

**DEPARTMENT of INDUSTRIAL ENGINEERING  
COURSE CATALOGUE FORM**



<b>Course Code:</b> INDE3151				<b>Course Title:</b> Forecasting Methods			
<b>Semester</b>	<b>L + R + L</b>	<b>Credits</b>	<b>AKTS</b>	<b>Language</b>	<b>Category</b>	<b>Instructional Methods</b>	<b>Prerequisites</b>
5	3+1+0	3	6	English	Required	Lecture+PS	INDE2156
<b>Course Objectives</b>			An overview of forecasting. Available methodologies and their comparison, selecting a methodology suitable to the management - decision making requirements and designing a forecasting system.				
<b>Course Content</b>			After a brief introduction to Forecasting a review of basic statistical concepts is lectured. The main topics covered are exploring the data patterns, moving averages and smoothing methods, time series components, simple and multiple regression analysis, the Box-Jenkins methods are covered.				
<b>Course Learning Outcomes</b>			Students, who pass the course satisfactorily: 1. Learn how to choose the best forecasting method and apply it properly according to the available data on hand. [2] 2. Learn moving averages, time series and components of the time series [2] 3. Learn simple and multiple regression Analysis. [2] 4. Learn Box-Jenkins (ARIMA) method. [2] 5. Learns Minitab and Excel software in order to apply what is learned in the course. Make practical implementations to learn how to make corporate forecasting decisions. [4]  [Note: Numbers in brackets are indicating the related program outcomes]				
<b>ISCED Category of the course</b>			52 Engineering				
<b>Textbook</b>			"Business Forecasting" Hanke & Wichern.				
<b>Supplementary Material</b>							

**COURSE PLAN**

Week	Topics	Laboratory / Tutorial Work
1	Review of Statistical Concepts	Minitab Implementations
2	Review of Statistical Concepts	Minitab Implementations
3	Exploring Data Patterns and Choosing a Forecasting Technique	Minitab Implementations
4	Moving Averages and Smoothing Methods	Minitab Implementations
5	Moving Averages and Smoothing Methods	Minitab Implementations
6	Time Series and Their Components	Minitab Implementations
7	Time Series and Their Components	Minitab Implementations
8	Simple Linear Regression	Minitab Implementations
9	Simple Linear Regression	Minitab Implementations
10	Multiple Regression Analysis	Minitab Implementations
11	Multiple Regression Analysis	Minitab Implementations
12	Box and Jenkins (ARIMA) Methodology	Minitab Implementations
13	Box and Jenkins (ARIMA) Methodology	Minitab Implementations
14	Box and Jenkins (ARIMA) Methodology	Minitab Implementations

**COURSE ASSESSMENT SYSTEM**

	Activities	Contribution (%)
<b>Semester Activities</b>	<b>Semester Written Exams</b>	61
	<b>Homework</b>	
	<b>Reports</b>	
	<b>Labs</b>	14
	<b>Seminars</b>	
	<b>Presentations</b>	
	<b>Term Project</b>	
	<b>Other (attendance, field trip etc.)</b>	
<b>FINAL EXAM</b>		25
<b>Total</b>		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.		X
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.		
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.		X
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)
<b>Lectures</b>	14	3	42
<b>Final Exam (Preparation included)</b>	1	10	10
<b>Semester Written Exams (Preparation included)</b>	8	6	48
<b>Out of class study time</b>			9
<b>Homework</b>			
<b>Reports</b>			
<b>Labs</b>	14	1	14
<b>Seminar</b>			
<b>Presentations</b>			
<b>Term Project</b>			
<b>Total Load (hr)</b>			123
<b>ECTS Credits of the course (Total Work Load / 25)</b>			5

<b>Revision/Date</b> 5/02/2020	<b>Coordinator / Prepared By</b> Seyhun Altunbay	<b>Approved By</b> Çağlar Aksezer
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