

SYE5010: ENGINEERING MANAGEMENT PRINCIPLES AND CONCEPTS

Effective Term

Semester B 2024/25

Part I Course Overview

Course Title

Engineering Management Principles and Concepts

Subject Code

SYE - Systems Engineering

Course Number

5010

Academic Unit

Systems Engineering (SYE)

College/School

College of Engineering (EG)

Course Duration

One Semester

Credit Units

3

Level

P5, P6 - Postgraduate Degree

Medium of Instruction

English

Medium of Assessment

English

Prerequisites

Nil

Precursors

Nil

Equivalent Courses

SEEM5010 Engineering Management Principles and Concepts (offered until 2021/22) / ADSE5010 Engineering Management Principles and Concepts (offered until 2023/24)

Exclusive Courses

Nil

Part II Course Details

Abstract

This course aims to equip students with the basic principles and concepts in engineering management. After completion of the course students are able to:

Elaborate on management principles and concepts

- Identify and explain the primary engineering managerial functions, principles and concepts
- Understand managerial ethics and social responsibility
- Identify business strategies and differentiate between strategic, tactical and operational plans
- Formulate the concepts of organizational structure and design.

Elaborate on management leadership skills

- Describe and apply the basic process of effective communication
- Differentiate between managing and leading
- Recognize different decision making strategies
- Analyse motivation

Apply teamwork and personal management capabilities

- Identify own personality type using MBTI profiles
- Improve own leadership capabilities
- Understand difference in various types of teams
- Apply teamwork and managerial skills to get the best out of class projects

Course Intended Learning Outcomes (CILOs)

CILOs		Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Elaborate on management principles and concepts (definition, ethics, strategy, planning, organizational structure). See above for details.	40	x		
2	Elaborate on management leadership skills (communication, leadership, decision making, and motivation). See above for details	30	x	x	
3	Apply teamwork and personal management capabilities (personal capabilities, leadership, team performance). See above for details.	30			x

A1: Attitude

Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability

Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to real-life problems.

A3: Accomplishments

Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

Learning and Teaching Activities (LTAs)

LTAs	Brief Description	CILO No.	Hours/week (if applicable)
1	Large class activity	Weekly lectures. Lectures will be supplemented by: Management games	1, 2, 3
			2 hours/week

2	Tutorial	Weekly tutorial with Q & A and discussion. Tutorials are supplemented by: - Management games Presentation by students	1, 2, 3	1 hour/week
3	Consultation hour	Weekly consultation hours are available for students to ask questions.	1, 2	1 hour/week

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1	Mid-term	1, 2	10	Written exam paper half-way the course.
2	Presentation	1, 3	10	Students will present a summary and critical evaluation of one of the papers on the reading list.
3	Group assignment 1	1, 3	15	Group assignments assess student's understanding of theory and evaluate group work.
4	Group assignment 2	2, 3	15	Group assignments assess student's understanding of theory and evaluate group work.

Continuous Assessment (%)

50

Examination (%)

50

Examination Duration (Hours)

2

Assessment Rubrics (AR)**Assessment Task**

Individual: final examination (50%), mid-term (10%), presentation (10%) (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion

Assessed through group presentation, mid-term and final exam.

Excellent

(A+, A, A-) High

Good

(B+, B, B-) Significant

Fair

(C+, C, C-) Moderate

Marginal

(D) Basic

Failure

(F) Not even reaching marginal levels

Assessment Task

Teamwork: 2 assignments (15% each) (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion

Assignments are assessed in the form of a written report.

Excellent

(A+, A, A-) High

Good

(B+, B, B-) Significant

Fair

(C+, C, C-) Moderate

Marginal

(D) Basic

Failure

(F) Not even reaching marginal levels

Assessment Task

Individual: final examination (50%), mid-term (10%), presentation (10%) (for students admitted from Semester A 2022/23 to Summer Term 2024)

Criterion

Assessed through group presentation, mid-term and final exam.

Excellent

(A+, A, A-) High

Good

(B+, B) Significant

Marginal

(B-, C+, C) Moderate/Basic

Failure

(F) Not even reaching marginal levels

Assessment Task

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Failure

(F) Not even reaching marginal levels

Additional Information for AR

Conditions to pass the course:

- The score of the final exam must be 40 points out of 100 or higher.
- The total weighted average must be 40 points out of 100 or higher.
- Presentation is mandatory
- The two group assignments are mandatory.

If one or more off the above criteria are not met, the student will receive an overall grade F (fail) for the whole course.

Part III Other Information**Keyword Syllabus**

- Engineering management
- Engineering management functions: Planning, Organizing, Leading, Controlling.
- Social responsibility and managerial ethics
- Group and team dynamics.
- Leadership
- Communication models.
- Decision-making
- Presentation

Reading List**Compulsory Readings**

Title	
1	Management, Hitt, Black and Porter, 3rd Edition, 2012, Pearson
2	Other materials (e.g. lecture notes and articles) will be made available on Canvas
3	*Note: the textbook (Hitt et al.) is for self-study. The lectures do not aim to address all the chapter of the textbook. The lectures are intended to add value by providing additional relevant information and explanation that is not available in the textbook. The textbook is required reading for the final exam.

Additional Readings

Title	
1	NIL