IE214 Industrial Operations Management-I
Course Syllabus S3_1444 H

Course title and code	IE 214 Industrial Operations Management-I 3(3,2,0)		
Catalog Data	Introduction to operations management, system productivity calculations, qualitative and quantitative forecast measurements, monitoring and control, industry process capacity analysis, management and control of inventory, management of inventory for probabilistic demand, supply chain strategies, benchmarking and its performance measurement.		
Prerequisite	STAT 101		
Co-requisites			
Level	5		
Textbook	Operations Management, by J. Heizer and B. Render, 12th Ed., Prentice Hall (2017).		
Reference	Production Planning and Industrial Scheduling, Examples, Case studies, and applications. By D. Sule 2nd edition, CRC press, (2008).		
Course purpose	Course is to understand industrial engineering and operations management. Purpose is to make use of managerial concepts and quantitative techniques required in the area of productivity, forecasting, capacity planning, inventory & supply chain management. Also understand use several forecasting techniques, the functions of inventory and formulate basic inventory models, and supply chain management. Course purpose is also to motivate to work in teams and communicate effectively through class discussions and presentations.		

Topics to be covered:

List of Topics	No of Weeks	Contact hours
Introduction to operations management and Productivity	2	10
Forecasting methods and analysis Introduction to forecasting, Steps in forecasting system, Forecasting approaches (Qualitative and Quantitative), Monitoring and controlling forecasts, Forecasting applications/cases	4	20
Capacity planning Design and effective capacity, Demand and capacity management, Bottleneck analysis and management, Break even analysis and EMV to capacity decision.	3	15
Inventory Management Functions of Inventory, ABC analysis, Inventory models, EOQ, Reorder Point, POQ, Discount model, Safety Stock, Fixed Period model	4	20
Supply Chain Management. The Strategic Importance Of The Supply Chain. Supply-Chain Economics. Ethics in the Supply Chain. Supply-Chain Strategies. Managing the Supply Chain. Internet Purchasing. Vendor Selection. Logistics Management. Benchmarking Supply-Chain Management.	2	10

Total contact hours per semester

	Lecture	Tutorial	Laboratory	Practical	Other: Design Studio	Total
Contact Hours	**45**	**30**	**0**	**0**	**0**	**75**

Study/learning hours expected for students per week.

3 hours per week to understand the taught material and do homework and assignments.

Outcome Code	Outcome Name	SO
CLO1	Identify the main concepts of Industrial Operations Management, especially, demand, productivity, forecast, capacity, constraints and inventory.	1
CLO2	Usage of quantitative models to formulate and Solve engineering problems related to industrial operations management.	1
CLO3	Enable the students to function effectively on a team through a project to collect data and to perform management analysis of this data.	5
CLO4	Enable the students to develop alternative engineering solutions by considering global, economic and environmental factors.	2

Course Learning Outcomes (CLOs) — (left header for the above table)

ABET Student Learning Outcomes (SLOs) for the course

SO1   An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.

SO2   An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.

SO5   An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.

Schedule of Assessment Tasks for Students During the Semester

Assessment	Assessment task (e.g. essay, test, group project, examination etc.)	Week due	Proportion of Final Assessment
1	Midterm	Week 7	30%
2	Project	Week 10	15%
3	Quizzes	3 pop quizzes (best 3 out of 4)	10%
4	Participation	Punctuality and attitude	5%
5	Final Exam	As per schedule	40%

Laboratory and Practical/Field	
Project work	Independent group projects and case studies covering the course topic.
Computer Usage	Computer use covers project work.
Estimated Category Content	Engineering Sciences: 2.25 credit hour or 75%. Engineering Design: 0.75 credit hour or 25%.
Prepared by	*Dr. Haitham Mahmoud*
Preparation Date	March 2023