



ESOGÜ Mathematics and Computer Sciences COURSE INFORMATION FORM

SEMESTER	Spring
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COURSE CODE	821618009	COURSE NAME	ARTIFICIAL NEURAL NETWORK
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Labratory	Credit	ECTS	TYPE	LANGUAGE
8	3	0	0	3	5	COMPULSORY () ELECTIVE (x)	Turkish

COURSE CATAGORY

Mathematics	Computer	Social Science
x		

ASSESSMENT CRITERIA

	Evaluation Type	Quantity	%
MID-TERM	1st Mid-Term	1	50
	2nd Mid-Term		
	Quiz		
	Homework		
	Project		
	Report		
	Others (.....)		
FINAL EXAM		1	50
PREREQUIEITE(S)	Calculus I and Linear algebra,c computer programming		
COURSE DESCRIPTION	Gives an introduction to basic (artificial) neural network architectures and learning rules. Emphasis is placed on mathematical analysis of these networks, on methods of training them, and on their application to practical problems		
COURSE OBJECTIVES	The course will teach a variety of neural networks and introduce the theory of some neural networks.		
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION	Learn to design the neural network similar to human neural network and application to real –life problems.		
COURSE OUTCOMES	<ul style="list-style-type: none"> understand context of neural network methods have an understanding of a variety of neural networks techniques be able to analyse a problem for NN solution in terms of these methods have a working knowledge of a typical neural network simulation package: learn, and be able to use it to perform a range of computational tasks 		
TEXTBOOK	Fundamentals of Neural Networks, Laurene V. Fausett		
OTHER REFERENCES	1) Neural Networks: A Comprehensive Foundation Simon S. Haykin		
TOOLS AND EQUIPMENTS REQUIRED			

WEEKLY PLAN OF THE COURSE

Week	Topics
1	Introduction to artificial neural networks
2	Basics of network training
3	Supervised Learning :The Perceptron, Adalines
4	Supervised Learning : , Multi-layer perceptrons (MLPs)Backpropagation
5	Unsupervised Learning: Simple Competitive Networks: Winner-take-all Hamming network
6	First midterm
7	Learning Vector Quantization (LVQ) ,Counterpropagation Networks (CPN)
8	Adaptive Resonance Theory (ART)
9	Kohonen Self-Organizing Maps (SOMs)
10	Support Vector Machines
11	Applications
12	Hopfield Networks
13	Some applications of to artificial neural networks
14	Some applications of to artificial neural networks
15,16	Final

NO	OUTCOMES OF THE PROGRAMME	4	3	2	1
1	Adequate knowledge of mathematics, science and Computer Engineering; ability to practice theoretical and practical knowledge of these areas into modeling and solving problems of Computer Engineering		x		
2	Ability to identify complex engineering problems in Computer Engineering and related fields, for this purpose having skills to formulate, select and apply appropriate methods.	x			
3	Having skills to apply modern design methods to design a complex system, equipment or product that should work under realistic conditions and constraints and satisfy specific requirements concerning the Computer Engineering.			x	
4	Having skills to develop, select and apply modern techniques and tools needed for Engineering applications, skills to use information technology effectively.		x		
5	Skills to design and conduct tests, collect data, analyze results, and interpret data for the experimental investigation of Computer Engineering problems		x		
6	Ability to function effectively as an individual and as a member of teams within the discipline and in multidiscipline areas.		x		
7	Communicating effectively in oral and written form in Turkish and one foreign language.		x		
8	Awareness of the necessity of lifelong learning, access to information, monitoring developments in science and technology and the ability to self-renewing		x		
9	Understanding of professional and ethical responsibility		x		
10	Information on project management, change management and risk management practices, awareness on entrepreneurship, innovation and sustainable development.		x		
11	Information about universal and societal effects of engineering applications on health, safety and environment; awareness of the legal consequences of engineering solutions.		x		

Instructor(s): Dr. Özer ÇELİK

Signature:

Date: