



**MAKING
POSSIBILITY
REALITY**



**B.Sc. (Engg.)
ELECTRICAL
ENGINEERING**

PROSPECTUS

2022

www.pu.edu.pk

DISCLAIMER

The prospectus is informational and should not be taken as binding on the Faculty. Each aspect of the educational setup, ranging from the admission procedure to the examination regulations or discipline, requires continual review by the competent authorities. The Faculty, therefore, reserves the right to change/amend any rule/s and regulations applicable to students whenever it is deemed appropriate or necessary.

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The UNIVERSITY

Established in Lahore in **1882**, University of Punjab is the largest and the oldest seat of higher learning in Pakistan. It was the first to be established in the sub-continent in a Muslim majority area. Located in the historical and culturally alive city of Lahore, this university has played a leading role in spreading higher education in the country. The University strives to provide a conducive environment for the pursuit of academic activities. On account of its highly qualified and internationalized faculty, pleasant environment, and low tuition fees, the university remains the institution of the first choice for students.



Message

THE WORTHY Vice-Chancellor

The University of the Punjab is the leading University of Pakistan. It has maintained its excellence in education, training and research in various fields of arts, social sciences, engineering and technology. The University aims to maintain high standards of quality education compatible with national needs and comparable to international academia of repute. It has always attracted talented students coming from all walks of life and regions within its territorial limits and all provinces of Pakistan under exchange program. The University recognizes an integrated and inter-disciplinary approach to coordinate and cooperative teaching among the various disciplines belonging to different faculties of constituent parts of the University under one umbrella. The Faculty of Engineering & Technology is one of the most developed faculties of the University. It has developed since 1917 with a long history of dedicated and devoted teachers and researchers in various fields of Engineering & Technology. The alumni of this Institution are serving at higher professional positions in industrial/research organizations and universities at home and abroad. The Faculty of Engineering & Technology was restructured in **2021** three faculties were established from FET. These are Faculty of Chemical & Materials Engineering (FCME), Faculty of Electrical, Energy & Environmental Engineering (FEEEE) and Faculty of Quality & Industrial Systems Engineering (FQISE). FEEEE comprises of Institute of Electrical, Electronics & Computer Engineering, Institute of Energy & Environmental Engineering and Energy Engineering Research & Development Centre. These Institutes offer variety of cutting edge engineering programs at graduate and post-graduate levels. The Faculty of Engineering & Technology was restructured in **2021** three faculties were established from FET. These are Faculty of Chemical & Materials Engineering (FCME), Faculty of Electrical, Energy & Environmental Engineering (FEEEE) and Faculty of Quality & Industrial Systems Engineering (FQISE). FEEEE comprises of Institute of Electrical, Electronics & Computer Engineering, Institute of Energy & Environmental Engineering and Energy Engineering Research & Development Centre. These Institutes offer variety of cutting edge engineering programs at graduate and post-graduate levels. The University is committed to provide best possible facilities in terms of faculty staff, laboratories, libraries and environment for R&D activities leading to higher degrees. I hope that the talented candidates will be joining the engineering degree courses with the strong commitment to keep up the tradition of this oldest and largest Institution of higher learning in the subcontinent and help maintain the flag of the University high in the sky.

