

SYE5010: ENGINEERING MANAGEMENT PRINCIPLES AND CONCEPTS

Effective Term

Semester A 2025/26

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 plans
- Formulate concepts and tools for organizational management.

Elaborate on management leadership skills

- Describe and apply the basic process of effective communication
- Differentiate between managing and leading
- Recognize and implement different decision making processes

Apply teamwork and personal management capabilities

- Improve 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, concepts, and tools (definition, ethics, strategy, planning, organizational structure). See above for details.	40	x	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	x	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
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Assessment Tasks / Activities (ATs)

ATs		CILO No.	Weighting (%)	Remarks ("-" for nil entry)	Allow Use of GenAI?
1	Weekly tutorials	1, 3	25	Students will participate, present, and discuss weekly case studies assigned in tutorials.	Yes
2	Group project	1, 3	25	Students will work in groups, conduct a self-selected case study and present it to the class toward the end of the semester. A final report would also need to be submitted.	Yes

Continuous Assessment (%)

50

Examination (%)

50

Examination Duration (Hours)

2

Minimum Continuous Assessment Passing Requirement (%)

40

Minimum Examination Passing Requirement (%)

40

Assessment Rubrics (AR)**Assessment Task**

1. Weekly tutorials (Applicable to students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion

Assessed through the weekly tutorial discussion.

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 or no participation.

Assessment Task

2. Group project (Applicable to students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion

Assignments are assessed in the form of group presentation and a written group 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 or no participation

Assessment Task

3. Final exam (50%) (Applicable to students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion

Assessed through final exam.

Excellent

(A+, A, A-) High

Good

(B+, B) Significant

Fair

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

Marginal

(D) Basic

Failure

(F) Not even reaching marginal levels

Assessment Task

1. Weekly tutorials (Applicable to students admitted from Semester A 2022/23 to Summer Term 2024)

Criterion

Assessed through the weekly tutorial discussion.

Excellent

(A+, A, A-) High

Good

(B+, B) Significant

Fair

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

Failure

(F) Not even reaching marginal levels or no participation

Assessment Task

2. Group Project (Applicable to students admitted from Semester A 2022/23 to Summer Term 2024)

Criterion

Assignments are assessed in the form of group presentation and a written group report.

Excellent

(A+, A, A-) High

Good

(B+, B) Significant

Fair

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

Failure

(F) Not even reaching marginal levels or no participation

Assessment Task

3. Final exam (50%) (Applicable to students admitted from Semester A 2022/23 to Summer Term 2024)

Criterion

Assessed through final exam.

Excellent

(A+, A, A-) High

Good

(B+, B) Significant

Fair

(B-, C+, C) Marginal

Failure

(F) Not even reaching marginal levels or no participation

Additional Information for AR

Conditions to pass the course:

- The score of the final exam must be at least 40 points out of 100.
- The marks of each of the continuous assessment components (weekly tutorials and group project) must be 40 points out of 100 or higher.
- Final project presentation is mandatory for all students.
- 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
- Social responsibility and managerial ethics
- Group and team dynamics.
- Communication models.
- Decision-making

Reading List

Compulsory Readings

Title	
1	Lecture notes and materials will be made available on Canvas

Additional Readings

Title	
1	Management, Hitt, Black and Porter, 3rd Edition, 2012, Pearson