Course Description Form	
Course Code and Name	CENG462 FUZZY LOGIC (TECH.ELECT.)
Course Semester	8
Catalog Content	Fuzzy logic, fuzzy logic, comparison of classical logic with fuzzy logic, membership concept, fuzzy sets, membership function types, fuzzy predicates, fuzzy models, fuzzy values, fuzzy quantities, fuzzy conditional and limited propositions, inferences, fuzzy level sets , fuzzy sets, fuzzy sets, fuzzy sets, fuzzy sets, fuzzy sets, fuzzy sets, fuzzy numbers, fuzzy number operations, fuzzy set graphs, fuzzy equations, rule based inference, blurring, inference mechanisms, rinse, Mammadani and Sugeno fuzzy system models, artificial neural networks, genetic algorithms, fuzzy logic, computer applications.
Textbook	An Introduction to Fuzzy Logic for Practical Applications by Kazuo Tanaka and T. Niimura, 1996.
Supplementary Textbooks	Fuzzy Logic with Engineering Applications, Third Edition 3rd Edition by Timothy J. Ross, 2010. Fuzzy Logic: An Introductory Course for Engineering Students by Trillas, Enric, Eciolaza, Luka, Springer, 2015.
Credit	6
Prerequisites of the Course **(** *Attendance Requirements***)**	There is no prerequisite or co-requisite for this course
Type of the Course	Technical Elective
Instruction Language	English
Course Objectives	The aim of this course is to teach students the definition of fuzzy logic, its basic concepts and applications.
Course Learning Outcomes	1. Learn fuzzy set and basic fuzzy set operations.
Instruction Methods	The mode of delivery of this course is Face to face
Weekly Schedule	1.Hafta Fuzzy sets and operations 2.Hafta Fuzzy sets and operations 3.Hafta Fuzzy relations and expansion principle 4.Hafta Fuzzy relations and expansion principle 5.Hafta Linguistic variables 6.Hafta Linguistic variables 7.Hafta Fuzzy logic and approximate reasoning 8.Hafta Fuzzy logic and approximate reasoning 9.Hafta Fuzzy rule base 10.Hafta Fuzzy rule base 11.Hafta Fuzzy decision mechanism 12.Hafta Fuzzy therapeutic agents 13.Hafta Fuzzy systems for nonlinear structures 14.Hafta Fuzzy system design with input-output data set

Teaching and Learning Methods *(These are examples. Please fill which activities you use in the course)*	Weekly theoretical course hours: 3 Reading Activities Internet browsing, library work Preparation of Midterm and Midterm Exam Final Exam and Preparation for Final Exam

Assessment Criteria

	Numbers	**Total Weighting (%)**
Midterm Exams	1	30
Assignment	2	30
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			0
Reading Tasks	14	3	42
Studies	14	3	42
Material Design and Implementation			0
Report Preparing			0
Preparing a Presentation			0
Presentations			0
Midterm Exam and Preparation for Midterm Exam	1	10	10
Final Exam and Preparation for Final Exam	1	15	15
Other (should be emphasized)			0
Total Workload			151
Total Workload / 25			6,04
Course Credit (ECTS)			6

Contribution Level Between Course Learning Outcomes and Program Outcomes

No	Program Outcomes	1	2	3	4	5
1	Sufficient knowledge on mathematics, science and computer engineering; ability to apply theoretical and practical knowledge in these areas to model and solve engineering problems				X	
2	Ability to identify, define, formulate and solve complex engineering problems; ability to choose and apply appropriate analysis and modelling methods for these purposes					X
3	Ability to design a complex system, process, device, software, algorithm, or product under realistic constraints and circumstances to meet certain requirements; ability to apply modern design techniques for this purpose					X
4	Ability to choose, develop and use modern techniques and tools necessary for engineering applications; ability to effectively use computing technologies				X	
5	Ability to design and implement systems or experiments to solve engineering problems, collect and interpret data to evaluate and analyze the results of solutions				X	
6	Ability to work effectively in intradisciplinary and interdisciplinary teams or individually					X
7	Ability to efficiently prepare, evaluate and interpret reports					X
8	Ability to make presentations and conduct effective verbal and written communication in Turkish and English					x
9	Awareness of the necessity of lifelong learning; ability to access information, follow scientific and technological developments; ability to perpetually renew oneself				X	
10	Awareness of professional and ethical responsibility, ability to act in accordance with ethical principles				X	

	11	Ability to apply knowledge on project management, risk management and change management				X	
	12	Awareness of entrepreneurship and innovation, ability to design and build sustainable systems					X
	13	Ability to devise local and global solutions to contemporary issues considering the effects of engineering applications on health, environment and security					X
	14	Awareness of the legal consequences of engineering solutions					X
	15	Ability to apply knowledge on software development process and documentation rules				X	
	16	Knowledge on standards used in engineering applications				X	
	17	Awareness of occupational health and security, information security and privacy				X	
The Course's Lecturer(s) and Contact Information	Lecturer Dr. Oktay YILDIZ E-mail: oyildiz@gazi.edu.tr						