PROF. DR. ASGHAR ZAIDI
Vice Chancellor



Message

DEAN, Faculty of Electrical, Energy & Environmental Engineering

Welcome to the newly established faculty of Electrical, Energy and Environmental Engineering, University of the Punjab, Lahore. We strive in providing the capacity and professional development opportunities in the field of Electrical, Energy and Environmental Engineering coupled with fundamental knowledge, skills and practical exposure to meet present and future demands of relevant industrial and societal sectors. The faculty of Electrical, Energy and Environmental Engineering comprises of two Institutes offering undergraduate and postgraduate engineering programs with an energy engineering research and development centre: (a) Institute of Electrical, Electronics and Computer Engineering (IEECE) and (b) Institute of Energy and Environmental Engineering (IEEE). IEECE offers interdisciplinary Electrical Engineering programs based on a blend of knowledge from the areas of Electrical, Electronics and Telecommunication Engineering. IEECE has a wider spectrum of programs encapsulating perspective focus on power generation and transmission, telecommunication, electronics, sustainability, risk and reliability related problems and their troubleshooting. In addition to the ongoing degree programs (B.Sc. (Engg.) Electrical Engineering) IEECE has also been organizing conferences and seminars; a series of workshops on hi-tech analytical facilities. IEECE aims to achieve and maintain national and international recognition for excellence in its chosen fields and to provide a quality education for the formation of professional engineers, enabling them to fulfil their career potential and contribute to the advancement of their profession and to the welfare of society, not only in Pakistan but also for the whole World. The Institute is committed to achieving these aims within the framework of a caring, friendly, learning environment. IEECE is dedicated to providing the global society with technology leadership for a broad base of commercially viable sectors. The design of courses has been setup in such a way so that it can provide expertise, and in turn, job opportunities for the graduates of this institute (previously department) in both public and private sectors such as Cellular Phone companies, Computer related companies, power sector e.g. WAPDA, LESCO NTDC etc., Government and Private TV channels, SUPRACO, PTCL, Alcatel, CATI and many other organizations. In the growing demand of electrical, energy and environmental fields, engineers are responsible to uplift the status of a country. Our goal is to position the engineering graduates as dynamic, highly competent and potential leaders across the breadth of electrical, energy and environmental engineering disciplines and beyond. Faculty have various courses designed to develop proficient understanding, policymaking, critical evaluation and practical approaches specific to engineering applications mainly linked to energy, power, and industrial operation. The quality of the offered programs are ensured by a continuous quality improvement philosophy in the spirit of outcome based education that is further enhanced by a variety of faculty initiatives such as enabling our student graduating with research skills and professional practice. The academic staff members of the faculty are foreign qualified, highly competent, dedicated, knowledgeable, and adequately capable of shaping the future engineers. Faculty of Electrical, Energy and Environmental Engineering invites students to realise their career goals and become active participants in the pursuit of engineering excellence to become productive part of societies.

PROF. Dr. HAMED SATTAR

DEAN

FACULTY OF ELECTRICAL, ENERGY & ENVIRONMENTAL ENGINEERING



Message

DIRECTOR Institute of Electrical, Electronics & Computer Engineering

I am pleased that you are considering studying Electrical Engineering at University of the Punjab, an institution renowned for research, teaching and learning excellence. The Institute of Electrical, Electronics and Computer Engineering offers a full range of Electrical Engineering streams: Power, Telecommunication and Electronics. Our undergraduate Program has been carefully designed to ensure that each student is well prepared for the working environment of the 21st century. Many of our graduates have jobs before they qualify and almost all have jobs within a few months after graduating, unless they choose for a specific reason not to enter formal employment. We are distinct in that studying at this institute will expose you to some of the best researchers and teachers in the world. The quality of your education is directly related to the quality of the faculty staff teaching and training you. Researchers of outstanding quality teach, and teachers of outstanding quality do research, so that the latest scholarly work, teaching methods and practical experience is incorporated into your curriculum. All the batches graduated yet are accredited by Pakistan Engineering Council. Recently this Institute has achieved another milestone by attainment of Level II, OBE based PEC accreditation proving our determination of providing quality education to our students. We aim to prepare leaders for the future. You will acquire an education that extends beyond the classroom curriculum by engaging experts from the industries. You will have the opportunity to hone your leadership skills through engagement in societies. We prepare our graduates for the globalized world of work. In this regard, we shape opportunities for students to engage with student groups. You will study with students from all over the country and you will make new and lasting friendships. Your time at university should be most exciting and fulfilling. We are committed to supporting you all the way to the date of your graduation, and to extending our relationship with you as an alumnus to many, many years after you have studied here. We are keen to attract talented, committed students. We have many programs and different options of support in terms of academic work, social engagement and, importantly, financial aid. We recognize that higher education is unaffordable to many. But at University of the Punjab, University provide the financial assistance to make it possible for the poorest of students to succeed. I hope the prospectus will give you a glimpse into student life on our campus and thus help you make your decision. Look forward to welcoming you to Institute of Electrical, Electronics & Computer Engineering this year .

