SEEM3032: OPERATIONS AND LOGISTICS PLANNING

Effective Term
Summer Term 2023

Part I Course Overview

Course Title
Operations and Logistics Planning

Subject Code
SEEM - Systems Engineering and Engineering Management
Course Number
3032

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
MA1201 Calculus and Basic Linear Algebra II

Equivalent Courses
MEEM3032 Production and Operations Planning

Exclusive Courses
Nil

Part II Course Details

Abstract

The course aims to equip students with necessary skills for planning and controlling production and operations. Various operations management and their practical implementation issues in product and service realization and logistics are introduced.

Course Intended Learning Outcomes (CILOs)

	CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Develop aggregate production plan, master production schedule, material requirement and logistics plan, and capacity requirement plan for industrial applications.	25			
2	Make basic demand forecasting forecasting (such as moving averages, Holt's methods, Winters' method, regression analysis) for various types of demand patterns.	20			
3	Apply basic techniques of inventory monitoring and control (EOQ model with its various extensions) in industrial situations.	15			
4	Schedule operations at a work center under operational constraints.	15			
5	Formulate models in industrial settings for analyzing problems arising from production planning and logistics, operations scheduling, material handling and transportation planning, and find optimal solutions to these problems.	25			

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 Class Activities	Learning through teaching is primarily based on lectures. Emphasis in lectures is placed on the understanding of the principles and industrial applications of different production and operations planning techniques.	1, 2, 3, 4, 5	2 hours/week
2	Exercises	The exercises enable students to apply the techniques of master scheduling, material requirement planning, forecasting, inventory control, facility layout, line balancing and transportation in solving simple operations planning problems.	1, 2, 3, 4, 5	1 hour/week
3	Individual Consultation	Individual student can meet with the instructor for clarifying concepts.	1, 2, 3, 4, 5	1 hour/week

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1	Tests and Assignments	1, 2, 3, 4, 5	40	

Continuous Assessment (%)

40

Examination (%)

60

Examination Duration (Hours)

2

Assessment Rubrics (AR)

Assessment Task

Three assignments/tests

Criterion

Skills based assessment to see whether the students are familiar with applying the techniques introduced in the large class activities and tutorial sessions.

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
Examination questions are designed to assess student' s level of achievement of the intended learning outcomes, with balanced emphasis placed on both conceptual understanding of the principles, and practical examples of various production and operations planning techniques.

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
Aggregate production planning. Master production scheduling. Material requirement and logistics planning. Capacity planning. Basic demand forecasting techniques. Job scheduling. Basic production control and inventory management. Process evaluation and analysis. Facility layout. Material handling, Transportation planning, Supply chain concepts. Assembly line balancing, Just-in-time.

Reading List

Compulsory Readings

	Title
1	S. Nahmias, Production and Operations Analysis, 6th ed., McGraw-Hill/Irwin, 2009.
2	W. J. Hopp, and M. L. Spearman, Factory Physics, 3rd ed., Waveland Press, 2011.

3	Schroeder, Operations Management : Contemporary Concepts and Cases, 2nd ed., McGraw Hill, 2003.
4	Chopra and Meindl, Supply Chain Management, 6th ed., Pearson, 2016.

Additional Readings

	Title
1	Nil