
B.Sc. (Hons); M.Sc. (Applied Chemistry)

2. Dr. Deedar Hussain  
B.Sc. (Textile Engg); M.Engg. (Textile)  
Ph.D. (Supply Chain Management,  
University of Minho, Portugal)

3. Dr. Saira Faisal  
B.E (Textile Engg); M.Engg. (Textile)  
Ph.D. (Textile, University of Leeds, UK)

4. Dr. Shenela Naqvi  
B.E (Textile Engg); M.Engg. (Textile)  
Ph.D. (Textile, University of Manchester, UK)

5. Dr. Muhammad Dawood Husain  
B.E. (Textile Engg); M.Sc. (Textile & Clothing Germany);  
Ph.D. (Textile, University of Manchester, UK)

6. Mrs. Farhana Naeem  
B.E (Textile Engg); M.Engg. (Textile)

7. Mr. M. Amir Qureshi  
(On higher studies abroad)  
B.E (Textile Engg); M.Engg. (Textile)

8. Dr. Ali Hasan Mahmood  
B.E (Textile Engg); M.Engg. (Textile);  
Ph.D. (Textile, University of Manchester, UK)

9. Dr. Muhammad Ali  
B.E. (Textile Engg); M. Engg. (Textile)  
Ph.D. (Textile, University of Leeds, UK)

10. Dr. M. Owais Raza Siddiqui  
B.E. (Textile Engg); M. Engg. (Textile)  
Ph.D. (Textile, University of Leeds, UK)

11. Dr. Quratulain Mohtashim  
B.E. (Textile Engg); M. Engg. (Textile)  
Ph.D. (Textile, The University of Manchester, UK)

12. Mr. Muhammad Zubair  
(On higher studies abroad)  
B.E. (Textile Engg); M.Engg. (Textile)

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

The Chairperson  
Textile Engineering Department  
NED University of Engineering & Technology  
Karachi 75270, Pakistan  
Ph #: (092) - (021) - 99261261-8  
Fax #: (092) - (021) - 99261255  
E-mail: ctd@neduet.edu.pk
3.9 DEPARTMENT OF AUTOMOTIVE & MARINE ENGINEERING

The Department of Automotive & Marine Engineering was established in 2003 at the NED University of Engineering and Technology, Karachi, primarily to cater to the needs of the growing automotive sector in Pakistan with Karachi being considered the hub of the automotive industry. Soon the need for a Masters programme was felt and it was decided to launch the Masters in Automotive Engineering programme, which started from June 2009. This programme offers a focused post-graduate study covering several aspects of Automotive Engineering. These aspects range from the inner working of the automobile engine to external aspects such as vehicle aerodynamics, and from the properties of the materials used in automobiles to transportation analysis. The department offers two specialisations in ‘Automotive Design’ and ‘Automotive Manufacturing’, which are designed to achieve the following goals:

- Provide automotive engineers with practical experience in team building, carrying out projects in interdisciplinary areas and in developing and managing projects.
- Provide automotive engineers with an enhanced understanding of related disciplines as well as management and human factor issues related to the design and marketing of automotive systems.
- Strengthen the technical competence and depth of automotive engineers by teaching them advanced courses in their respective specialisation.
- Broaden the horizons of automotive engineers by exposing them to the wide spectrum of interdisciplinary engineering activities involved in the process of development, design and manufacturing of complex automotive systems.

Since 2015 the department is offering M. Engg. in Computational Engineering with following specializations:

- Mechanics of Materials
- Thermo and Fluid Dynamics
- Automotive Engineering

3.9.1 Departmental Facilities

To support the programme, the Department is equipped with several state-of-the-art functioning laboratories, which includes Combustion & Emission Lab, Body & Suspension Lab, Auto-Electronics Lab, Basic Electronic Lab, Computer Lab, and Fuel Cell Lab. For the research purpose, highly sophisticated equipments are available in the department. ‘Hydra Research Engine’ is one of the good examples. This Engine test bed has a single cylinder engine for both diesel and petrol along with high tech instrumentation panel. The environmental concerns has forced us to work on the alternative clean energy technologies for this purpose the department has a Fuel Cell Laboratory with a Fuel Cell testing system. For Numerical simulations, the Department has the license for Fuel Cell Module of FLUENT. In teaching advanced level subjects, dedicated software’s are frequently used in the department by course teachers.

The prospective students of this programme would primarily consist of graduate engineers currently employed in automotive sector as well as those having bachelor’s degrees in Automotive, Mechanical, or Industrial & Manufacturing Engineering.

3.9.2 Principal Faculty for the Programme

Chairperson

Prof. Dr.-Ing. Syed Mushahid Hussain Hashmi

Professors

Prof. Dr.-Ing. Syed Mushahid Hussain Hashmi
B.E. (Mech.) NED; M.Sc (Mech.) NED;
Ph.D. (Mech) Germany; Member PEC, SAE

Associate Professor

Dr. Faraz Akbar
B.E. (Mech.) NED; Ph.D. (UK);
AMI Mech [United Kingdom]; MPEC (Pakistan)

Assistant Professors

1. Mrs. Amber Fishan Zafar
   B.E. (Mechanical) NEDUET; MS (Mechanical) NUST,

2. Mr. Munir Ahmed
   B.E. (Mechanical) NEDUET;
   MASC (Mechanical) University of Toronto, Canada
   CSP, APCS, USA; Mem. PEC (Pak)

3. Mr. Saqib Jamshed Rind [On higher studies abroad]
   B.E. (Ind. Electronics) IIIE;
   M.Sc. (Automation & Control) University of Newcastle,
   England; Mem. PEC (Pak); Mem; IEEE(USA)

4. Mr. Noman Uddin Yousuf [On higher studies abroad]
   B.E (Mechanical) NEDUET;
   M.S (Mechanical Engg) Bradley, USA

5. Mr. Assad Anis
   B.E (Mechanical) NEDUET;
   M.S (Mechanical, Structural & Machine Design), Finland

6. Engr. Dr. Muhammad Aamir Qureshi
   B.E (Electrical Engg) NEDUET;
   M. Engg (Electrical Engg with Specialisation in Communications) Ph.D. (Electrical Engg.) (Communication & Information Systems)

In addition to regular faculty members qualified personnel from other departments and from outside the university may be engaged for post-graduate teaching.

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

The Chairperson
Department of Automotive & Marine Engineering
NED University of Engineering & Technology
Karachi 75270, Pakistan

Phone#: +92-21-99261261-8, Ext. 2539, 2239
Fax #: +92-21-99261255
E-mail: camd@neduuet.pk
3.10 DEPARTMENT OF ELECTRICAL ENGINEERING

The Department of Electrical Engineering is rich—both in its history as well as in what it currently has in offers. The undergraduate programme in Electrical Engineering may be traced back to 1934 when the former NED Engineering College introduced a three year Bachelor of Engineering degree course. It was modified to 3-1/2 years duration in 1943-44. A full four year Bachelor of Engineering (Electrical) degree programme was introduced in 1961.

The undergraduate programme has since been expanding continuously—both internally as well as in contributing and collaborating with industry sector. The once lonely Department of Electrical Engineering has contributed in the development of three other engineering disciplines namely, Computer and Information Systems, Electronic and Telecommunications – thus strengthening the faculty. Our undergraduate internship programme is intense which gives adequate exposure to the students.

The Department also holds a strong postgraduate setup. A M.Sc. in Electrical Engineering degree (Evening Programme) by course work / Project has been offered by this department since 1984. The programme has seen modifications at various stages and currently offers a semester based M.Engg. degree programme in various specialisations.

The Department, having felt the need of industry for having human resource with refined management skills – acknowledged and timely launched a well-balanced Masters Programme in Engineering Management (MEM). It currently emphasises on energy management specialisation.

3.10.1 Departmental Facilities

The Department infrastructure comes complete with all educational and academic supporting aid and satisfactory environment necessary for intuitive learning. Extensive computing and laboratory facilities also exist in the department and more importantly are accessible by students most of the time. A number of separate computer laboratories are currently functioning with qualified staff to provide technical assistance to the users and maintenance work.

These facilities occasionally also support external departments and centres for the conduction of special workshops and seminars. Advanced simulation software is also provided for researchers and enthusiasts.

The Department is connected through high speed internet and its webpage to external customers for resource sharing, centralised management and information spread.

Using these facilities, a number of people are pursuing their research interests which span the following areas:

- Load Flow Studies of Power Systems
- Variable Speed Drive Systems
- Alternative Energy
- Voltage / Current Mode Circuits
- Novel Measurement Techniques / Instruments
- Chaotic Circuits and Simulation
- Digital Control Systems
- Digital Signal Processing
- Time-Frequency Analysis
- Image and Radar Signal Processing

3.10.2 Principal Faculty for the Programme

Ag. Chairperson

Dr. Muhammad Ali Memon

Professor

Prof. Dr. Saad Ahmed Qazi
B.E. (Elect.); M.Sc. (Lancaster, U.K.);
Ph.D (Brunel, UK),

Associate Professor

Dr. Muhammad Ali Memon
B.E. (Electrical); M.Engg. (EE), NED University;
MBA (MIS); Ph.D (USA)

Assistant Professors

1- Mr. Muhammad Javed
B.E. (Electrical); M.Sc. (EE), NED University

2- Ms. Shahnaz Tabassum
B.E. (Electrical); M.Engg. (EE), NED University

3- Mr. Shoaib Siddiqui
B.E. (Electrical); M.Engg. (EE), NED University
4- Mr. Raja Masood Larik (On higher studies abroad)  
B.E. (Electrical); M.Engg. (EE), NED University

5- Ms. Umbrin Sultana (On higher studies abroad)  
B.E. (Electrical); M.Engg. (EE), NED University

6- Ms. Arjumand Samad  
B.E. (Electrical); M.Engg. (EE), NED University

7- Mr. Riazuddin  
B.E. (Electrical); M.Engg. (EE), NED University

8- Mr. Abdurrahman Javed Sheikh (On higher studies abroad)  
B.E. (Electrical); M.Engg. (EE), NED University

9- Mr. Krishan Lal Khatri (On higher studies abroad)  
B.E. (Electrical); MUET Jamshoro;  
MSEE (Telecom), SSUET Kh;  
Professional Diploma Project  
Management, PIM Karachi

10- Mr. Umer Sajid  
B.E. (Electrical); MS (Communication Engineering &  
Signal Processing), University of Plymouth U.K.

11- Dr. Muhammad Mohsin Aman  
B.E. (Electrical); M.Engg. (EE), NED University; Ph.D

In addition to our faculty members, qualified personnel from other departments and prestigious institutions are often engaged for post-graduate teaching.

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

The Chairperson  
Department of Electrical Engineering  
NED University of Engineering & Technology  
Karachi-75270, Pakistan  
Phone No. 92-21-99261261-8 Ext. 2207  
Fax No. 92-21-99261255 FAO: CED  
E-mail: ced@neduet.edu.pk
3.11 DEPARTMENT OF COMPUTER AND INFORMATION SYSTEMS ENGINEERING

Computer machines hidden within electro-mechanical environments around us have made a huge impact on our lives. Examples include smart phones, gaming consoles, robots, home automation and appliances, industrial automation, mechatronics systems, instrumentation and embedded systems. Engineers who design such complex systems need excellent skills in computing and electrical engineering. The Computer Systems Engineering field of specialisation offers a balanced integration of topics from Electrical Engineering and Computer Science to train engineers in understanding, designing and developing the complex computer systems of 21st century.

The Masters programme in Computer Engineering of Department of Computer and Information Systems Engineering was started in 2000. It is offered as Day as well as Evening Programme to facilitate a supportive environment for researchers and professionals alike. Enthusiastic students prefer to be admitted in this programme because of the high quality of education and the wide demand of Computer Engineers in the industrial community. Following the modern engineering trends two areas of specializations are offered namely; Computer Architecture & Systems Design and Computer Network & Performance Evaluation. These specialized streams are designed to meet the need of the industry and indigenous research activities.

The Department of Computer and Information Systems Engineering also offers Masters of Science Programme in Data Engineering and Information Management. This program is intended to develop sound professionals with adequate skills and knowledge to meet the latest challenges of big data and information management. The compulsory and elective courses are designed to give broad-based knowledge of the field along with developing creative and analytical thinking ability. The graduates of the program will be better able to provide logical and ingenious solutions to critical problems, data analytics, data-mining and enterprise resource management.

The Department of Computer and Information Systems Engineering provides a vibrant and encouraging environment for the passionate students to get themselves involved in state-of-the-art research. This department has a pool of experienced faculty to help motivate and supervise the students taking up this endeavour.

The Department, having felt the need of industry for having human resource with refined management skills – acknowledged and timely launched a well-balanced Masters Programme in Engineering Management (MEM). It currently emphasises on energy management specialisation.

3.11.1 DEPARTMENT FACILITIES

The department has following fully functional laboratories.

1. Computation Laboratory
2. Logic Design & Switching Theory Laboratory
3. Research Laboratory
4. Computer Networks Laboratory
5. Artificial Intelligence and Robotics Laboratory
6. Parallel Processing Laboratory
7. Computer Engineering Workshop
8. Microprocessor Laboratory – I & II

The aforementioned laboratories are equipped with the latest hardware equipment and software. These lab facilities also provide adequate opportunities to post graduate students to undertake research projects. The laboratories are fully air-conditioned and provide a serene and stimulating environment for learning.