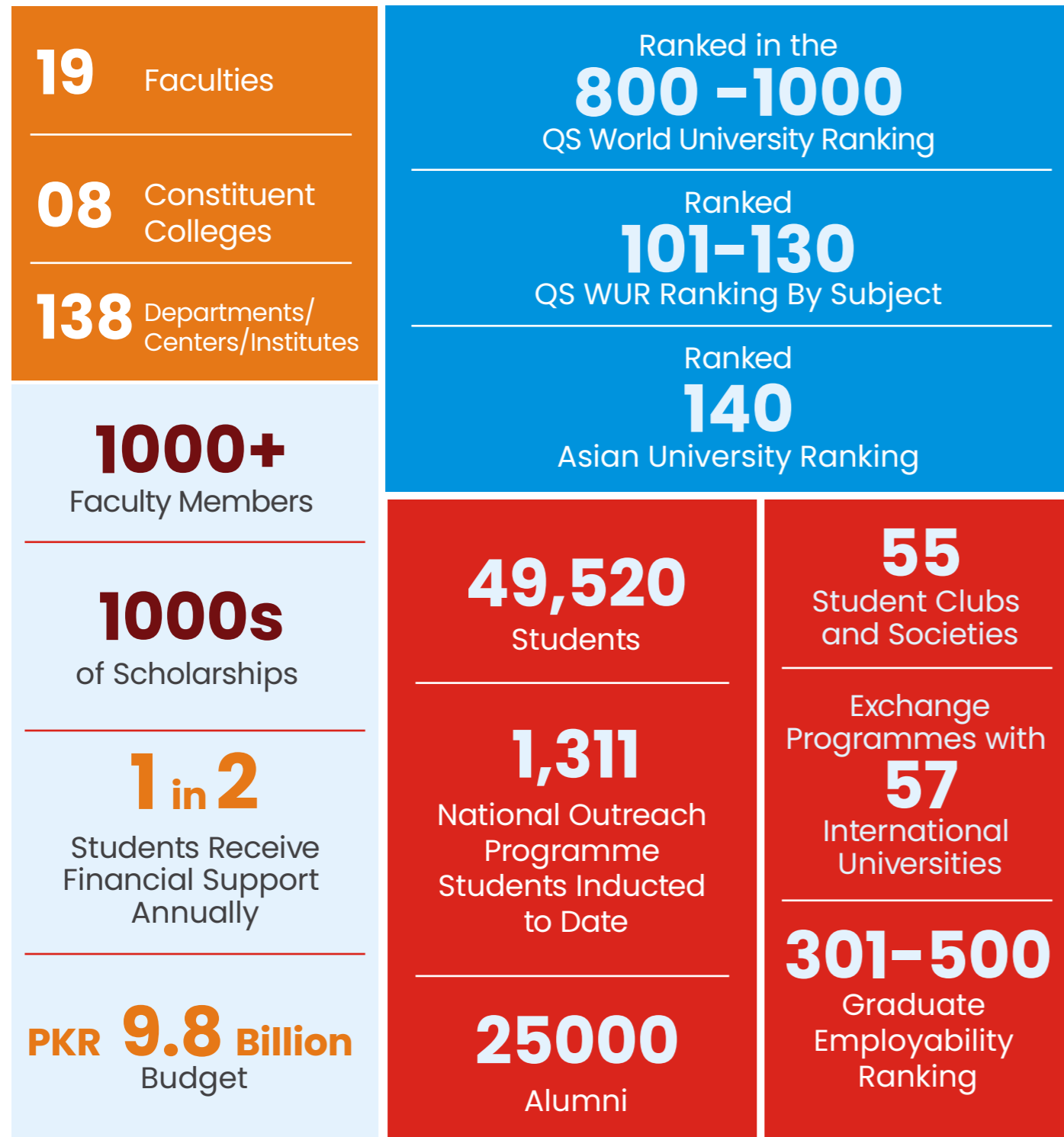
PROF. Dr. MUHAMMAD AZHAR NAEEM

DIRECTOR

Institute of Electrical, Electronics & Computer Engineering



Why UNIVERSITY OF THE PUNJAB?



