



Covenant University

B.Eng. Degree Programme in

Electrical and Electronics Engineering

**Programme Education
Outcomes(PEOs), Programme
Outcomes (POs) and Mapping**

EEE

Revised Programme Educational Objectives and their Mapping to the Visions and Missions of the University, Department, and Programme

Programme Educational Objectives (PEOs)

The Programme Educational Objectives (PEOs) describe the expected achievements of Electrical and Electronics Engineering graduates within a few years after graduation. They are tailored to the unique aspects of Electrical and Electronics Engineering while aligning with the broader goals of the institution.

PEO 1: Foundational knowledge and Problem Solving

Graduates will demonstrate technical and leadership knowledge widely applicable for solving real-world problems and advancing the frontier of industry-relevant operations and processes in the fields of electrical/electronics engineering and its related disciplines.

PEO 2: Professionalism and Interdisciplinary collaborations

Graduates will work in diverse industrial environments as licensed professional engineers and leaders with management and financial skills, collaboratively engaging with integrated teams of experts in other fields to proffer sustainable solutions to complex engineering problems.

PEO 3: Research and Innovation

Graduates will employ engineering principles and system design concepts in combination with integrated software and hardware tools to develop widely applicable methods and techniques for product and service improvement towards societal sustainability.

PEO 4: Ethical Practice and Lifelong Learning

Graduates will practice in compliance with national and international engineering standards and recognised environmental codes within the bounds of ethical rules and regulations while pursuing further studies, research, and certifications for professional development and competitiveness.

PEO 5: Entrepreneurship and Leadership

Graduates will be employed, employ others or be self-employed, playing leadership roles and taking clear and ethical steps in creating or supporting entrepreneurial solutions to engineering challenges using Electrical and Electronic Engineering and management principles supported by continuously growing ICT knowledge.

Mapping of PEOs to the Visions and Missions of the University, Department, and Programme

The mapping of the PEOs to the visions and missions of the institution, department, and programme is presented in Table 1. As shown in the table, the PEOs are consistently linked to the vision and mission of the programme.

Table 1: Mapping of PEOs to the visions and missions of the institution, department, and programme

Vision	Mission	PEOs
University		
The vision of the University is to be a leading World-Class University, committed to raising a new generation of	To create knowledge and restore the dignity of the black race via Human Development and Total Man Concept-driven curricula; employing	1. Graduates will demonstrate technical and leadership knowledge widely applicable for solving real-world problems and advancing the frontier of industry-

leaders in all fields of human endeavour.	innovative, leading-edge teaching and learning methods, research, and professional services that promote integrated, life-applicable, life-transforming education relevant to Science, Technology, and Human Capacity Building.	relevant operations and processes in the fields of electrical/electronics engineering and its related disciplines.
Department		
The vision of the Department is derived from Covenant University's vision, which is succinctly captioned — Raising a New Generation of Leaders. Therefore, the Department is raising a new generation of leaders in Electrical and Information Engineering.	The mission of the Department is to create universally applicable and technologically relevant knowledge in the field of Electrical and Information Engineering, with the aim of promoting an integrated and universal education with real-life, real-time applicability vis-à-vis science, technology and human capacity building.	2. Graduates will work in diverse industrial environments as licensed professional engineers and leaders with management and financial skills, collaboratively engaging with integrated teams of experts in other fields to proffer sustainable solutions to complex engineering problems.
Programme		
The vision of the Programme is to produce total graduates empowered with the standards and practice of Electrical and Electronics Engineering, complemented with application-oriented courses that will advance their productive capacity to proffer solutions to national and international societal challenges.	The mission of the Programme is to create universally applicable and technologically relevant knowledge in the field of Electrical and Electronics Engineering, with the aim of promoting an integrated and universal education with real-life, real-time applicability vis-à-vis science, technology and human capacity building.	3. Graduates will employ engineering principles and system design concepts in combination with integrated software and hardware tools to develop widely applicable methods and techniques for product and service improvement towards societal sustainability. 4. Graduates will practice in compliance with national and international engineering standards and recognised environmental codes within the bounds of ethical rules and regulations while pursuing further studies, research, and certifications for professional development and competitiveness. 5. Graduates will be employed, employ others or be self-employed, playing leadership roles and taking clear and ethical steps in creating or supporting entrepreneurial solutions to engineering challenges using Electrical and Electronic Engineering and management principles supported by continuously growing ICT knowledge.

Programme Outcomes

The programme outcomes (POs) as adapted directly from the COREN handbook are as follows:

1. **Engineering Knowledge:** Apply knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of developmental and complex engineering problems

2. **Problem Analysis:** Identify, formulate, research literature and analyze developmental and complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences
3. **Design/Development of Solutions:** Proffer solutions for developmental or 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:** Conduct investigation into developmental or complex problems using research based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions.
5. **Modern Tool Usage:** Create, select and apply appropriate techniques, resources and modern engineering and ICT tools, including prediction, modelling and optimization to developmental and complex engineering activities, with an understanding of the limitations.
6. **The Engineer and Society:** Apply reasoning informed by contextual knowledge including Humanities and Social Sciences to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practice.
7. **Environment and Sustainability:** 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, including adherence to the COREN Engineers Code of Conduct.
9. **Individual and Team Work:** Function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary settings.
10. **Communication:** Communicate effectively on developmental or 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 and Finance:** Demonstrate knowledge and understanding of engineering, management and financial principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multi-disciplinary environments
12. **Lifelong Learning:** Recognize the need for, and have the preparations and ability to engage in independent and lifelong learning in the broadest context of technological and social changes.

Mapping of PEOs to POs

The mapping of the PEOs to the POs is presented in Table 2.

Table 2: Mapping of PEOs to POs

PO	PEO1	PEO2	PEO3	PEO4	PEO5
PO1: Engineering knowledge	x		x	x	x
PO2: Problem Analysis	x	x	x		x
PO3: Design /development of solutions	x	x	x		x
PO4: Investigation	x	x	x		x
PO5: Modern Tool Usage	x	x	x		x
PO6: The Engineer and Society	x	x	x	x	
PO7: Environment & Sustainability	x	x	x	x	
PO8: Ethics		x	x	x	x
PO9: Individual and Teamwork	x	x	x	x	x
PO10: Communication	x	x	x		x
PO11: Project Management and Finance	x	x	x		x
PO12: Lifelong learning	x	x		x	x

Curriculum Design

Presented here is a wholistic view on the distribution of the engineering courses according to areas specific to the Electrical and Electronics Engineering Programme. The distribution is highlighted in Table 3.

Table 3: Design of the Electrical and Electronics Engineering Curriculum

Domain	Knowledge Area	COREN/NUC Recommended		Institute's Program Breakup	
		Total	Overall	Total	Overall
		Credits	%	Credits	%
Non-Engineering	Humanities	As per discipline specific COREN BMAS guidelines	25% – 40%	23	27
	Management Sciences			7	
	Natural Sciences			34	
Engineering	Computing	As per discipline specific COREN BMAS guidelines	60% – 75%	10	73
	Engineering Foundation			35*	
	Major Based Core (Breadth)			35**	

	Major Based Core (Depth)			74***	
	Inter-Disciplinary Engineering Breadth (Electives)			4	
	Final Year Design Project		6	6	
	Industrial Training (SIWES)		2	6	
Total		130 – 138	100%	236	100

*200 Level GEC courses; **Other GECs except 200 Level; ***Core Courses
for the Program