SEEM3034: WORK DESIGN

Effective Term
Summer Term 2023

Part I Course Overview

Course Title
Work Design

Subject Code
SEEM - Systems Engineering and Engineering Management
Course Number
3034

Academic Unit
Systems Engineering (SYE)

College/School
College of Engineering (EG)

Course Duration
One Semester

Credit Units
3

Level
B1, B2, B3, B4 - Bachelor's Degree

Medium of Instruction
English

Medium of Assessment
English

Prerequisites
Nil

Precursors
Nil

Equivalent Courses
MEEM3034/MBE3034/JC3034 Work Design

Exclusive Courses
Nil

Part II Course Details

Abstract
The aim of this module is to provide students an understanding of the principles and techniques used in the improvement and measurement of work methods and procedures, as well as creating effective and efficient organisation structures and

systems over a wide field of commercial, administrative and manufacturing activities. The objective is to equip students with the ability to use and apply the techniques of method study, work measurement, motion study and organisation study to improve productivity in different industries.

Course Intended Learning Outcomes (CILOs)

	CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	to identify the poor productivity area(s) of a system		x	x	x
2	to list different activities in the work study			x	x
3	to describe the existing operation of the system by the charting and diagram techniques.			x	x
4	to evaluate the existing system by the principles and techniques of work measurement, motion study and organization study.			x	x
5	to propose improvements to the system to address problems identified in the evaluation		x		x
6	to recognize the features and difficulties of installation and maintenance of a new system.		x		x
7	to work effectively as a team member in laboratory activities and mini-project		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.

Teaching and Learning Activities (TLAs)

	TLAs	Brief Description	CILO No.	Hours/week (if applicable)
1	Large ClassActivities	The large class activities include mainly lectures.	1, 2, 3, 4, 5, 6	26 hours/semester
2	LaboratoryWork	There will be three laboratory sessions.	3, 4, 5, 7	12 hours/semester
3	Consultation Hours	Consultation hours will be used to facilitate discussions of various issues related to the lecture materials, mini-projects, and tutorial questions.	1, 2, 3, 4, 5, 6, 7	1 hour/week/25 students

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1	Three Laboratory ReportsThree laboratory activities will be well designed to develop students' understanding and interests of the course materials in improving the design of work system.	3, 4, 5, 6, 7	20	
2	One Mini-project ReportStudents need to form working groups of three to four members for the mini project. They may choose any topics related to the course syllabus. Advices will be given on the feasibility, approach, methodology, and expected deliverables of the mini project. An oral presentation will be given.	1, 2, 3, 4, 5, 7	20	
3	Quiz scoresA mid-term quiz is arranged for testing the basic concepts and principles. It comprises of multiple choice questions and short question.	1, 2, 3, 4, 5, 6	10	

Continuous Assessment (%)

50

Examination (%)

50

Examination Duration (Hours)

2

Assessment Rubrics (AR)

Assessment Task

Laboratory activities

Criterion

ABILITY to CONDUCT experiments and EXPLAIN the methodology and procedure, and PREPARE technical reports.

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
Mini-project

Criterion
CAPACITY for SELF-DIRECTED ACTION LEARNING to understand and apply the principles of ergonomics.

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
Quiz scores

Criterion
ABILITY to COMPREHEND the general work design principles, guidelines, and knowledge.

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
Examination

Criterion
ABILITY to DIAGNOSE and GIVE SOLUTIONS to workplace ergonomics problems.

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

Part III Other Information

Keyword Syllabus
Productivity Measurement and Indices. Standards and Work Methods Design. SREDIM Approach of Method Study. Principles of Motion Economy. Time Study Techniques: performance rating and allowances. Standard Data and Formulas. Work Sampling. Learning Curve. Multi-factor Wage Incentive Plans. Job shop and flow shop. Assembly line balancing.

Reading List

Compulsory Readings

	Title
1	Nil

Additional Readings

	Title
1	Niebel’ s Methods, Standards and Work Design, Andris Freivalds, and Benjamin W. Niebel, 13th Ed., 2013.
2	Work Systems and the Methods, Measurement, and Management of Work, Mikell P. Groover, Pearson Prentice Hall, 2007.