

**DEPARTMENT of INDUSTRIAL ENGINEERING
COURSE CATALOGUE FORM**



Course Code: INDE4322				Course Title: Inventory Planning Problems			
Semester	L + R + L	Credits	AKTS	Language	Category	Instructional Methods	Prerequisites
8	3 + 0 + 0	3	6	English	Elective	Lecture	INDE2001
Course Objectives			The aim of the course is to introduce the students the inventory problems that can be encountered in production and service systems and to show the modeling methods and solutions of these problems.				
Course Content			Inventory definition. Deterministic inventory models. Probabilistic inventory models.				
Course Learning Outcomes			<p>Upon successful completion of the course, the student is able to</p> <ol style="list-style-type: none"> 1. Derive deterministic and probabilistic models of production and storage systems. [2] 2. Analyze the function to find the minimum value in inventory problems. [2] 3. Calculate various functions of demand related distributions such as Poisson and Normal. [2] 4. Calculate a set of performance values for inventory systems manually or with Microsoft Excel. [2] <p><i>[Note: Numbers in brackets are indicating the related program outcomes]</i></p>				
ISCED Category of the course			52 Engineering				
Textbook			Inventory Management and Production Planning and Scheduling, Edward A. Silver, David F. Pyke, Rein Peterson, Academic Press.				
Supplementary Material			Factory Physics, Wallace J. Hopp, Mark L. Spearman, McGraw Hill				

COURSE PLAN

Week	Topics	Laboratory / Tutorial Work
1	Inventory definition	
2	Deterministic inventory models (Simple EOQ model)	
3	Deterministic inventory models (EOQ model extensions)	
4	Deterministic inventory models (EOQ model extensions)	
5	Deterministic inventory models (EOQ model extensions)	
6	Deterministic inventory models (Lot size calculation problem)	
7	Introduction to probabilistic inventory problems	
8	Probabilistic models for medium important products	
9	Probabilistic models for medium important products	
10	Probabilistic models for high important products and spare parts	
11	Probabilistic models for high important products and spare parts	
12	Probabilistic models for high important products and spare parts	
13	Budget constrained probabilistic inventory problems	
14	Budget constrained probabilistic inventory problems	

COURSE ASSESSMENT SYSTEM

	Activities	Contribution (%)
Semester Activities	Semester Written Exams	58
	Homework	-
	Reports	-
	Labs	-
	Seminars	-
	Presentations	-
	Term Project	-
	Other (attendance, field trip etc.)	7
FINAL EXAM		35
Total		100

CONTRIBUTION of the COURSE on INDUSTRIAL ENGINEERING PROGRAM OUTCOMES

	Program Outcomes	Low	High
1	Adequate knowledge in mathematics, science and subjects pertaining to Industrial Engineering; ability to use theoretical and applied knowledge in these areas in complex engineering problems.		
2	Ability to identify, formulate, and solve complex Industrial Engineering problems; ability to select and apply proper analysis and modeling methods for this purpose.		
3	Ability to design a complex system, process, device or product under realistic constraints and conditions, in such a way as to meet the desired result; ability to apply modern design methods for this purpose.		X
4	Ability to devise, select, and use modern techniques and tools needed for analyzing and solving problems encountered in engineering practice; ability to employ information technologies effectively.		
5	Ability to design and conduct experiments, gather data, analyze and interpret results for investigating complex engineering problems or discipline specific research questions.		
6	Ability to work efficiently individually and in intra-disciplinary / multi-disciplinary teams.		
7	Knowledge of Turkish and English languages; ability to communicate effectively orally, inscriptive and visually by using these languages (via business methods such as reports, presentations and instructions).		
8	Recognition of the need for lifelong learning; ability to access information, to follow developments in science and technology, and to continue to educate him/herself.		
9	Consciousness to behave according to ethical principles and professional and ethical responsibility; knowledge on standards used in engineering practice.		
10	Knowledge about business life practices (management activities such as project, risk, change and quality etc.); awareness in entrepreneurship, innovation; knowledge about sustainable development.		
11	Knowledge about the global and social effects of engineering practices on health, environment, economics and safety, and contemporary issues of the century reflected into the field of engineering; awareness of the legal consequences of engineering solutions.		

ECTS-WORK LOAD TABLE

COURSE ACTIVITIES	Quantity	Time (hr)	Work Load (hr)
Lectures	14	3	42
Final Exam (Preparation included)	1	20	20
Semester Written Exams (Preparation included)	2	12	24
Out of class study time	14	4	45
Homework			
Reports			
Labs			
Seminar			
Presentations			
Term Project			
Total Load (hr)			142
ECTS Credits of the course (Total Work Load / 25)			6

Revision/Date 5/02/2020	Coordinator / Prepared By Demet Özgür Ünlüakın	Approved By Çağlar Aksezer
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