Covenant University

B.Eng. Degree Programme in

Information and Communication Engineering

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

A. PROGRAMME EDUCATION OBJECTIVES (PEOs)

Programme Educational Objectives (PEOs) of Information and Communication Engineering (ICE)

The Program Educational Outcomes (PEOs) of Information and Communication Engineering programme of Covenant University are drafted and agreed upon by the stakeholders of the programme involving the Board of Regent (BoR), University Management, alumni, parents, Industry Board Members, faculties, and students in alignment with the vision and mission of Covenant University and the programme.

PEO 1: Foundational knowledge and Problem Solving

Graduates will demonstrate a strong foundational knowledge of ICE principles and applications as well as leadership skills to create innovative solutions to real-world problems towards the sustainable development of the immediate environment.

PEO 2: Professionalism and Interdisciplinary collaborations

Graduates will apply relevant professional and management skills, demonstrate effective technical communication skills, work collaboratively in multidisciplinary teams to address complex engineering problems and contribute to the successful implementation of projects.

PEO 3: Research and Technological Advancement

Graduates will demonstrate strong research ethics and investigative capability using industry-standard software and advanced technology to develop sustainable, innovative solutions, bringing about products and services that meet societal needs.

PEO 4: Ethical Practice and Lifelong Learning

Graduates will demonstrate compliance with national and international benchmarks of engineering standards and ethical practices, adhering regulations, showing commitment to lifelong learning and keeping up with professional growth and global competitiveness.

PEO 5: Entrepreneurship and Leadership

Graduates will demonstrate cutting-edge entrepreneurial and leadership skills in employment or become self-employed playing critical roles in project management decision making and finance supported by continuously growing ICT knowledge.

B. THE MAPPING OF PEO TO THE VISION AND MISSION 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 leaders in all fields of human endeavor.	The mission of the University is to create knowledge and restore man's dignity via a Human Development Total Man Concept-driven curriculum employing innovative, leading-edge teaching and learning methods, research and professional services that promote integrated, life-applicable, life-transforming education relevant to the context of Science, Technology and Human Capacity Building.	1. Graduates will apply relevant professional and management skills, demonstrate effective technical communication skills, work collaboratively in multidisciplinary teams to address complex engineering problems and contribute to the successful implementation of projects. 2. Graduates will apply relevant professional and management skills, demonstrate effective technical communication skills, work collaboratively in multidisciplinary teams to address complex engineering problems and contribute to the successful implementation of projects. 3. Graduates will demonstrate strong research ethics and investigative capability using industry-standard software and advanced technology to develop sustainable, innovative solutions, bringing about products and services that meet societal needs. 4. Graduates will demonstrate compliance with national and international benchmarks of engineering standards and ethical practices, adhering regulations, showing commitment to lifelong learning and keeping up with professional growth and global competitiveness. 5. Graduates will demonstrate cutting-edge entrepreneurial and leadership skills in employment or become self-employed playing critical roles in project management decision making and finance supported by continuously growing ICT knowledge.
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 disciplines.	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.	
Programme		
The vision of the programme is to produce total graduates empowered with the standards and practice of Information & Communication 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 Information and Communication 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.	

C. PROGRAMME OUTCOMES (POs)

The Programme Outcomes (POs) outlines the specific skills, knowledge, and abilities that students are expected to gain by the end of their course. These outcomes help ensure that graduates are well-equipped to meet the demands of the industry. The POs of ICE are provided below:

Programme Outcomes

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

1. **Engineering Knowledg**e: Apply knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of developmental and complex engineering problems
2. **Problem Analysi**s: 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 Conducts.
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.

D. Mapping of POs to PEOs

The mapping of the POs to the PEOs of ICE programme is shown in Table 2 showing how the Pos are tailored to meeting the PEOs.

Table 2: Mapping of Pos to PEOs

Program Outcome (PO)	PEO1	PEO2	PEO3	PEO4	PEO5
PO1: Engineering Knowledge	*	*	*	*	*
PO2: Problem Analysis	*	*	*		*
PO3: Design/Development of solutions	*	*	*		*
PO4: Investigation	*	*	*		*
PO5: Modern Tool Usage	*	*	*		*
PO6: The Engineer and Society	*	*	*	*	*
PO7: Environment & Sustainability	*		*		*
PO8: Ethics	*	*	*	*	
PO9: Individual and Teamwork	*	*	*	*	*
PO10: Communication	*	*	*	*	
PO11: Project Management & Finance	*	*		*	*
PO12: Lifelong Learning	*		*	*	*

E. Curriculum Design

The design of the curriculum of Information and Communication Engineering is provided in Table 3.

Table 3: Design of the Information and Communication Engineering Curriculum

Domain	Knowledge Area	CORENNUC Recommended		Institute's Programme Breakup	
		Total Credits	Overall %	Total Credits	Overall %
Non-Engineering	Humanities	As per discipline specific CORENBMAS guidelines	25% - 40%	**23**	**27**
	Management Sciences			**7**	
	Natural Sciences			**34**	
Engineering	Computing	As per discipline specific CORENBMAS guidelines	60% - 75%	**10**	**73**
	Engineering Foundation			**35***	
	Major Based Core (Breadth)			**35****	
	Major Based Core (Depth)			**81*****	
	Inter-Disciplinary Engineering Breadth (Electives)			**4**	
	Final Year Design Project	6		**6**	

	Industrial Training (SIWES)	2		**6**	
	Total	130 - 138	100%	**241**	**100**

*200 Level GEC courses,

**Other GECs except 200 Level

***Core Courses for the Programme