RESEARCH FIELDS

The department currently offers research positions in following research areas:

- VLSI Design and Testing
- High Performance Computing
- Distributed Systems
- Computer Networks
- Robotics and Artificial Intelligence
- Embedded System Design
- Computer Vision & Image processing
- Software Defined Communication Systems
- Internet of Things
- Internet Tele-traffic Modelling

3.11.2 PRINCIPAL FACULTY FOR THE PROGRAMME

Chairperson
Dr.-Ing. Shehzad Hasan

Associate Professors
1- Dr.-Ing. Shehzad Hasan
B.E. (Computer Systems);
M.Engg. (Computer Systems);
PhD (Germany)
2- Dr. Muhammad Ali Ismail  
B.E. (Computer & Info. Systems);  
M.Engg. (Computer Systems);  
PhD (NED)

3- Dr. Muhammad Khurram  
B.E. (Computer Systems);  
M.Engg. (Computer Systems)  
PhD (New Zealand)

Assistant Professors

1- Mr. Shahab Tahzeeb  
B.E. (Computer Systems);  
M.Engg. (Computer Systems)  
(PhD in progress from NED)

2- Syed Zaffar Qasim  
B.E. (Computer Systems);  
M.Engg. (Computer Systems)  
(PhD in progress from NED)

3- Ms. Anita Ali  
B.E. (Computer Systems);  
M.Engg. (Computer Systems)

4- Dr. Syed Abbas Ali  
B.E. (Computer Systems);  
M.Engg. (Electrical); PhD (NED)

5- Ms. Saneeha Ahmed (On higher studies abroad)  
B.E. (Computer & Info. Systems);  
M.Engg. (Computer Systems)

6- Dr. Muhammad Asad Arfeen  
B.E. (Computer & Info. Systems);  
M.Engg. (Computer Systems)  
PhD (New Zealand)

7- Ms. Hina Danish Khan  
B.E. (Computer & Info. Systems);  
M.Engg. (Computer Systems)

8- Ms. Maria Waqas  
B.E. (Computer Systems);  
M.Engg. (Computer Systems)  
(PhD in progress from NED)

9- Ms. Urooj Ain Uddin  
B.E. (Computer Systems);  
MS (Computer Engineering)  
(PhD in progress from NED)

10- Mr. Gul Munir Ujjan (On higher studies abroad)  
B.E. (Computer Systems);  
M.Engg. (Computer Systems)

11- Ms. Zareen Sadiq  
B.E. (Computer & Info. Systems);  
M.Engg. (Computer Systems)  
(PhD in progress from NED)

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

Applications in response to the advertisement for Master of Engineering (Computer Systems) shall be duly completed and submitted, personally or by registered post to:

The Chairperson  
Department of Computer & Information Systems Engineering  
NED University of Engineering & Technology  
Karachi 75270, Pakistan  
Phone No. 92-021-99261261-8  Ext: 2237  
E-mail: chaircsd@neduet.edu.pk
3.12 DEPARTMENT OF ELECTRONIC ENGINEERING

The Department of Electronic Engineering started its Master of Engineering Programme in January 2004 and ten batches of Masters have been conferred degrees, the last being in March 2016. Currently two batches 2014-2015 and 2015-2016 are in progress.

The Department is also administering the Master of Engineering in Telecommunications since January 2008 and seven batches have been conferred degrees, the last being in March 2016. Currently two batches 2014-2015 and 2015-2016 are in progress.

In addition to three Master of Engineering programmes, the department is offering PhD programme in allied fields since spring 2014. Currently there are twenty (20) PhD Scholars enrolled in the department working on variety of research areas.

3.12.1 Departmental Facilities

The Department of Electronic Engineering is located in the J-3 Block of the University. The Department contains eight class rooms, eleven laboratories with latest equipment, two computer centers, one conference room, fourteen faculty offices, one departmental library, one departmental office and one Instrumentation Centre.

The facilities for Telecommunications Master’s Programme contain four class rooms in its academic block, six laboratories, one computer centre and one office.

Laboratories of Department of Electronic Engineering are: Basic Electronics, Electronic Devices & Circuits, Integrated Circuits, Digital Electronics, Power and Industrial Electronics, Amplifiers and Oscillators, Programmable and Logic Controllers, VLSI, PCB Fabrication Laboratory and Project Laboratory.

Additionally there are six well equipped Telecommunications Laboratories PHS/WLL, Advanced Telecommunications, Antenna and Microwave Engineering, Telematics, Optical Fiber Communications and Radio Engineering Laboratory.

Computing Facilities

Air-conditioned computer laboratories of Department of Electronic Engineering are equipped with 55 Computers running licensed operating systems plus other licensed software.

The Telecommunications Programme is also supported with a separate computer center containing 34 PCs with licensed software.

There is access to email, internet, intranet and others online sources of information and services. Access to the internet is provided via a high speed connection through fiber-optic network. Printing and scanning facilities in the laboratory have been provided for the facilitation of students.

In addition the department has procured various types of software and a software library is available to students for multipurpose engineering needs.

Electronics Design Center

Electronic Design center consists of two research labs. Device. Characterization Lab(DC Lab) and Radio Frequency Lab(RF Lab). The Device Characterization (DC) lab is a multi-purpose laboratory for DC characterization of semiconductor devices and integrated circuits. The Radio Frequency (RF) lab is equipped with advanced equipment for measurement of RF and Microwave circuits. Besides these two labs circuit level and device level simulation tools, software packages and libraries are also available at EDC.

Research Interests

The Department intends to pursue research in following areas:

- Solid State Devices System
- VLSI Design and Fabrication, test and Reliability
- Microfabrication
- Micro-electro-mechanical System
- Optoelectronics Integrated Circuits
- Laser and Optical Fiber
- Instrumentation and Calibration
- Mechatronics
- Power Electronics, Industrial Electronics
- Embedded System Design
- Digital and Analog Signal Processing
- Fuzzy Logic and Intelligent Control Systems
- Radio Frequency Integrated Circuits
- Wireless communications
- Cognitive radios
- Antenna arrays
- Optical devices and networks
- Communication networks
- Microwave systems

3.12.2 Principal Faculty for the Programme

Chairperson

Prof. Syed Muhammad Usman Ali Shah

Professor

1- Prof. Dr. Attaullah Khawaja (on leave)
   Ph.D (Communication & Information Systems)
   M.Engg.(Electrical Engg.)
   B.E (Electrical Engg.)
Prospectus for Postgraduate Programmes

2. Prof. Dr. Syed Muhammad Usman Ali Shah  
   Ph.D. (Electronic Engg); Linkoping Uni, Sweden  
   M.Sc. (Electrical) NED  
   B.E. (Electronic) NED  

   **Associate Professors**  

1. Dr. Ghous Bakhsh Narejo  
   B.E. (Electrical); M.Engg. (Electronic); NED  
   Ph.D. (Electrical Engineering)  
   Michigan Tech., Michigan, USA  

2. Dr. Muhammad Imran Aslam  
   B.E. (Electrical); M.Engg. (Electrical); NED  
   Ph.D. (Electrical Engineering)  
   Michigan Tech., Michigan, USA  

3. Dr. Irfan Ahmed  
   B.E. (Electrical); M.Engg. (Electrical); NED  
   Ph.D. (Electrical Engineering)  
   Michigan Tech., Michigan, USA  

