

**DEPARTMENT of INDUSTRIAL ENGINEERING
COURSE CATALOGUE FORM**



Course Code: INDE4185				Course Title: Introduction to Data Mining			
Semester	L + R + L	Credits	AKTS	Language	Category	Instructional Methods	Prerequisites
7	3 + 0 + 0	3	6	English	Elective	Lecture	INDE2156
Course Objectives			To gain the ability to acquire, analyze and interpret data on databases and clusters.				
Course Content			Basic data mining concepts, relation rules and clustering, statistics and machine learning, link analysis and neural networks, R programming language.				
Course Learning Outcomes			Students, who pass the course satisfactorily: 1. Demonstrate knowledge of grouping and classification algorithms. [2] 2. Ability to perform data extraction, analysis and interpretation activities using statistical tools. [2] [Note: Numbers in brackets are indicating the related program outcomes]				
ISCED Category of the course			52 Engineering				
Textbook			Principles of Data Mining - David J. Hand, Heikki Mannila, Padhraic Smyth				
Supplementary Material			R and Data Mining: Examples and Case Studies - Yanchang Zhao				

COURSE PLAN

Week	Topics	Laboratory / Tutorial Work
1	Introduction to data mining and basic concepts	-
2	Data mining statistics	-
3	Classification and Bayesian learning	-
4	Decision tree and classification	-
5	Clustering	Lab study
6	Clustering	-
7	Machine learning	-
8	Machine learning	Lab study
9	Linkage mining	-
10	Neural networks	-
11	Neural networks	Lab study
12	Hierarchical methods	-
13	Databases and decision support systems	-
14	Applications of data mining in production and service systems	-

COURSE ASSESSMENT SYSTEM

	Activities	Contribution (%)
Semester Activities	Semester Written Exams	40
	Homework	-
	Reports	-
	Labs	-
	Seminars	-
	Presentations	-
	Term Project	20
	Other (attendance, field trip etc.)	-
FINAL EXAM		40
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.		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.		
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	15	30
Out of class study time	12	3	36
Homework	-	-	-
Reports	-	-	-
Labs	-	-	-
Seminar	-	-	-
Presentations	-	-	-
Term Project	1	15	15
Total Load (hr)			143
ECTS Credits of the course (Total Work Load / 25)			6

Revizyon/Tarih 5/02/2020	Koordinatör / HAZIRLAYAN Çağlar Aksezer	ONAYLAYAN Çağlar Aksezer
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