MISSION

“To provide a holistic education as such an approach has a twofold benefits. The first is that young people are nurtured to be sensitive, tolerant, humane and capable of thinking in a creative and critical way. The second is, that armed with a sense of history and equipped with knowledge and expertise, the graduates whom we send out into the world are in a better position to develop their leadership potential and make a positive contribution to the public life. We hope that understanding as they do, their role in the wider community of human kind and responsible to it, their action and attitudes will reflect their education.”

VISION

University of the Punjab intends to be a leading public university in providing affordable educational opportunities to develop scientific, socio-cultural, economic and political leadership, through learner-centered teaching and research, while strengthening our identity at National and International level.



Institute of Electrical Electronics & Computer Engineering

Brief History

Institute of Electrical, Electronics & Computer Engineering (IEECE) formerly Department of Electrical Engineering was founded in **2004** under the College of Engineering and emerging technologies (CEET) that offers the B.Sc. (Engg.) degree in Electrical Engineering with specialization in **Power Engineering**, **Telecommunication Engineering** and **Electronics Engineering** to meet the increasing demand for highly educated engineering graduates. Electrical Engineering has been, and continues to be, one of the most challenging and at the same time, rewarding professions of modern society. Electrical Engineers continue to provide both technology and technological leadership for developments in numerous fields including computers, Computer-Aided Engineering, Telecommunications, Automatic Control, Optics, Semiconductors, Nano-technology, and Energy conservation. Since its inception, the Institute has been active in recruiting outstanding new faculty members to support its teaching and research activities and we continuously add significantly to this faculty base. Our young faculty members have tremendous potential to change the traditional way of thinking about engineering education, pedagogy and research excellence. The Institute strives for continuous improvement and we continue to update the Institute's undergraduate curricula to better meet the needs of today's students and tomorrow's practicing engineering, as well as for students who want a strong technical background. We welcome talented students to join this program to shoulder the responsibility as Electrical Engineers in building our nation and assisting all other engineering disciplines as needed by the society and industry. The department was upgraded to Institute of Electrical Electronics & Computer Engineering in **2021** under Faculty of Electrical Energy & Environmental Engineering. With the upgradation, now the Institute is launching new programs of different levels. First batch of MS Electrical Engineering program got enrolled in the year **2021**. The Institute is planning to launch B.Sc. Computer Engineering, PhD Electrical Engineering, BS Biomedical Technology, BS Control & Instrumentation Technology, MSc Computer Engineering and PhD Computer Engineering programs in next 5 years. Computer Engineering program is at the verge of start in this phase.

Degrees offered at IEECE:

| | Degree | Duration |
|----|---------------------------------------|-----------------|
| 1. | B.Sc. (Engg.) Electrical Engineering* | 4 years |
| 2. | M.Sc. (Engg.) Electrical Engineering | 2 years |

***B.Sc. (Engg.) program is accredited by PEC at LEVEL II.**

***Outcome Based Education (OBE) system as per Pakistan Engineering Council guidelines**



Institute of Electrical Electronics & Computer Engineering

MISSION

“To provide high quality, globally competitive and locally relevant education to its students in the specialized fields of Electrical, Electronics, Computer Engineering and allied areas. The institute aims to conduct research and entrepreneurial activities that contribute to the solutions of socioeconomic problems being faced by the country, region and the world.”

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

Within few years of graduation, the students with bachelors in Electrical Engineering are expected to attain the following.

