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Course Profile - Department of Information Technologies

Course Number : **IT 433**	Course Title : Data Warehousing and Data Mining
Required / Elective : Elective	Pre / Co-requisites : None
Catalog Description: Data mining is the process of finding useful patterns in data. The objective of data mining is to use discovered patterns to help explain behavior or to predict future outcomes.	**Textbook / Required Material :** Data Mining , J. Han – M. Kamber, Morgan-Kaufman, Academic Press, 2001, ISBN: 1-55860-901-6 **Recommended Readings**: Data Mining – Concepts, Models, Methods and Algorithms by Mehmed Kantardzic Data Mining A Tutorial-Based Primer by Richard J.Roiger and Michael W. Geatz
Course Structure / Schedule : **(3+0+0) 3 / 6 ECTS**	
Extended Description : Basic methods and techniques of data mining. Relationship between databases, data warehouses, data mining, and machine learning. Data mining functionalities: association, concept description, classification, prediction and clustering. Various algorithms for each type of functionality: decision tree classification, artificial neural networks. Bayesian classification, logistic regression. K-means clustering. Data mining software.	
Design content : Design some of the data mining algoriths and coding	**Computer usage:** Data Mining Toolbox and software (Ex. Weka)

Course Outcomes:

After completing this course, students should:

1. have the ability to analyze the data and develop some classification and clustering methods [1,3,4]
2. have the knowledge of various types of decision support systems [2,3,4]
3. have the ability to present the studied projects of decision support systems [5,6,7]

Program Outcomes for Management Information Systems Program:

1. A foundation in mathematics and basic sciences and ability to apply acquired knowledge as they relate to the study and practice of information systems management.
2. An ability to align information technology, organizational and strategic matters.
3. An ability to propose, analyze, design, develop, test and maintain an information technology system including software solutions, security model, computer and network infrastructure, etc. to solve information systems problems.
4. An ability to analyze local and global impact of computing on individuals, organizations and society; and the ability to apply information systems techniques, skills, and tools for regular computing practices as well as to improve effectiveness of current methodologies.
5. An ability to effectively communicate in oral and written media with all kinds of related audiences; and prepare documentation for this purpose as required.
6. An understanding of professional, ethical, legal, and social issues and responsibilities of information systems management profession.
7. A taste and breadth of knowledge across several social topics outside the immediate requirements of the information systems management profession, and the ability to work within heterogeneous teams to accomplish a common goal including people from the information systems area as well as other disciplines.
8. An ability to engage in life-long learning and professional development for personal improvement to follow contemporary information systems issues.

Teaching methods:

Pre-readings, assignments, lectures, project

Assessment methods

1 Midterm exam	30%
3 Assignments	15%
1 project	15%
1 Final	40%.

Student workload:

Preparatory reading	40 hrs
Lectures, workshop, discussions	45 hrs
Projects (+assignments)	50 hrs
Midterm Exam	6 hrs
Final Exam	9 hrs
TOTAL ……	**150 hrs**

Prepared by : Assist.Prof. Songül Albayrak	Revision Date : July 19, 2010