COURSE INFORMATON					
Course Title	*Code*	*Semester*	*L+P Hour*	*Credits*	*ECTS*
Expert Systems	CIS523	-	3+0	3	10

Prerequisites	-
Language of Instruction	English
Course Level	Master's Degree
Course Type	Elective
Course Coordinator	
Instructors	Engin Kandıran
Assistants	All assistants of the department
Goals	In this course, students will learn the concept of expert systems and, how to design an expert system.
Content	Basic concepts; Inference engine; Knowledge base; Knowledge elicitation; Representation and control of knowledge; Automated reasoning; Representing uncertainty; Practical problem solving; Development of the theory and practice of expert systems; Well known samples of expert systems; Software tools and architectures for building expert systems

Learning Outcomes	**Program Learning Outcomes**	**Teaching Methods**	**Assessment Methods**
Implements an expert system	11	1, 2, 3	A,C
Determines inference mechanism for a given problem	7	1, 2, 3	A,C
Determines knowledge representation method for a given problem	7	1,3,5	A,C,E
Knows the commonsense databases and their construction phases	8	1, 2, 3,5	A,C,E

Teaching Methods:	1: Lecture, 2: Question-Answer, 3: Discussion, 4: Simulation, 5: Case Study
Assessment Methods:	A: Testing B: Presentation, C: Homework, D: Project, E: Laboratory

COURSE CONTENT		
Week	**Topics**	**Study Materials**
1	Introduction, History	ACM 111
2	Basic concept: inference engine	ACM 111
3	Knowledge base	ACM 111
4	Knowledge elicitation	3,4 Weeks
5	Representation and control of knowledge	ACM 111
6	Automated reasoning	
7	Representing uncertainty	ACM 111
8	**Mid-term Exam**	
9	Practical problem solving Development of the theory and practice of expert systems	MATH 171-2
10	Software tools and architectures for building expert systems	ACM 221
11	Implemention of an expert system	ACM 222
12	Well known samples of expert systems	11,12 Weeks
13	**Final Exam**	

RECOMMENDED SOURCES

Textbook	Introduction to Expert Systems, Jackson P. , 3rd edition, Addison Wesley, ISBN 0-201-87686-8 Giarratano J. , Riley G. , Expert Systems, Principles and Programming, PWS Publising Company, Boston., ISBN 0-534-93744-6
Additional Resources	Introduction to Knowledge Systems, Stefik M., Morgan Kaufmann, ISBN 1-55860-166-X

MATERIAL SHARING	
Documents	Guidelines and additional examples for Lecture Topics
Assignments	Homework Assignments
Exams	Midterm Exam and Final Exam

ASSESSMENT		
IN-TERM STUDIES	**NUMBER**	**PERCENTAGE**
Mid-terms	2	66
LAB AND Quizzes	4	16
Attendance	10	18
Total		**100**
Contribution of Final Examination to Overall Grade		40
Contribution of In-Term Studies to Overall Grade		60
Total		**100**

COURSE CATEGORY	Expertise/Field Courses

COURSE'S CONTRIBUTION TO PROGRAM

No	Program Learning Outcomes	Contribution					
		1	2	3	4	5	
1	Software Development graduates have the knowledge and the skills to design and develop the complete systems for multi-media visual user interface.						
2	Software Development graduates have advanced the knowledge and skills to design, develop and install the application systems for multi-media.				X		
3	Software Development graduates have the knowledge and the skills to design, develop and apply algorithms and data structures to solve the basic problems of information processing, within the framework of discrete mathematics.					X	
4	Software Development graduates have the knowledge and the skills to design and develop computer applications, based on user specified requirements, using modern structured development tools and install them on various hardware platforms and deploy their usage.				X		
5	Software Development graduates have the knowledge and the skills to design and develop computer applications, based on user specified requirements, using modern object-oriented development tools and install them on various hardware platforms and deploy their usage.	X					X
6	Software Development graduates know the logic of computer operating systems, the basic set of system commands, how to control access to system resources by users of different departments and how to monitor the running of jobs in the system.					X	
7	Software Development graduates have the knowledge and the skills to design and develop data models serving different requirements, database applications that would access and process data using various types of software, including queries, reports and business applications.		X				
8	Software Development graduates have the knowledge and the skills to design and develop business applications that would provide data access, modification and processing for data kept in enterprise database systems.						
9	Software Development graduates have the knowledge about computer networks, and have the skills to design, develop and				X		

	monitor computer networks, how to configure them and how to maintain their performance.	
10	Software Development graduates have the knowledge and the skills to design and develop visual user interfaces for the web, web-based applications for n-tier client/server configurations, how to deploy them in enterprises.	x
11	Software Development graduates, within his/her job responsibilities can communicate the necessary information both written and orally in Turkish, English and another foreign language, respecting the values the societal institutions and establishments, of which he/she has acquired in the program.	

ECTS ALLOCATED BASED ON STUDENT WORKLOAD BY THE COURSE DESCRIPTION

Activities	Quantity	Duration (Hour)	Total Workload (Hour)
Course Duration (Including the exam week: 13x Total course hours)	13	3	39
Hours for off-the-classroom study (Pre-study, practice)	14	4	56
Mid-terms	1	2	2
Homework	4	35	140
Final examination	1	3	3
Total Work Load			240
Total Work Load / 25 (h)			9,60
ECTS Credit of the Course			10