PEO 1: Have strong competence in Electrical Engineering resulting in successful careers.

PEO 2: Able to pursue research and innovation and provide industrial solutions for engineering and technical problems.

PEO 3: Capacity to lead or participate in efforts to address technical / business challenges.

PEO 4: Demonstrate ethical values, life-long learning attitude and socio-economic responsibilities.

PROGRAMME LEARNING OUTCOMES (PLOs)

- Engineering Knowledge
- Investigation
- Environment and Sustainability
- Communication
- Problem Analysis
- Modern Tool Usage
- Ethics
- Project Management
- Design / Development of Solutions
- The Engineer and Society
- Individual and Teamwork
- Lifelong Learning



FACULTY

Professors

Engr. Dr. Muhammad Azhar Naeem

B.Sc. Electrical Engineering,
University of Engineering & Technology, Lahore
MS Total Quality Management
University of the Punjab, Lahore
Ph.D. Electrical Engineering
University of Glasgow, UK

Engr. Dr. Kamran Abid

M.Sc. Computer Science
Hamdard University, Karachi
MS Total Quality Management
University of the Punjab, Lahore
Ph.D. Electrical Engineering
University of Glasgow, UK

Engr. Dr. Zeeshan Azmat

B.Sc. (Engg.) Electrical Engineering,
University of Engineering & Technology, Lahore
M.Sc. (Engg.) Electrical Engineering,
University of Engineering & Technology, Lahore
Ph.D. (Engg.) Electrical Engineering,
Macquarie University, Sydney, Australia

Engr. Dr. Kamal Shahid

B.Sc. (Engg.) Electrical Engineering,
University of Central Punjab, Lahore
M.Sc. (Engg.) Computer Engineering,
Center for Advanced Studies in Engineering (CASE), Islamabad
Ph.D. Electrical Engineering,
Aalborg University Denmark

Associate Professors

Engr. Dr. Umar Farooq

B.Sc. (Engg.) Electrical Engineering
University of Engineering & Technology, Lahore
M.Sc. (Engg.) Electrical Engineering
University of Engineering & Technology, Lahore
Ph.D. Electrical Engineering,
Dalhousie University, Nova Scotia, Canada

Engr. Dr. Muhammad Fainan Hanif

B.Sc. (Engg.) Electrical Engineering
University of Engineering & Technology, Lahore
Ph.D. Electrical and Electronic Engineering
University of Canterbury, Christchurch, New Zealand
Postdoctoral Fellowships
University of Oulu, Finland & Lancaster University, UK

Engr. Naureen Butt (On Study Leave)

B.Sc. (Engg.) Electrical Engineering
University of the Punjab, Lahore
M.Sc. (Engg.) Electrical Engineering
University of Engineering & Technology, Lahore
Ph.D. Electrical Engineering – In progress
Information Technology University, Lahore

Engr. Kashif Habib

B.Sc. (Engg.) Electrical Engineering
Bahauddin Zakariya University, Multan
M.Sc. (Engg.) Electrical Engineering
Technical University of Denmark, Denmark
Ph.D. Electrical Engineering – In progress
University of Central Punjab, Lahore

Assistant Professors

Engr. Ahmed Nafeel Aslam, PE

B.Sc. (Engg.) Electrical Engineering,
University of Engineering & Technology, Lahore
M.Sc. (Engg.) Electrical Engineering,
University of South Florida, USA

Engr. Dr. Muhammad Kashif Samee

B.Sc. (Engg.) Electrical Engineering,
University of Engineering & Technology, Lahore
M.Sc. (Engg.) Automation and Robotics,
Technical University Dortmund, Germany
Ph.D. Electrical Engineering,
Technical University Dortmund, Germany



Lecturers

Engr. Danish Arif

B.Sc. (Engg.) Electrical Engineering
University of the Punjab, Lahore
MS Total Quality Management
University of the Punjab, Lahore
Ph.D. Electrical Engineering – In Progress
University of Cape Town, South Africa