4. Dr. Adeel Razi (On Higher Studies Abroad)  
   B.E. (Electrical); NED  
   MSc. (Comm. Engg.); RWTH Aachen, Germany  
   Ph.D. (Electrical Engg.); UNSW, Australia  

   **Assistant Professors**  

1. Dr. Sadia Muniza Faraz  
   B.E. (Electrical); M.Engg. (Electronic); NED  
   Ph.D. (Semiconductor Devices); NED  

2. Dr. Syed Riaz Un Nabi Jafri  
   B.E. (Electronic); M.Engg. (Industrial Electronic)  
   Ph.D. (Robotics); Italy  

3. Dr. Hashim Raza Khan  
   B.E. (Electrical);  
   M.Sc. (Communications Engg.); Germany  
   Ph.D. (Electronics) NED  

4. Mr. Shahzad Siddiqi  
   B.E. (Electronic); M.Engg. (Communications); NED  

5. Mrs. Nida Qureshi  
   B.E. (Electronic); M.Engg. (Electronic)  

6. Mr. Amir Zeb  
   B.E. (Electrical); M.Engg. (Electrical); NED  

7. Ms. Sunila Akbar (On Higher Studies Abroad)  
   B.E. (Electrical); M.Engg. (Telecom)  

8. Ms. Saba Ahmed  
   B.E. (Electrical); M.E. (Telecom)  

9. Ms. Nida Nasir  
   B.E. (Electronic); M.Engg. (Telecom)  

10. Mr. M. Khurram Shaikh (On Higher Studies Abroad)  
    B.E. (Electrical); MSCS; USA  

11. Ms. Uzma Afsheen (On Higher Studies Abroad)  
    B.E. (Electrical); M.Engg. (Telecom)  

12. Ms. Shakila Bint Reyaz (On Higher Studies Abroad)  
    B.E. (Electrical); M.Engg. (Telecom)  

13. Mr. Tahir Malik (On Higher Studies Abroad)  
    B.E. (Electrical); NUST  
    M.Sc. (Comm. & Info. Systems); UK  

   In addition to regular faculty members  
   qualified personal in other departments and in  
   the city may be engaged for graduate teaching.  

   Applications in response to advertisement for  
   Master of Engineering (Electronic) and  
   (Telecommunications) Programmes should be duly  
   completed and submitted, personally or by  
   registered post to:  

   **The Chairperson**  
   Department of Electronic Engineering  
   NED University of Engineering & Technology  
   Karachi 75270, Pakistan  
   Ph. No: +92-21-99261261-68 Ext: 2270  
   Fax No: +92-21-99261255  
   E-mail: cld@neduet.edu.pk
3.13 DEPARTMENT OF MATERIALS ENGINEERING

The evolution and development of materials have led to the development of human cultures and industries. Every product is an aggregate of materials made in various types. Materials Engineering is an interdisciplinary field that addresses the structure, processing, and property relationships in materials for engineering applications. Basic principles of chemistry and physics are applied to provide an understanding of the structure of materials and the manner in which the structure determines the properties. Engineering processing methods are then applied to yield the necessary properties, which can then be integrated with, and designed to accommodate the needs of modern technology. In particular, as an academic field with great industrial fundamental and importance, it has a large ripple effect on all industries as well as a very broad and intensive scope of study.

The Department of Materials Engineering was established in 2006 at NED University, and is offering programmes for the award of Bachelors, Masters and Ph.D. degree in the field of Materials Engineering. The Masters programme is offered with specialisation in many innovative fields of Materials Engineering. The structure of the programme is designed to provide an interesting and stimulating learning experience to study the manufacturing, processing and characterisation of not only conventional iron and steels but also new innovative materials made with advanced properties.

The curriculum for Master’s degree is specifically designed to commensurate with the need of the industry and R&D at home and keeping in view of the recent research trends abroad in the field to impart quality education at standards equal to that of any international university in the field of materials. The Masters degree is awarded after successful completion of 30-credit hour’s course work. The Ph.D. programme in various advanced fields of the Materials Engineering is by full time research.

3.13.1 Departmental Facilities

The Department of Materials Engineering has modern teaching facilities and state of the art laboratories having equipment related to every field of materials engineering to complement its extensive in-class teaching, such as, but not limited to Processing and Characterisation of Materials and its synthesis etc.

The department has following fully functional state of the art laboratories:

1. Metallurgy
2. Optical Microscopy
3. Mechanical Testing
4. Hardness Testing
5. Impact Testing
6. Heat Treatment
7. Corrosion
8. Rapid Alloy Analysis
9. Non Destructive Testing (NDT)
10. Joining of Materials
11. Composite Materials
12. Magnetic Materials
13. Thermal Analysis
14. Nano Materials
15. Advanced Coatings
16. Surface Engineering
17. X-Ray Diffraction (XRD)
18. Advanced Ceramic Materials
19. Powder Materials Characterisation
20. Biomaterials Lab
21. Scanning Electron Microscopy
22. Advanced Materials Characterisation
23. Computer Modelling and Simulation
24. Sample Preparation

Research Areas

Department of Materials Engineering offers Master’s Program (M. Engg. (Materials)) and Ph.D. Program in following research areas of materials engineering:

- Smart Materials
- Biomaterials
- Functional Materials
- Nanomaterials
- Advanced Coatings
- Composite Materials
- Aerospace Materials
- Magnetic Materials
- Corrosion
- Superalloys
- Superconducting Materials
- Failure Analysis of Materials
- Advanced Steel

3.13.2 Principal Faculty for the Programme

**Acting Chairperson**

Dr. –Ing Umair Alam

**Associate Professor**

Dr. –Ing Umair Alam
BE (Textile Engg), NED UET
MSc (QSE), Germany
Ph.D. (Heat Transfer, Materials), Germany
(HEC Approved Ph.D Supervisor)

**Assistant Professor**

1. Dr. M. Sohail Hanif
   B. E. (Ind. & Mfg. Engg.) NEDUET;
   M.Engg. (Materials Engg.), NEDUET
   Ph.D. (Laser Welding Simulation), South Korea

2. Dr. Shahid Hussain
   B. E. (Met. & Mat. Engg.) MUET;
   M.Engg. (Materials Engg.), NEDUET
   Ph.D. (Nano & Functional Materials), South Korea

3. Engr. Fayaz Hussain (on higher studies abroad)
   B. E. (Met. & Mat. Engg.) MUET;
   M.Engg. (Materials Engg.), NEDUET

4. Engr. M. Sajid Ali Asghar (on higher studies abroad)
   B. E. (Met. & Mat. Engg.) MUET;
   M.Engg. (Materials Engg.), NEDUET

In addition to regular faculty members, qualified personnel from other departments of NEDUET, industry and R&D organisations in the city are also engaged for post-graduate teaching.

