Department of Electronics Engineering Abbottabad Campus

The Department of Electronics Engineering is functioning in the main building of Abbottabad Campus, which is located in the heart of city surrounded by lush green lawns and tall trees. Mountainous view adding more grandeur to the campus.

Electronic Engineering is one of the fast growing disciplines having its application in almost every field which include high speed data communication, automatic power system control devices, aerospace technology, computer hardware, industrial automation robotic etc. Today's fast growing cellular technology depends on Electronic Engineering.

Keeping in view the importance of the subject, the University of Engineering & Technology started the program at its Abbottabad campus from fall semester 2004, treating it as specialized discipline not being offered at other campuses of the University.

The board of studies of the department has been constituted to revise and update the courses in order to coupe with modern trends in this important engineering discipline. While designing the courses the main emphasis is on concept building so that the graduate engineers are able to co-relate the theoretical knowledge in order to solve the practical problems in the field of electronic engineering. Besides academic activities the department encourages extracurricular activities like sports competition, debates, music concerts etc.

The department regularly organizes seminars and extension lectures for the benefit of the students and faculty. In view of the importance of the subject, the department is planning to establish links with the related industry.

Academic Programs

- B.Sc. Electronics Engineering

The vision statement of the B.Sc. Electronics Engineering program is:
"Electronics Engineering will be a premiere department with focus on quality teaching and research development"

Mission Statement of the Program:
The mission of this program is to:
1. Produce professional Engineers to meet the requirement of industry and R&D.
2. Provide Modern Lab Equipment, software, and Research facilities.

Goals of Department of Electronics Engineering
The Department has the following general goals:

1) Enhance the undergraduate program.
2) Make the undergraduate degree programs relevant and robust in terms of evolving workforce issues, economic and societal needs.
3) Maintain consistent high level of research funding and increase opportunities for graduate studies.

Develop and implement effective programs for the continual upgrading of the technical and management skills of professionals in the electronics engineering through professional training.

Program Educational Objectives (PEOs)

Program Educational Objectives (PEOs) are the attributes and abilities that the graduates are expected to demonstrate in their career life after graduation. The PEOs are direct translation of university and program mission and are developed by the involvement of all stakeholders. The PEOs stipulate the high-level program objectives and provide a broad framework to design program-learning outcomes, curriculum, and its provision.

Due to importance of PEOs in the OBE system, a formal mechanism of taking input from stakeholders was put in place at UET Peshawar for developing and approving the PEOs for Electronics Engineering Department. Faculty having a rich industrial experience (from all campuses) were involved in defining PEOs that were later reviewed by industrial personnel. Same PEOs have been adopted by the DEE Abbottabad campus.

The Bachelors of Electronics Engineering program has the following PEOs

PEO1: Be able to analyze and solve complex electronics engineering problems by applying fundamental knowledge of mathematics, science, and engineering; and be aware of the importance of lifelong learning and sustainability

PEO2: Be able to do research, design and progress in their career and be able to serve in national and international academic and industrial organizations.

PEO3: Be able to utilize professional skills such as effective communication, teamwork, and Leadership, performing ethically and aware of societal and environmental issues while applying their modern engineering and IT skills and tools in their professional work.

Alignment of PEOs with University Vision and Mission

The program mission and PEOs have been developed in accordance with the university's vision and mission.

The mapping of all PEOs with vision and mission is shown in the following Table. Each PEO is in line with the university vision, mission, and program mission.

Table 1 Mapping of PEOs with University Vision and Mission

University Vision and Mission		**PEOs**		
		PEO 1	PEO 2	PEO 3
University Vision	To Be Among the Top Universities of the World through **Education**[1], **Research**[2,3], and **Innovation**[3]	✓	✓	✓
University Mission	To produce highly **qualified**[1], well-rounded professionals through education who play a **leading role**[3] in the society by powering and driving knowledge-based economy and offer **research**[2,3]services and **innovation**[3] for **sustainable development**[3].	✓	✓	✓

Mapping of Program Mission with PEOs

The PEOs are in line with the Program mission statement of the DEE. The mapping of the PEOs with the DEE program mission is given in the following Table i.e. Table 2.