Engr. Akbar Ali Khan

B.Sc. (Engg.) Electrical Engineering
University of Engineering & Technology, Lahore
M.Sc. (Engg.) Electrical Engineering
University of Engineering & Technology, Lahore
Ph.D. Electrical Engineering – In progress
Lahore University of Management and Sciences (LUMS), Lahore

Engr. Rida Zainab

B.Sc. (Engg.) Electrical Engineering
University of Engineering & Technology, Lahore
M.Sc. (Engg.) Electrical Engineering
University of Engineering & Technology, Lahore
Ph.D. Electrical Engineering – In progress
University of Central Punjab, Lahore

Engr. Rabia Saleem (On Study Leave)

B.Sc. (Engg.) Electrical Engineering
University of Engineering & Technology, Lahore
M.Sc. (Engg.) Electrical Engineering
University of Engineering & Technology, Lahore
Ph.D. Electrical Engineering – In progress
The Australian National University, Sydney

Engr. Zulqarnain Hanif (On Study Leave)

B.Sc. (Engg.) Electrical Engineering
University of the Punjab, Lahore
M.Sc. (Engg.) Electrical Engineering
Lahore University of Management and Sciences (LUMS), Lahore
Ph.D. Electrical Engineering – In progress
Rutgers, The State University of New Jersey, USA.

Engr. Osama Majeed Butt

B.Sc. (Engg.) Electrical Engineering
University of the Punjab, Lahore
M.S. Industrial Engineering and Management
University of the Punjab, Lahore
Ph.D. Electrical Engineering – In progress
University of Malaya, Malaysia

Lab Engineers

Engr. Nabiya Ellahi

B.Sc. (Engg.) Electrical Engineering
University of the Punjab, Lahore
M.Sc. (Engg.) Electrical Engineering
University of Engineering & Technology, Lahore

Engr. Ayesha Jaffar

B.Sc. (Engg.) Electrical Engineering
University of the Punjab, Lahore
M.Sc. (Engg.) Electrical Engineering
Lahore University of Management and Sciences (LUMS), Lahore

Research Associates

Engr. Rasmia Irfan

B.Sc. (Engg.) Electrical Engineering
University of the Punjab, Lahore
M.Sc. (Engg.) Electrical Engineering –
University of Engineering & Technology, Lahore

Engr. Muhammad Mohsin

B.Sc. (Engg.) Electrical Engineering
University of the Punjab, Lahore
M.Sc. (Engg.) Electrical Engineering
University of the Punjab, Lahore – In Progress

Engr. Fazal Abbas

B.Sc. (Engg.) Electrical Engineering
University of the Punjab, Lahore
M.Sc. (Engg.) Electrical Engineering –
In Progress
Mian Nawaz Shareef University of Engineering and Technology (MNSUET), Multan

Engr. Muhammad Awais Bhatti

B.Sc. (Engg.) Electrical Engineering
University of the Punjab, Lahore

ADMISSION REQUIREMENTS

Click the link below for details (Page # 80)

<http://pu.edu.pk/downloads/Admission-Regulations-Book.pdf>

THE CORE CURRICULUM

B.Sc. (Engg.) Electrical Engineering

Click the link below for details:

<http://pu.edu.pk/program/description/8492>



AN EXCEPTIONAL CAMPUS LIFE

Life on Campus

The University of the Punjab provides several facilities to staff and students, which include health, hostel, transport, library, sports and various others.



Hostel Accommodation

At present PU has **28** hostels, **17** for male and 11 for female students. Most of these students are accommodated in the hostels at the Quaid-e-Azam Campus. Total number of hostel residents is **6961**. To meet the growing need of accommodation for female students another girls hostel is under construction. Each hostel is looked after by a Warden and a Superintendent, who are generally members of the academic faculty. Management of the hostels is coordinated by the Chairman Hall Council, who is a senior faculty member. Average housing capacity of each hostel is **250**. (Note: University cannot provide this facility to all students.)



