

PO	Domain	PO Statements	WA	MQF LO	Taxonomy Domain
PO1	Engineering Knowledge	Apply knowledge of mathematics, natural science, engineering fundamentals and an engineering specialization as specified in WK1 to WK4 respectively to the solution of complex engineering problems.	WA1	1, 3(e)	Cognitive
PO2	Problem Analysis	Identify, formulate, research literature and analyse <i>complex</i> engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences. (WK1 to WK4)	WA2		Cognitive
PO3	Design/ development of solutions	Design solutions for <i>complex</i> 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. (WK5)	WA3		Cognitive
PO4	Investigation	Conduct investigations of <i>complex</i> problems using research-based knowledge (WK8) and research methods including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions.	WA4		Cognitive
PO5	Modern Tool Usage	Create, select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling, to <i>complex</i> engineering problems, with an understanding of the limitations. (WK6)	WA5	3(a)	Psychomotor
PO6	The Engineer and Society	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 solutions to complex engineering problems. (WK7)	WA6	5	Cognitive
PO7	Environment and Sustainability	Understand and evaluate the sustainability and impact of professional engineering work in the solution of complex engineering problems in societal and environmental contexts. (WK7)	WA7		Cognitive
PO8	Ethics	Apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice. (WK7)	WA8	5	Affective
PO9	Individual and Team work	Function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary settings.	WA9	3(f)	Affective
PO10	Communication	Communicate effectively on <i>complex</i> 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	WA10	3(c)	Affective

		effective presentations, and give and receive clear instructions.			
PO11	Project Management and Finance	Demonstrate knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.	WA11		Cognitive
PO12	Lifelong learning	Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.	WA12		Cognitive

Notes:

(a) The five clusters of learning outcomes in MQF:

1. Knowledge and understanding
2. Cognitive skills
3. Functional work skills with focus on:
 - a. Practical skills
 - b. Interpersonal skills
 - c. Communication skills
 - d. Digital skills
 - e. Numeracy skills
 - f. Leadership, autonomy and responsibility
4. Personal and entrepreneurial skills
5. Ethics and professionalism