Applications in response to advertisement for Master of Engineering (Materials) Programme should be duly completed are required to be submitted, personally or by registered post to:

**The Chairperson**

Department of Materials Engineering,
NED University of Engineering and Technology,
Karachi-75270, Pakistan.
Ph. No: +92-21-99261261-8, Ext: 2388
+92-21-99261251
Fax No: +92-21-99261255
Email: cmm@neduet.edu.pk

Prospectus for Postgraduate Programmes
3.14 DEPARTMENT OF CHEMICAL ENGINEERING

Chemical Engineering retains a special position of great importance in modern economies; along with its role in the older industries, such as heavy chemicals, hydrocarbon processing, petrochemicals etc., it has emerged as discipline of key importance in new technologies including life sciences/biotechnology, food processing, plastics and polymers, fibers, ceramics, metals, glass and specialty chemicals. In addition, with concern over environmental degradation, the skills of chemical engineers are increasingly important for private business, government and international institutions.

Chemical Engineers with graduate qualifications contribute immensely to the establishment of industrial projects at several stages including product market studies, evaluation and selection of feedstock’s, process design, basic and detailed engineering, plant installation, testing, commissioning, and operation. There is an ever increasing place for post graduate chemical engineers in research.

Realizing the importance of Chemical Engineering, the department of Chemical Engineering was established under Mega Project. At present we are offering both Undergraduate and Postgraduate Programmes.

The postgraduate Programme is an evening Programme designed to accommodate working graduate engineering professional who are seeking to broaden their knowledge and deepen their technical skills to solve problems of local chemical and processing industries with greater responsibility. Students will apply their new skills immediately in their workplace environments. The Programme is also aimed to produce quality researchers and faculty members for local universities and institutions.

3.14.1 Departmental Facilities

Department of Chemical Engineering has fully equipped laboratories. Computer lab has the latest state-of-the-art software. The infrastructure consists of multimedia facilities, computer laboratories, Software and related facilities

Research Fields

The research interests of the department are mainly in the fields of CFD, Bio-Diesel Technology, Fuel Cell Technology, Fluidized Bed Reactors, Coal Gasification and Liquefaction of synthetic gas to synthetic Diesel.

3.14.2 Principal Faculty for the Programme

Chairperson

Prof. Dr. Inayatullah Memon

Professor

Prof. Dr. Inayatullah Memon
B.E. (Chemical, NED)
Ph.D. (Chemical, UK)

Assistant Professor

1- Mr. Rizwan Ahmed Qamar
B.E. (Chemical, IET, BZU-Multan)
M. Engg. (Chemical, NED)

2- Dr. Zahooor ul Hussain Awaz
B.E.(Mech) NED; M. Engg. (Chemical) NED;
Ph.D. (Chemical) South Korea

3- Dr. Saud Hashmi
B.E.(Chemical) DCET, M. Engg. (Env.) NED;
Ph.D. (Chemical, South Korea)

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

Applications in response to advertisement for Master of Engineering (Chemical) should be duly completed and submitted, personally or by registered post to:

The Chairperson
Department of Chemical Engineering,
NED University of Engineering & Technology,
Karachi-75270, Pakistan.
Ph. No. +92-21-99261261-68 Ext. 2286
Fax No. +92-21-99261255
Email: cec@neduet.edu.pk
3.15 DEPARTMENT OF POLYMER AND
PETROCHEMICAL ENGINEERING

Polymer engineering is a multidisciplinary and extremely important discipline in the current scenario of Pakistan’s industries. Polymers (plastics & composites) being the frontier materials for today’s civilization. The course curriculum is especially designed to fulfill the current needs of the polymer industry, research institutes and academia. It covers the practical problems of manufacturing, processing, and characterization of polymeric materials & composites. The main objective of the course on polymer engineering is to improve the knowledge of the undergraduate students to get better jobs in the relevant field or even start up their own business and produce quality researchers and faculty members for local and international universities and institutes.

The Department of Polymer & Petrochemical Engineering was established in 2007 at NED University. The department is offering Bachelors and Masters programme in the field of Polymer & Petrochemical Engineering. The department intends to start Ph. D programme also very soon. The Masters programme is offered with specialization in many advanced fields of the polymer engineering. As the programme is offered in evening it can easily accommodate working engineering professionals who want to broaden their knowledge and deepen their technical & computing skills notably related to the polymer industries.

3.15.1 Departmental Facilities

The department has in-house laboratory facilities in addition to the laboratory facilities available from the other departments of the NED University. Following laboratories are presently accessible to the department:

- XRD and Crystallography Lab
- Optical and Scanning Electron Microscopy Labs
- Advanced Materials Processing Lab
- Thermal Analysis Lab
- Mechanical Testing Lab
- Advanced Coatings Lab
- Nano Materials Lab
- Computer Modeling and Simulation Lab

Research Fields

- Polymeric Hollow Capsules for Controlled Released Applications
- Polymerization in Confined Spaces
- Controlled Radical Polymerization (RAFT)
- Polymer Rheology and Implication of Structure Development
- Polymer (Nano)Composites
- Bio-Polymers
- Polymeric Membranes

3.15.2 Principal Faculty for the Programme

Chairperson (Acting)

Prof. Dr. Kausar Ali Syed

Professor

Prof. Dr. Kausar Ali Syed
Ph.D. (Polymer), University Louis Pasteur, Strasbourg, France

Assistant Professors

1- Dr. Syed Imran Ali
Ph.D. (Polymer Tech.), Eindhoven University of Technology, the Netherlands

2- Dr. Rafiq Ahmed
Ph.D. (Polymer Tech.), Eindhoven University of Technology, the Netherlands

3- Engr. Raza Muhammad Khan
B.E. (Polymer Engrg.), Hamdard University
M.Sc. (Advanced Materials Engrg.) Uni of Bradford, UK

4- Engr. Asim Mushtaq
B.E. (Chemical Engrg.), NED UET
Ph.D. (in progress), University of Petronas, Malaysia

In addition to the regular faculty members qualified personnel from other departments of NED UET, industry and R & D organizations in the city are also engaged for post graduate teaching.

Applications in response to the advertisement for Masters of Engineering (Polymer) programme should be duly completed and submitted personally or by registered post to:

The Chairperson
Department of Polymer & Petrochemical Engineering
NED University of Engineering & Technology, Karachi-75270, Pakistan
Ph. No.: 021-99261261-8 Ext. 2404
Fax No.: 021-99261255
Email: cpp@neduet.edu.pk
3.16 DEPARTMENT OF BIOMEDICAL ENGINEERING

Biomedical Engineering, a discipline at the confluence of physical and biological sciences has uncovered new horizons for solving complex biological problems by exploiting engineering principles and techniques. It is the fastest growing field in the world that has evolved from being an interdisciplinary specialisation to establishing itself as an independent field. The purpose of Biomedical Engineering remains well-grounded in refining the standard of living of individuals’, and more comprehensively extends to breakthroughs in improved diagnostic and therapeutic tools, design of medical instruments and prostheses, micro and nano implants; from regenerative cell tissue modalities to tailor made drugs employing the human genome, to gene therapies addressing genetic diseases.

