AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title		Pattern Recognition						
Course Code		EEE572		Couse Level		Second Cycle (Master's Degree)		
ECTS Credit	8	Workload	201 *(Hours)*	Theory	2	Practice	2	Laboratory	0
Objectives of the Course		Learning pattern recognition techniques and application areas. To learn the basics of classification.						
Course Content		Low level signal characterization of pretreatments, signal behavior and properties Simulation and attribute optimization in classifier structure under attribute distribution Defining patterns as a statistical decision problem Bayesian classifiers, artificial neural networks, fuzzy logic Size and data reduction by linear and nonlinear models Statistical learning theories Support vector machines						
Work Placement		N/A						
Planned Learning Activities and Teaching Methods			Explanation (Presentation), Demonstration, Discussion, Case Study, Project Based Study, Individual Study, Problem Solving					
Name of Lecturer(s)								

Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Assignment	3	30
Term Assignment	1	70

Recommended or Required Reading

1	Pattern Classification: R.O. Duda, P.E. Hart, D.G. Stork 2. Baskı, Wiley, 2000.
2	Neural networks for pattern recognition : C. M. Bishop, Oxford University Press, 1995.
3	Statistical Pattern Recognition: A. Webb, 2. Baskı, Wiley, 2002.
4	Introduction to Machine Learning: E. Alpaydın, MIT Press, 2004.

Week	Weekly Detailed Course Contents	
1	Theoretical & Practice	Introduction, definitions, samples, Bayesian decision theory, supervised learning
2	Theoretical & Practice	Classification
3	Theoretical & Practice	Classifiers based on Bayesian decision theory
4	Theoretical & Practice	Linear Classifiers
5	Theoretical & Practice	Non-linear Classifiers
6	Theoretical	Feature Extraction
7	Theoretical & Practice	Artificial Neural Networks, Fuzzy Logic
8	Intermediate Exam	Midterm Exam.
9	Intermediate Exam	Midterm Exam.
10	Theoretical & Practice	Decision Trees
11	Theoretical & Practice	Pattern Recognition Application
12	Theoretical & Practice	System Evaluation
13	Theoretical & Practice	Unsupervised Learning
14	Theoretical & Practice	Classification
15	Theoretical & Practice	Project presentation
16	Final Exam	Final Exam.

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	16	6	4	160
Assignment	3	2	5	21

Term Project	1	10	10	20
		Total Workload (Hours)		201
		[Total Workload (Hours) / 25*] = **ECTS**		8

*25 hour workload is accepted as 1 ECTS

Learning Outcomes

1	Understanding Pattern Classification and Application Areas
2	To compare solutions developed with algorithms that can converge to human learning.
3	To be able to interpret the differences of the problems that can be provided with intuitive approaches.
4	Being able to follow the research topics developing in the field of Pattern Classification; To be able to make presentations by preparing short seminars on this subject.
5	To gain experience in reading and writing articles.

Programme Outcomes *(Electrical and Electronics Engineering Master)*

1	Developing and intensifying knowledge that requires expertise in the area of Electrical-Electronics Engineering, and gaining the skills necessary to analyze and solve problems using this knowledge
2	Grasping the inter-disciplinary interaction related to Electrical-Electronics Engineering, interpreting and forming new types of knowledge by combining the knowledge from Electrical-Electronics Engineering and the knowledge from various other disciplines
3	Developing new approaches to solve the complex problems arising in Electrical-Electronics Engineering, coming up with solutions while taking responsibility and carrying out a specific study independently
4	Assessing the knowledge and skill gained in the area of Electrical-Electronics Engineering with a critical view
5	Transferring the current developments and one's own work in Electrical-Electronics Engineering, to other groups in written, oral and visual forms
6	The ability to control the collecting, interpreting, practicing and announcing processes of the Electrical-Electronics Engineering related to data taking into consideration scientific, cultural and ethical values and the ability to teach these values to others
7	Developing application plans concerning the subjects related to Electrical-Electronics Engineering and the ability to evaluate the end results of these plans within the frame of quality processes

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Contribution of Learning Outcomes to Programme Outcomes *1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High*

	L1	L2	L3	L4	L5
P1	3	4	3	3	4
P2	3	4	3	3	4
P3	3	4	5	3	4
P4	3	3	5	3	4
P5	4	5	5	4	4
P6	3	4	4	3	4
P7	4	3	3	4	4