



**ESOGU ELECTRICAL - ELECTRONICS ENGINEERING DEPARTMENT
COURSE INFORMATION FORM**

Course Title	Course Code
ELECTRICAL DISTRIBUTION SYSTEMS	151227648- 151247648

Semester in Program	Number of Course Hours per Week		ECTS
	Theory	Practice	
8	3	0	5

Course ECTS Credit Distribution				
Basic Sciences	Engineering Sciences	Design	General Education	Social
	3			

Language of Instruction	Course Level	Course Type
English	Undergraduate	Elective

Prerequisite	
Objectives of the Course	1-To provide student with understand different type of power distribution systems and their usage in to days life. 2-To familiarize student with protection and
Brief Course Content	This electrical distribution course introduces the component of the distribution system and the way in wich the systems delivers power to end-use customers. Included in the course are descriptions of key system components including single and three phase lines as Wye and delta lines.

Learning Outcomes of the Course	Contributed POs	Teaching Methods *	Assessment Methods **
1 Understand the distribution system planning and automation	1	Lecture	Exam
2 Differentiate the type of load and their characteristics	4	Lecture	Exam
3 Explain the design consideration of sub transmission lines	4	Lecture	Exam
4 Understand different load and their characteristics and design the distribution feeders.	5	Lecture	Exam
5			
6			
7			
8			

***Teaching Methods** 1:Lecture, 2:Discussion, 3:Experiment, 4:Simulation, 5:Question-Answer, 6:Tutorial, 7:Observation, 8:Case Study, 9:Technical Visit, 10:Problem Solving, 11:Individual Work, 12:Team/Group Work, 13:Brain Storm, 14:Project Design / Management, 15:Report Preparation and/or Presentation

****Assessment Methods** A:Exam, B:Quiz, C:Oral Exam, D:Homework, E:Report, F:Article Examination, G:Presentation, I:Experimental Skill, J:Project Observation, K:Class Attendance; L:Jury Exam

Main Textbook	A S pabla:"Electric power Distribution",Tata McGraw-hill publishing company,4 th Edition,1997
Supplementary Resources	Turan Gonen "Electric Power Distribution System,Engineering"McGraw-hill Book company.
Necessary Course Material	

Course Weekly Schedule	
1	Introduction to distribution systems, Load modeling and characteristics, Coincidence factor, Contribution factor loss, Relationship between the load factor and loss factor,
2	Classification of load: Residential, Commercial, agricultural and industrial and their characteristics
3	Design and consideration of distribution feeders, Radial and loop types of primary feeders,
4	Voltage levels, Feeder loading, basic design practice of secondary distribution system
5	Substations: rating of distribution substation, service area within primary feeders, Benefits derived through optimal location of substations
6	Distribution system analysis: Voltage drop and power-loss calculation, Derivation of voltage drop and power loss in line,
7	Manual method of solution for radial networks, Three phase balanced primary lines
8	Mid-Term Exams
9	Protective devices and co-ordination: objectives of distribution system protection, Type of common faults and procedure for fault calculation
10	Protective device: principle of operation fuses, circuit recourses, and line sectionalizes, and circuit breakers
11	Coordination of protective devices: general coordination procedure
12	voltage control :equipment for voltage control, effect of series capacitors, line drop compensation, line drop compensation
13	Effect of AVR, power factor control, Using different type of power capacitors, shunt and series capacitors, effect of shunt capacitors, Power factor correction,
14	Effect of AVR, power factor control, Using different type of power capacitors, shunt and series capacitors, effect of shunt capacitors, Power factor correction,
15	capacitor allocation-economic justification-procedure to determine the best capacitor location
16,17	Final Exams

Calculation of Course Workload			
Activities	Count	Time (Hour)	Total Workload (Hour)
Weekly classroom time	14	3	42
Weekly study time (review, reinforcing, preparation)	14	5	70
Homework			
Taking a quiz			
Studying for a quiz			
Oral exam			
Studying for an oral exam			
Report writing (Preparation and presentation time included)			
Project (Preparation and presentation time included)			
Presentation (Preparation time included)			
Mid-Term Exam	1	2	2
Studying for Mid-Term Exam	1	8	8
Final Exam	1	2	2
Studying for Final Exam	1	10	10
Total workload			134
Total workload / 30			4.46
Course ECTS Credit			5

Assessment	
Activity Type	%
Mid-term	35
Presentation	15
Homework	
Bir öge seçin.	
Bir öge seçin.	
Final Exam	50
Total	100

COURSE CONTRIBUTION TO THE PROGRAM OUTCOMES (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low)		
NO	PROGRAM OUTCOMES	Contribution
1	a. Sufficient knowledge of mathematics	
	b. Sufficient knowledge of basic sciences	
	c. Sufficient basic engineering and Electrical-Electronics engineering knowledge	4
	d. Skill of applying all these knowledge and experience to complicated Electrical-Electronics engineering problems	
2	Skill of defining, identifying, formulating and solving the complicated problems in Electrical-Electronics engineering and related areas by applying appropriate analysis and modelling methods.	4
3	Skill of designing a complicated process, system, equipment or product by applying modern design methods under realistic constraints and conditions.	
4	To analyze and solve the complicated engineering problems:	3
	a. skill of developing, selecting and applying the required techniques and devices b. skill of using information technologies effectively	
5	To study the complicated on the complicated Electrical-Electronics engineering problems and research subjects:	4
	a. skill of experimental design b. skill of performing the experiments, collecting the data and analyzing and interpreting the results	
6	a. Skill of performing individual studies	
	b. Skill of performing intra and interdisciplinary and multidisciplinary teamwork and studies	
7	a. Skill of effective oral and writing communication in Turkish	
	b. Skill of improving and using foreign language knowledge	
	c. Skill of effective reporting, understanding the reports and preparing the design and production reports	
	d. Skill of effective presentation and giving and getting clear and understandable instructions.	
8	Awareness of the necessity of life-long learning and skill of accessing to information and following the improvements in contemporary science and technology	
9	a. Awareness of necessity of behaving in accordance with the ethical principles and awareness of the importance of having professional ethical responsibilities	
	b. Knowledge about legal regulations and standards of engineering	
10	a. Knowledge about project management, risk management and change management	
	b. Awareness of the significance of entrepreneurship and innovation	
	c. Knowledge about sustainable development	
11	Knowledge about the effects of engineering applications and practices on the global and social health, ecology and safety, knowledge about the current problems in relation to the working	

	areas of Electrical-Electronics engineering; and awareness of the legal issues resulting from engineering solutions	
12	Knowledge about modern problems in local and universal scale	

LECTURER(S)				
Prepared by	Assoc.Prof.Dr.Atabak NAJAFI			
Signature(s)				

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