Addressing present day intricacies and keeping at pace with the world, NED University of Engineering & Technology has taken an imperative step in establishing Biomedical Engineering Department at LEJ campus with the aim to produce healthcare professionals who through their in-depth understanding of living systems and technology essentials will not only be able to address existing problems but will also transform the health industry with innovative ventures. Recently, the fifth batch of Biomedical Engineering has graduated.

In Pakistan, Biomedical Engineering is generally regarded as an extension of Electronics Engineering and doctors in large also subscribe to this view. The reality is very different. Almost all branches of engineering have a share in the development of this new field.

The Masters Programme is being offered to essentially raise the level of knowledge in Biomedical Engineering. The courses offered would have strong inclination towards research and development in this field. The type of courses offered would enable medical professionals to teach and carry out research alongside with engineers.

3.16.1 Departmental Facilities

The department is equipped with following laboratories
1. Computing Laboratory 2. Gait Laboratory
3. Robotics Laboratory 4. Anatomy Laboratory
5. Physiology Laboratory 6. Biochemistry Laboratory
7. Bioinstrumentation Laboratory

Research Fields

The current research interests of the department are as follows:
- Clinical Gait Analysis
- Rehabilitation
- Bioinstrumentation
- Clinical Gait Analysis
- Biomechanics
- Biomechanical Analysis
3.17 DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

NED University, responding to the growing demand of Computer Professionals, introduced in 1985 a postgraduate programme leading to the degree of M.Sc. in Computer Science under the Department of Mathematics & Basic Sciences. Furthermore, to address the fast emerging technology and human resource requirements, a four-year Bachelor of Computer Science & Information Technology (BCIT) programme was also introduced in 1998.

Realizing the importance of advancement in Computer Science and Information Technology and to meet the requirement of the fast growing field, the Department of Mathematics & Basic Sciences was bifurcated in 2002 and a separate department, the Department of Computer Science & Information Technology (CS & IT) was established.

The first batch of BCIT programme passed out in 2003. Our graduates are well perceived and sought after by the industry where they have been successful in securing suitable positions. Good numbers have obtained admission in Master’s programmes in foreign universities. The demand for Computer Science graduates in the flourishing IT industry continues to multiply, providing excellent prospects for those with high quality skill sets. To augment this academic level and to improve the quality of IT skills, the MCIT postgraduate programme with specialization in Computer Science & Information Technology was initiated in 2003 by CS & IT department. This programme covers the state-of-the-art technology in Computing and IT Industries, the rigid computing and software engineering foundations of the discipline and the ability to contribute in large software engineering projects. It is designed to meet the needs of students who want to improve core computing skills, or who are working IT professionals and want to strengthen their computing foundations with a view towards new and emerging technologies.

In 2014, the MCIT programme has been renamed MS (CSIT) for batches 2014 and onwards. Additionally, a new specialization stream has been initiated in the MS programme, thus two specialization streams are offered; Computer Science and Information Technology i.e. MS (CSIT), and Information Security i.e. MS (IS).

The MS (IS) specialization stream was conceived as the ubiquitous use of computers in every facet of our lives has created serious challenges to the security of national information systems and there is a severe shortage of Information Security specialists in the industry. Commencing from Fall 2014 Semester, the MS (IS) stream will enable students to attain in-depth knowledge of system and managerial aspects of information security, so that they can actively contribute to the prevention, detection and management of security threats, and the development of secured systems. These specialization are also offered as weekend programmes.

3.17.1 Departmental Facilities

The Department has the following physical resources:

Infrastructure:

- The Department is housed in three blocks:
  1. Chairman and Faculty Offices
  2. Lecture rooms
  3. Laboratories

Computing Facilities:

- The Department currently possesses six spacious computer laboratories, equipped with latest state of the art resources which are constantly upgraded with evolving trends and emerging technologies as needed.

  Computer laboratories are equipped with the following:
  1. Fujitsu/Siemens TX300 Servers with adequate software and accessories.
  2. SUN Enterprise 250 Server with adequate accessories and software.
  4. Apple Core2 Duo iMac Computers with latest graphics software.
  5. Intel Core i5 Computers.
  6. Intel Core2 Quad/Pentium-D workstations connected to all the servers using TCP/IP and other network protocols.
  10. CISCO Laboratory with varied routers, switches, PIX firewall, ISDN Simulators and related software.
  11. All the Computers in the Department have high speed Copper and Fiber Connectivity as well as wireless connectivity.
  12. High speed Internet facility.
3.17.2 Number of seats and eligibility requirement

For admission in Master’s programme there are (30) seats available in each specialization i.e. MS (CSIT) and MS (IS).

For eligibility candidates must have HEC recognized degree in any of the following:

a) BS (CSIT) or equivalent
b) Any Engineering/ Architecture degree or equivalent
c) BS Electronics / Telecommunications / Software Engineering
d) M.Sc / BS Applied Mathematics/ Applied Physics/Statistics with First division or CGPA 2.4 / 4.0.

Admission in MS (IS) stream will be on open merit policy for all eligible candidates without any specific quota. However, for admission to the MS (CSIT) programme, available seats are distributed under the following categories:

(a) BS (CSIT), four (04) years programme from NED University of Engineering and Technology or an equivalent qualification. (20) Seats

(b) All eligible degrees other than BS (CSIT) or equivalent. (10) Seats

Note: Seats not filled shall be transferred to the Graduates of Computer Science & Information Technology, i.e. Category (a).

3.17.3 Principal Faculty for the Programme

Chairperson

Prof. Dr. Najmi Ghani Haider

Co-Chairperson

Prof. Dr. Sohail Abdul Sattar

Professors

1. Prof. Dr. Najmi Ghani Haider
   B.Sc. (Hons) Electronic Engineering (Hull, UK), Ph.D. (Brunel, UK)

2. Prof. Dr. Sohail Abdul Sattar
   B.E. (Mech. Engg., NED); MCS (Computer Science) KU; M.Sc. (Computer Science) NED; Ph.D. (Computer Science) NED

Associate Professors

1. Dr. Sh. M. Wahabuddin Usmani
   B.E. (Electronics, DCET); M.Sc. (Computer Science) NED; Ph.D. (Computer Science) NED; Diploma (Computer Science, SBTE)

2. Dr. Najeed Ahmed Khan
   M.Sc. (Computer Science) NED; M.Sc. (Maths) (Gold Medal); Ph.D. (Computer Science) Leeds, UK

3. Dr. Muhammad Mubashir Khan
   M.Sc. (Telecom), Univ. of Sindh; MCIT (by Research) NED; Ph.D. (Computer Science) Leeds, UK

Assistant Professors

1. Dr. Saman Hina
   BS (Computer Science), SSUET; MCIT (NED); Ph.D. (Computer Science) Leeds, UK

2. Ms. Saba Izhar Haque
   B.Sc. (Hons) UMIST, UK; M.Phil. (Computation) UMIST, UK

3. Dr. Shariq Mahmood Khan
   BCIT (NED); MCIT (NED); Ph.D (Computer Engg.) Brunel, UK

4. Dr. Shehnilla Zardari
   B.E. (Software) MUET, Jamshoro; M.E. (Comm. Sys. & Network), MUET, Jamshoro; Ph.D. (Software Engg.) Birmingham, UK

5. Engr. Raheela Asif
   B.E. (CIS, NED); MCIT (NED)

In addition to regular faculty members, qualified and experienced personnel in other departments of NED University of Engineering and Technology, and in the city may be engaged for graduate teaching.