Table 2 Mapping of Program Mission with PEOs

Program Mission	**PEOs**

		PEO 1	PEO 2	PEO 3
Program Mission	The mission of this program is to: 1. Produce professional Engineers to meet the requirement of industry and R & D 2. Provide Modern Lab Equipment, software, and Research facilities	✓	✓	✓

Students are enabled with fundamental learning competencies of critical thinking, Design, analysis, and communication skills which enable them to play a vital role in industry. The syllabus is incorporated with practical approach and design to meet the current requirements of the diverse field in industry and academic research and development areas. Our graduates are working in highly paid positions both in academia, industry involving maintenance, fabrication, designing, and development work. Many of our graduates have served in multinational organizations and some of them have established their own business companies. Our graduates have utilized their education for the betterment of the society as well.

Program Learning Outcomes (PLOs):

Program Learning Outcomes (PLOs) are a certain set of knowledge, skills and behavioral traits that the graduates are expected to demonstrate by the time of graduation. A comprehensive system has been devised at the Department of Electronics Engineering Abbottabad Campus to ensure that the approved outcomes/attributes are attained by each student by the time of graduation.

The Department of Electronics Engineering has adopted the graduate attributes defined in the revised EAB Manual and are supported by PEOs of the department.

The PLOs adopted by the Department of Electronics Engineering are reproduced as under:

1. **Engineering Knowledge:**

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

2. **Problem Analysis**

An ability to identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.

3. **Design / Development of Solutions**

An ability to design solutions for complex engineering problems and design systems, components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.

4. **Investigation**

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

5. **Modern Tool Usage**

An ability to create, select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling, to complex engineering activities, with an understanding of the limitations.

6. **The Engineer and Society**

An ability to apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practice and solution to complex engineering problems.

7. **Environment and Sustainability**

An ability to understand the impact of professional engineering solutions in societal and environmental contexts and demonstrate knowledge of and need for sustainable development.

8. Ethics

Apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice.

9. Individual and Teamwork

An ability to work effectively, as an individual or in a team, on multifaceted and /or multidisciplinary settings.

10. Communication

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

11. Project Management

An ability to demonstrate management skills and apply engineering principles to one's own work, as a member and/or leader in a team, to manage projects in a multidisciplinary environment.

12. Life-long Learning

An ability to recognize the importance of, and pursue lifelong learning in the broader context of innovation and technological developments.

Mapping of PLOs to PEOs

The PLOs broadly describe the skills, knowledge, and behaviors that the students acquire in their program of study, which are intended to foster the achievement of PEOs. Therefore, it is important to relate each PLO with PEO for the intent of promoting its achievement. PLOs that can be measured by the time of graduation are the means by which the program prepares its graduates to achieve PEOs. The PLOs of Electronics Engineering program are well aligned with the PEOs as illustrated as Table 3. Each PLO is mapped with at least one PEO. All graduate attributes are well mapped with PEOs. PEO1 and PEO2 strongly focus on the engineering aspect of the program whereas PEO3 is consistent with the effective domain as well as higher cognitive levels.

Table 3 Mapping of PLOs to PEOs

PLO No.	**PEC Graduate Attributes/PLOs**	**Program Educational Objectives**		
		PEO1	PEO2	PEO3
1	**Engineering Knowledge**	✓	✓	
2	**Problem Analysis**	✓	✓	
3	**Design/Development of Solutions**	✓	✓	
4	**Investigation**	✓	✓	
5	**Modern Tool Usage**			✓
6	**The Engineer and Society**			✓
7	**Environment and Sustainability**			✓
8	**Ethics**			✓
9	**Individual and Teamwork**			✓

10	**Communication**			✓
11	**Project Management**			✓
12	**Lifelong Learning**	✓	✓	✓

Research

The Department promotes research facilities at Abbottabad Campus.

Laboratories

The Department of Electronics Engineering (DEE) Abbottabad campus has intended and modernized curriculum, and offers high quality courses aimed at individuals, who can cordially meet these challenges. The program of studies is developed to enable the students of electronics engineering program to lead the team of future young engineers and to realize their innovative ideas and participate in the wellbeing of the society at both national and international ventures. Keeping in view the diverse demands of the engineering industry, the DEE Abbottabad campus supports its teaching activities with hands-on training for the students. Students at the department can reinforce their theoretical knowledge with hands-on labs experiments, which are conducted in the following well equipped state-of-the-art laboratories:

- Computer Laboratory
- Electronics Laboratory
- Digital Logic Design Laboratory
- Electronics Machines Laboratory
- Analog/Digital Communications Laboratory
- Microcontroller and Microprocessor Laboratory
- FPGA/VLSI Laboratory
- Workshop Technology Laboratory
- Measurements and Instrumentation Laboratory