Department of Mechanical and Manufacturing Engineering
Faculty of Engineering
Universiti Putra Malaysia

Bachelor of Mechanical Engineering with Honours

2021 – 2025 Curriculum

Programme Educational Objectives and Performance Indicator

PEO are the expected achievements of graduates in their career and professional life a few (3 to 5) years after graduation (Engineering Programme Accreditation Standard 2020).

PEO	Objective	Criteria
1	Engineers in the field of mechanical engineering who have sufficient knowledge in the field of Mechanical Engineering as well as the appropriate skills and attitudes to work in the industry	70% of graduates working in relevant fields
2	Creative and innovative engineers in the field of mechanical engineering, as well as caring and responsible for society, culture and the environment	20% of graduates involving in professional societies (including professional engineers)
		20% of graduates holding position as managers/employers/senior engineers
3	Engineers in the field of mechanical engineering who are able to adapt to the global work environment and continue research and lifelong learning	20% of graduates working at multinational/large companies/global companies
		5% of graduates working in R&D companies
		10% of graduates obtaining higher degree in engineering or related areas
4	Engineers in the field of mechanical engineering with the knowledge and ability to solve problems as well as advanced design and development	20% of graduates working in product/system design

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Programme Objectives

Programme Outcomes describe what students are expected to know and be able to perform or attain by the time of graduation. These relate to the skills, knowledge, and behaviour that students acquire through the programme (Engineering Programme Accreditation Standard 2020).

PO1	Engineering Knowledge	Apply knowledge of mathematics, natural science, engineering fundamentals and an engineering specialisation to the solution of complex engineering problems;
PO2	Problem Analysis	Identify, formulate, conduct research literature and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences
PO3	Design / Development of Solutions	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
PO4	Investigation	Conduct investigation of complex engineering 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
PO5	Modern Tool Usage	Create, select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling, to complex engineering problems, with an understanding of the limitations
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
PO7	Environment and Sustainability	Understand and evaluate the sustainability and impact of professional engineering work in the solutions of complex engineering problems in societal and environmental contexts
PO8	Ethics	Apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice

PO9	Individual and Teamwork	Function effectively as an individual, and as a member or leader in diverse teams and in multidisciplinary settings
PO10	Communication	Communicate effectively 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
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 in multidisciplinary environments
PO12	Lifelong Learning	Recognise the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change
PO13	Entrepreneurship	Identify the basics and entrepreneurial opportunities related to the field of engineering