Applications in response to advertisement for Master of Computer Science and Information Technology shall be duly completed and submitted, in person or by registered post, to:

The Chairperson
Department of Computer Science & Information Technology
NED University of Engineering & Technology
Karachi 75270, Pakistan
Phone No. 92-21-99261261-8 Ext: 2399
Fax No. 92-21-99261255
E-mail: chairsit@neduet.edu.pk
3.18 DEPARTMENT OF MATHEMATICS

The Department of Mathematics & Sciences was established along with the engineering departments at NED University. In 2010 an independent Department of Mathematics was established to cater to the requirements of Mathematics in all the disciplines being taught at the University, and furthermore, to initiate its own degree programmes. The Department has launched a MS programme in Applied Mathematics with the objective of imparting strong theoretical knowledge reinforced with skills in utilising software tools for mathematical applications in different professions. This programme commenced from July 2011, and has now successfully completed two years.

Realising the requirements of educational, professional institutions and organisations, mathematician with computing skills would be an attractive proposition to potential employers. The structure of the programme has been designed in a manner such that the applicants have the option to completing this programme through course work only, course work and an independent study project or course work with dissertation.

The MS in Applied Mathematics is an evening programme beneficial to both engineering and science graduates. The motivation in initiating the programme is to encourage multi-disciplinary research by offering opportunities for higher studies to fresh graduates as well as experienced graduates employed in industry and other professional sectors, and to provide a route towards a Ph.D degree to those desiring to do so.

3.18.1 Departmental Facilities

Computing Facilities

3. Multimedia/Overhead Projectors and other audio visual facilities.
4. All the Computers in the department are connected over high speed Copper and Fibre.
5. High speed Internet facility.

3.18.2 Principal Faculty for the Programme

Chairperson

Prof. Dr. Mirza Mahmood Baig

Professor

Dr. Mirza Mahmood Baig

MS. (Maths) (KU); MS. (Comp. Sc.) NEDUET

Ph. D (Comp. Sc.) NEDUET; Member KMA

Associate Professor

Mr. Athar Hussain
MS. (Maths) (KU); Member KMA

Assistant Professors

1. Mr. Umar Faryaz
B.Sc. (Hons) (KU); M.S. (Maths) (KU)

M.Sc. (Comp Sc.) NEDUET

2. Mr. Javed Ahmed Siddiqui
B.Sc. (Hons) (KU); M.S. (Maths) (KU)

3. Dr. Mushtaque Hussain (On higher studies abroad)

M.Sc. (Maths) (Islamabad); PGD (Comp Sc.) (KU)

4. Ms. Razia Shaheen
B.Sc (Hons) (KU); M.Sc (Maths) (KU)

M Phil (KU)

5. Dr. Muhammad Jamil
B.Sc. (Hons) (KU); M.Sc. (Maths) (KU)

M.Phil. (KU); Ph.D. (Maths) (G.C. University, Lahore)

6. Mr. Fareed Ahmed
B.Sc. (Hons) (KU); M.Sc. (Maths) (KU)

MS. (Comp Sc.) (NEDUET)

7. Dr. Azam Khan
MS. (Maths KU); Ph.D. (Linkoping University, Sweden)

8. Dr. Kamran Zakaria
MS. (IBM) (KU); (DAE CS); (DAE Java Programme); Ph.D. (Maths) FUUAST

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

Applications in response to advertisement for MS in Applied Mathematics shall be duly completed and submitted, personally or be registered post to:

The Chairperson
Department of Mathematics
NED University of Engineering & Technology
Karachi 75270, Pakistan
Ph No. +92-21-99261261-8 Ext: 2609
Fax No. +92-21-99261255
E-mail: cdm@neduet.edu.pk
3.19 DEPARTMENT OF PHYSICS

Introduction
The Department of Physics has been established as an independent department in 2010. Initially it was serving as a supporting department which offers both theoretical and practical courses in Physics to undergraduate level of engineering students. Physics is an exciting subject which aims to explain how things work from the smallest to the largest of scales, from nanotechnology to the universe itself. The tremendous growth in science and technology in the last few decades is in one way or the other, related to or based on fundamental principles of Physics. Physics has been essential in the development of technologies such as the microchip, information technology, data storage, fibre optic communication, satellite navigation and mobile phones which are transforming the infrastructure of society. As a result, modern industry has been transformed by development in computation, robotics and automation, instrumentation, and miniaturization. Indeed, there are entire industries which have grown out of development in specific areas of physics such as semiconductor device physics, optics, laser physics and medical physics. In addition to its importance to technology and industry, physics plays a fundamental role in affecting the attitude and behaviour of society.

Realising the importance of Physics in the development of new technologies, a MS Programme in Physics has been launched. The purpose of this Programme is to produce scientifically and technologically motivated graduates (a) to promote interdisciplinary research among the students and the faculty, and (b) to enhance their employability in industry and other related fields. The structure of the Programme has been designed in such a manner that research-orientated graduates can undertake research projects.

The MS in Physics is an evening programme for which the engineering and science graduates, having completed sixteen years of education are eligible. An intensive course on Experiments in Advanced Physics would be a novel feature of this Programme enabling the students to get hands on experience in using standard laboratory instruments/techniques. It is aimed that the graduate of this Programme will be able to get jobs in science and related industry.

3.19.1 Departmental Facilities
Department of Physics is a newly established Department. It is housed in two buildings:

1. Chairman Office
2. Laboratories

The Department of Physics has two Physics Laboratories well equipped with some classical and modern equipment. Extensive computing facilities with high speed Internet facilities will also be available to the students.

3.19.2 Principal Faculty for the Programme:

Chairperson
Prof. Dr. Saqib Anjum

Professor
Prof. Dr. Saqib Anjum
HEC approved Ph.D. Supervisor

Assistant Professor
1. Syed Muhammad Noaman
M.Sc. (Applied Physics) KU; M.Sc. (Comp. Sci.) NED;

2. Mr. Tahir Jamal
B.Sc. (Hons) KU; M.Sc. (Phy) KU;

In addition to the regular faculty members, qualified professionals from the other departments in the university, as well as professionals working in the city may be engaged for graduate teaching.

Applications in response to advertisement for MS in Physics shall be duly completed and submitted, personally or by registered post to:

The Chairperson
Department of Physics
NED University of Engineering & Technology
University Road, Karachi - 75270, Pakistan
Ph.: (92-21) 99261261-8
Fax : (92-21) 99261255
Email: chairmbs@neduet.edu.pk
3.20 DEPARTMENT OF CHEMISTRY

Introduction

The Department of Chemistry has been established as an independent full-fledge department from Department of Mathematics and Basic Sciences in 2010. Since its establishment as an independent department, it was felt that it is the right moment to start the MS programme in Industrial Chemistry.