Sports

A variety of sports facilities including playing fields for cricket, hockey, football and athletics, a swimming pool for male students, squash courts and indoor game facilities in the hostels are available at the Quaid-e-Azam Campus. Playing fields for various sports and a female swimming pool are provided near the Allama Iqbal Campus. Boat Club provides recreational as well as competitive rowing facilities at the canal of the Quaid-e-Azam Campus as well as the River Ravi, in the north of the city.



Industrial Tours

Students of the Faculty are provided an opportunity to enhance their technical knowledge and broaden their outlook by undertaking tours of factories located all over Pakistan. The expenditure of these tours is borne partly by the University.



Library

Students have access to three libraries:

University Library

University of the Punjab has one of the best libraries in the country. Total collection of books in various subjects is nearly **6,00,000** including **15,000** books relating to Electrical Engineering.

Faculty Library

Faculty of Engineering & Technology has a well-equipped library containing about **38,500** books relating to engineering disciplines.

Institute Library

Institute of Electrical, Electronics & Computer Engineering has established its own library containing nearly **3500** books.



Video Conference

Through Video Conferencing facility the students will have the opportunity to learn from high profile teachers, exchange their ideas, contribute & share their research work. This will not only enhance their knowledge & capabilities but eventually the standard of education in Pakistan. As a result of the implementation of this project, Pakistan's education standard will become comparable with any of the world class universities. The facility will be utilized for conducting conferences/ meetings and will save precious resources including time and money. This Video Conference Hall has been established in Under-Graduate Block having the capacity of 36 seats. IT Centre managed, tested and commissioned this IP-Based Video Conferencing system. All the departments can use this facility for following activities from any other University/ Organization (Local/ International),



Transport

There are **58** Buses for students, teachers & staff on **41** routes within the city and a whole day quarter-hourly service between Allama Iqbal Campus and Quaid-i-Azam Campus. To meet the running cost of University buses a nominal amount is charged from different categories of students and employees.



Health Care

University of the Punjab has established a model health service. Services of the University Medical Officers are available to the students during working hours. The University maintains a Health Centre at the Campus where facilities for the treatment of outdoor patients exist. In case of serious illness and emergency, hospitalization can be arranged under the advice of the C.M.O./M.O. The University Medical Officer may conduct periodical check up of the students. At present the medical staff consists of one Chief Medical Officer, (Consultant Physician), **3** Senior Medical Officers, **2** lady Medical Officers, **5** Medical Officers, **1** Dental Surgeon, **1** Ophthalmologist and **1** part-time Radiologist.



INSTITUTIONAL FACILITIES

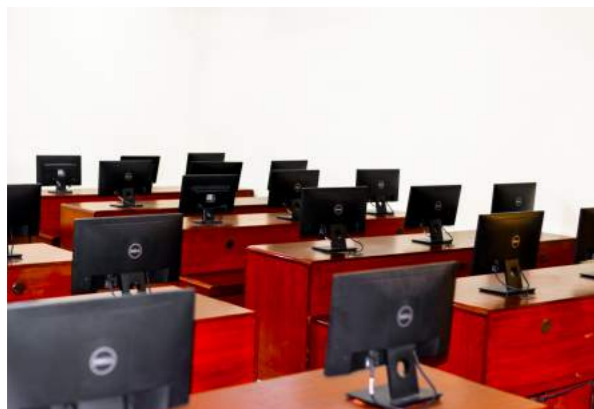
Lecture Rooms

The IEECE building is situated within the premises of new campus of University of the Punjab. IEECE has its own building. The building has following lecture rooms:

Laboratories

Following state-of-the-art laboratory facilities has been established for the Electrical Engineering Program.

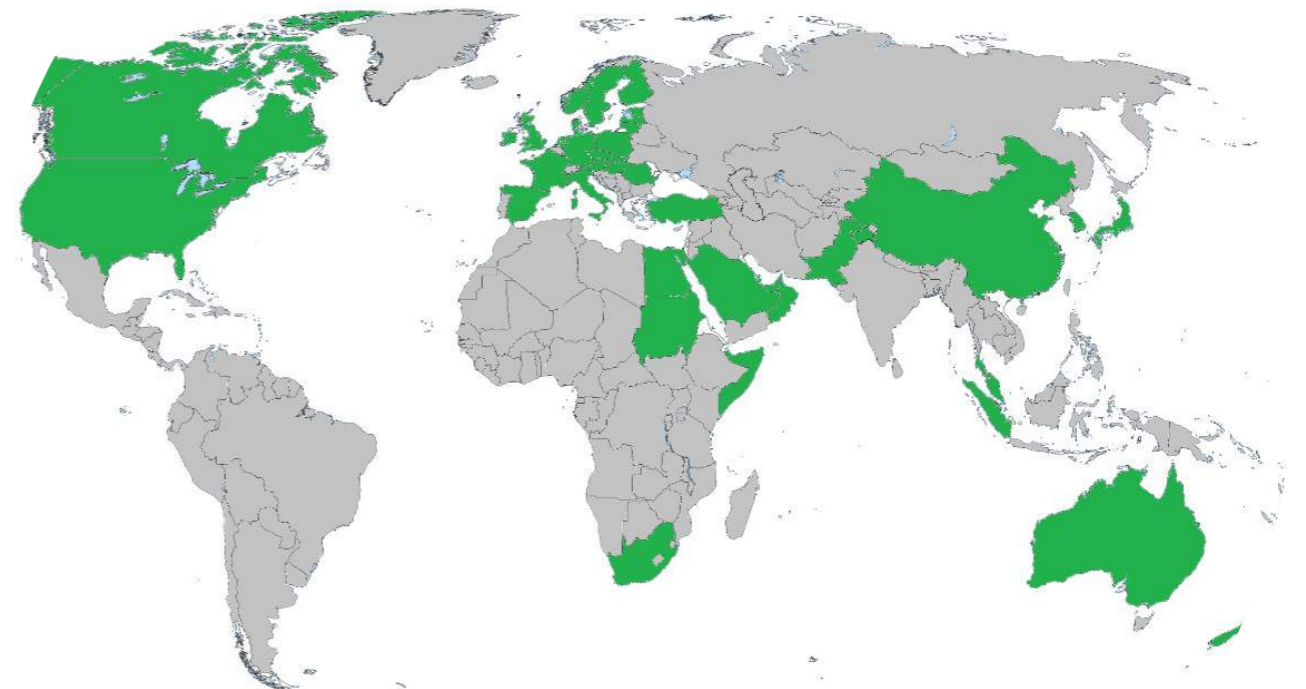
- Machines Labs
- Electronics Lab
- Power Protection Lab
- Power Electronics Lab
- Artificial Intelligence Lab
- Computer Simulation Lab
- Smart Energy Systems Lab
- Computer Architecture Lab
- Antenna and Microwave Lab
- Radar & Remote Sensing Lab
- Instrumentation & Control Lab
- Analog/Digital Communication Lab
- Power Transmission and Distribution Labs



ALUMNI

A dedicated Career Counselling & Advisory Centre is present in campus for professional counselling of students in career and student affairs. The centre provides free of charge services. Students can also take advice from the coordinators assigned by the IEECE. Career Counselling & Advisory Centre provides programmes and services to help students and alumni explore and make effective career choices, foster professional networks with employers and assist employers in meeting their recruitment needs. The office offers various avenues to the students for personal and professional development and supports them in achieving their goals.

850+
ALUMNI



32+
COUNTRIES

Industrial Training

Part of the Institute's 4-year BS.c. (Engg.) Electrical Engineering courses, the Industrial Training Programme prepares students for professional practice.



Job Placement

IEECE has very active placement center that helps students to get placed at renowned organizations all over the world. Mock Interview/ Test preparations sessions are arranged, and professionals are invited to organize interactive sessions. Institute has one of the shortest jobs seeking time and few students get offer before the graduation.

