

INTRODUCTION TO ENGINEERS and SOCIETY

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Synopsis

This course is to enable student to gain a deeper understanding of the ethical and laws issues and dilemmas that arise in one or more areas in professional conduct and their responsibility to society. It also intended to develop students to understand the academic responsibility and accountability of a profession in engineering and the organizational activities of professional engineering institutions.

Course Outcomes

At the end of this course , student should be able to:

CO 01: Demonstrate the social, culture, global and environmental responsibilities as an engineer. (A)

CO 02: Explain ethical issues and problems that arise in professional environments and impact to society environmental context. (C2)

CO 03: Explain regulatory and statutory requirements for professional engineering practice. (C2)

CO 04: Develop the entrepreneurship skill in engineering practice (P5)

Programme Outcomes

Programme Outcomes are statements that 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.

Programme Outcomes FKEE

PO 1 : Engineering Knowledge –

Apply knowledge of mathematics, science, engineering fundamentals and an engineering specialisation to the solution of complex engineering problems;

PO 2 : Problem Analysis –

Identify, formulate, research literature and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences;

PO 3: 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;

Programme Outcomes FKEE

PO 4 : Investigation –

Conduct investigation into 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;

PO 5 : Modern Tool Usage –

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;

PO 6 : 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;

Programme Outcomes FKEE

PO 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;

PO 8 : Ethics –

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

PO 9 : 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;

Source: <http://fkee.ump.edu.my>

Programme Outcomes FKEE

PO 10 : Individual and Team Work –

Function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary settings;

PO 11 : Life Long 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

PO 12 : Project Management and Finance –

Demonstrate knowledge and understanding of engineering and management principles and apply these to ones own work, as a member and leader in a team, to manage projects and in multidisciplinary environments

CO PO Mapping

	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11	PO 12
CO 01						X						
CO 02								X				
CO 03	x											
CO 04												X

Key Indices:

X: assessed outcomes

Course Content

1. Introduction

(3 Hours)

- 1.1 Introduction to Profession and Professional
- 1.2 Professional Engineers
- 1.3 Engineering as a profession and its role in society.
- 1.4 Engineer at Public and Private Sectors.

2. Engineering Accreditation

(2 Hours)

- 2.1 Introduction to Accreditation Body (MQA, EAC)
- 2.2 Why need accreditation?

3 Professional Codes of Ethics

(2 Hours)

- 3.1 IEM code of ethics
- 3.2 IEEE code of ethics
- 3.3 Problems with codes of ethics

Course Content

- 4 Engineers and Laws (2 Hours)**
 - 4.1 Engineers Acts
 - 4.2 Civil Laws, Crimes and Constitutions

- 5 Engineering Contracts / Entrepreneurship (2 Hours)**
 - 5.1 Management in Engineering Profession
 - 5.2 Corporate and Entrepreneurships
 - 5.3 Excellence Working Culture

- 6 Engineers and Research (3 Hours)**
 - 6.1 R&D
 - 6.2 Government and Private Research grant
 - 6.3 Copyright, Patented, Innovations, Intellectual Property etc.

Assessment Distribution

Quizzes	10 %
Assignments	20 %
Project	10%
Test	60%
TOTAL	100%