Chemistry is very important in modern science and technology and essential for the material progress of the world. Chemistry products are used in one form or another in practically every other industry before eventually emerging as part of our daily lives. After realizing the vital role of chemistry as an applied science in diverse areas that influence human society, the department is now offering a MS degree programme in Industrial Chemistry. Industrial chemistry focuses on the development, optimization and monitoring of fundamental chemical processes used in industry for transforming raw materials and precursors into useful commercial products for society.

MS programme is designed to fill the gap between academic studies and expectations of industry. Graduates of this programme would be able to conduct qualitative and quantitative chemical analysis after having sound knowledge of modern instrumental techniques for quality and/or process control. The theoretical aspects of the programme ensure a strong grounding in the different areas of chemistry.

The “MS in Industrial Chemistry” is a five semester evening programme encompassing the engineering and science graduates, having completed sixteen years of education. The graduates are likely to join the respective industries both locally and abroad. They will be finding employment in manufacturing and processing industries, as well as in industries related to paint, chemical, pharmaceuticals and agrochemicals. Education and research would also be open to them if they preferred employment in these professions. The graduate of this programme will also be able to pursue higher studies if they desire to do so.

3.20.1 Departmental Facilities

Department of Chemistry is a newly established Department. It is housed in two buildings.

- Chairman Office
- Laboratories

Department has two chemistry laboratories well equipped with all necessary practical facilities. Extensive computing facilities may also be accessible to the students.

3.20.2 Principal Faculty for the Programme

Chairperson (Acting)

Prof. Dr. Saqib Anjum

Associate Professor

Dr. Nuzhat Arshad
Ph.D. (Austria); M.Sc. (Organic Chemistry) (KU);
HEC Approved Ph.D. Supervisor

Assistant Professor

1. Mr. Muhammad Ansar Khan
   M.Sc. (Applied Chemistry) KU;
   M.E (Chemical Engg) Uni of Detroit Mercy, USA

2. Syed Ghazanfar Hussain
   M.Sc. (Physical Chemistry) (GOLD MEDAL) KU;

3. Dr. Amtul Qayoom
   Ph.D. (KU); M.Sc. (Analytical Chemistry) (UoS);

4. Dr. Kashif Ahmed
   Ph.D. (Chemistry) FUJUAST; M.Sc. (Chemistry) (UoS);

In addition to the regular faculty members, qualified personnel from other departments in the university, as well as professionals working in the related industries may be engaged for graduate teaching.

Applications in response to advertisement for MS in Industrial Chemistry shall be duly completed and submitted, personally or by registered post to:

The Chairperson
Department of Chemistry
NED University of Engineering & Technology
University Road, Karachi - 75270, Pakistan
Ph: (92-21) 99261261-8
Fax : (92-21) 99261255
Email : chairmbs@nEDUet.edu.pk
3.21 DEPARTMENT OF HUMANITIES

The Department of Humanities at NED University was established in 1977. It has expanded remarkably over the last thirty eight years in terms of faculty, scope of subjects, courses, and the academic and professional activities – a sign of a vibrant academic culture and a dynamic professional community prevailing at the department.

The department offers undergraduate courses in all engineering and information technology, basic sciences, management and social sciences, and architecture programmes. These courses are related to diverse subject areas including: English Language, Communication skills, Islamic studies, Ethical Behaviour, Pakistan Studies, Business and Technical communication, Organizational Behaviour, Entrepreneurship, Logic and Critical Thinking, and Engineering and Professional Ethics.

Besides the core academic support, the Department offers a vast range of short courses and certifications for students and faculty such as: Foreign Languages Programme in Arabic, French and German, GRE & IELTS Preparatory Classes, Modular Courses in English Oral Proficiency. These courses are conducted directly and in certain cases in collaboration with renowned organizations.

3.21.1 Department Facilities

The department is housed in two spacious buildings consisting of two large and two small classrooms, one lecture theatre, one seminar library and resource room beside faculty and staff offices. The seminar library is being used as a reading room by the MS students, and houses computing and printing facilities for permanent and visiting faculty for academic and research activities.

MS in Applied Linguistics Programme

With increased emphasis on social sciences, the department is all set to append further courses to make a more meaningful contribution to the different study programmes at the varsity. The department has been successfully running MS Applied Linguistics programme since 2013. The programme was conceived and launched considering the serious shortage of qualified and competent English Language Teachers (ELTs). The Department has strategically developed the expertise and the Infrastructure required to initiate and sustain academic, professional and research related activities mandatory for the training of quality ELTs. Its English Language activities provide the experiential learning that is so vital to induce quality in the applied linguistics programme. The English for academic and specific purposes, the syllabus and materials development, the language testing, assessment and evaluation offer a real hands-on learning and transformation experience to the students enrolled with the department.

The department has an active applied linguistics research group that is consistently producing contextualized empirical research related with English Language. This has ultimately helped the department and the core language faculty in creating a distinct niche in the Applied Linguistics & English Language community. Through active professional networks with individuals and organizations, the department is collaborating on mutually beneficial projects and strengthening its outreach. The Research Special Interest Group of SPELT is primarily one such initiative where the faculty within the department is playing a key role.

MS Programme Details

MSAL is an Afternoon Programme. The programme is structured around four semesters. Semester one and two have course work only and semester three and four have MS Dissertation or Independent Study Project(ISP).

Eligibility Criteria for Seeking Admission

The candidate should possess 16 years education in English in the relevant area or equivalent in the relevant fields with second division and above in annual system of education / minimum 2.4/4.0 CGPA in semester system education.

- Candidates with BS English 4 years
- Candidates with MA English (Language/Linguistics)
- Candidates with MA English (Literature & Linguistics) *
- Candidates with MA (Literature)*

* Candidates are required to complete Customised Courses. This requirement is not to complete certain number of credit hours for 16 years education rather it is to ensure their background knowledge in
theoretical linguistics which may vary across programmes offered at different universities.

3.21.2 Research Fields


3.21.3 Principal Faculty for the Programme

Chairperson

Prof. Dr. Sajida Zaki

Professor

Prof. Dr. Sajida Zaki
PhD (Applied Linguistics)
M. A. English (Linguistics)

Assistant Professor

Dr. Muhammad Fareed
PhD, Edu. (English Language Teaching)
M. Phil, Edu. (English Language Teaching)
M. A. English (Literature & Linguistics)

In addition to regular faculty members, linguistics and applied linguistics professionals are engaged as adjunct and visiting faculty for teaching and research.

Applications in response to advertisement for Master’s in Applied Linguistics should be duly completed and submitted personally or by registered post to:

The Chairperson
Department of Humanities
NED University of Engineering & Technology
University Road, Karachi-75270, Pakistan
Ph: 021-99261261-68 (Ext. 2208)
Fax: 021-99261255
Email: chd@neduet.edu.pk