

<b>Course Description Form</b>			
<b>Course Code and Name</b>	5081329 Applications of Fuzzy Sets in Engineering		
<b>Course Semester</b>	Fall-Spring		
<b>Catalog Content</b>	Fuzzy set theory and fuzzy logic. Fuzzy operators, fuzzy relations. Applications of fuzzy set theory in engineering fields		
<b>Textbook</b>	T.J.Ross, Fuzzy Logic with Engineering Applications, Addison Wesley, 1995. (2) Neuro-Fuzzy and Soft computing, Jiang, et al., Pearson Education, 1996.		
<b>Supplementary Textbooks</b>	-		
<b>Credit</b>	8		
<b>Prerequisites of the Course ( Attendance Requirements)</b>	-		
<b>Type of the Course</b>	Elective		
<b>Instruction Language</b>	Turkish		
<b>Course Objectives</b>	To have knowledge about fuzzy set theory and fuzzy logic. Fuzzy operators, fuzzy relations. Fuzzy set theory can be applied in engineering fields to gather information at a level that can be implemented.		
<b>Course Learning Outcomes</b>	The mode of delivery of this course is face to face		
<b>Instruction Methods</b>	1.Week Introduction to fuzzy sets 2.Week Classical sets and fuzzy sets 3.Week Classical relations and fuzzy relations 4.Week Classical relations and fuzzy relations 5.Week Membership functions 6.Week Membership functions 7.Week Converting fuzzy value to crisp value 8.Week Converting fuzzy value to crisp value 9.Week Fuzzy arithmetic 10.Week Classical logic and fuzzy logic 11.Week Classical logic and fuzzy logic 12.Week Fuzzy rule based systems 13.Week Fuzzy control systems 14.Week Fuzzy control systems		
<b>Weekly Schedule</b>	1. It will be able to bring practical solutions to problems that can be solved with fuzzy set theory with correct approaches. 2.Fuzzy operators will have a basic knowledge of fuzzy relationships.		
<b>Teaching and Learning Methods</b>  <i>(These are examples. Please fill which activities you use in the course)</i>	Weekly Theoretical Course Hours Reading Tasks Studies Report Preparing Preparing a Presentation Presentations Midterm Exam and Preparation for Midterm Exam Final Exam and Preparation for Final Exam		
<b>Assessment Criteria</b>		<b>Numbers</b>	<b>Total Weighting (%)</b>
	Midterm Exams	1	35
	Assignment	6	25
	Application		
	Projects		
	Practice		
	Quiz		
	Percent of In-term Studies (%)		60
	Percentage of Final Exam to Total Score (%)		40
Attendance			

Workload	Activity	Total Number of Weeks	Duration (weekly hour)	Total Period Work Load
	Weekly Theoretical Course Hours	14	3	42
	Weekly Tutorial Hours	3	3	9
	Reading Tasks	14	3	42
	Studies	14	3	42
	Material Design and Implementation	5	5	25
	Report Preparing	1	7	7
	Preparing a Presentation	1	5	5
	Presentations	1	3	3
	Midterm Exam and Preperation for Midterm Exam	1	10	10
	Final Exam and Preperation for Final Exam	1	15	15
	Other ( should be emphasized)			
	Total Workload			200
	Total Workload / 25			8
Course Credit (ECTS)			8	

  

Contribution Level Between Course Learning Outcomes and Program Outcomes	No	Program Outcomes	1	2	3	4	5
	1	Reaches the expansion of knowledge by conducting scientific research in the field of engineering and evaluation, interpretation and application of information.					X
	2	Has extensive and in depth knowledge including the latest techniques, methods applied and their limitations in engineering.					X
	3	Completes and applies knowledge by using scientific methods by using limited or missing data and integrates information from different disciplines.				X	
	4	Be aware of new and developing practices of the profession, examines and learns when needed.					X
	5	Defines and formulates problems related to the field, develops methods to solve them and applies innovative methods in solutions.				X	
	6	Develops new and / or original ideas and methods, designs complex systems or processes and develops innovative / alternative solutions in their designs.				X	
	7	Designs and applies theoretical, experimental and modeling based researches, examines and solves the complex problems encountered in this process.					X

	8	Works effectively in disciplinary and multidisciplinary teams, leads such teams and develops solution approaches in complex situations, works independently and takes responsibility.			X		
	9	Communicates oral and written using a foreign language at least at the level of European Language Portfolio B2.		X			
	10	Conveys the process and results of the studies in written and oral form in a systematic and clear manner in national and international environments within or outside the field.					X
	11	Knows the social, environmental, health, security, legal aspects of engineering applications; project management, and business life applications and be aware of the constraints of these engineering applications.	X				
	12	Considers social, scientific and ethical values in the stages of data collection, interpretation and announcement and in all professional activities.		X			
<b>The Course's Lecturer(s) and Contact Informations</b>		Name Surname: Prof. Dr. M. Ali AKCAYOL E-mail address: akcayol@gazi.edu.tr					