

FUNDAMENTALS OF ELECTRICAL ENGINEERING

1	Course Title:	FUNDAMENTALS OF ELECTRICAL ENGINEERING
2	Course Code:	ELN2060
3	Type of Course:	Compulsory
4	Level of Course:	First Cycle
5	Year of Study:	2
6	Semester:	3
7	ECTS Credits Allocated:	3.00
8	Theoretical (hour/week):	2.00
9	Practice (hour/week):	0.00
10	Laboratory (hour/week):	0
11	Prerequisites:	None
12	Language:	Turkish
13	Mode of Delivery:	Face to face
14	Course Coordinator:	Öğr.Gör.Dr. SEVİM KURTULDU
15	Course Lecturers:	
16	Contact information of the Course Coordinator:	E-posta:itekin@uludag.edu.tr Tel: (224) 294 2030 Adres: Uludağ Üniversitesi Mühendislik Mimarlık Fakültesi 1. Kat, No:112
17	Website:	
18	Objective of the Course:	The goal of the course is to introduce students to the basic concepts like voltage, current, active and reactive power, energy in electrical engineering, to circuit analysis methods, to power and energy measurement methods in mono-phase and three-phase systems, to basic concepts in digital electronics.
19	Contribution of the Course to Professional Development:	
20	Learning Outcomes:	
	1	Understand the basic concepts like voltage, current, active and reactive power, energy in electrical engineering
	2	Understand how to use circuit analysis methods to reduce circuits
	3	Analysis an electrical circuit using circuit analysis methods
	4	Learn how to measure power and energy in electrical circuits.
	5	Understand and compare analog and digital signals and systems.
	6	Design basic logical functions using basic gates
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21	Course Content:	
	Course Content:	
Week	Theoretical	Practice
1	Voltage, current, ac and dc current, Ohm law, Kirchhoff laws	

2	Circuit analysis using Kirchhoff laws, voltage and current dividers, parallel / series circuits	
3	Delta-Wye nad Wye-Delta conversions, bridge networks, source conversions	
4	Mesh analysis	
5	Nodal analysis	
6	Superposition theorem	
7	Thevenin's and Nortonn's theorem, maximum power transfer	
8	Midterm + review session	
9	Capacitors, analysis of RC circuits	
10	Inductors, analysis of RL circuits	
11	Active and reactive power, power factor correction, ac and dc active power measurement	
12	Power measurement in mono and three phase systems, reactive power measurement	
13	Grounding, measurement of earth ground resistance	
14	Analog and digital signals and systems, Binary numbers, digital logic gates	

22	Textbooks, References and/or Other Materials:	1. Allan .Robbins, "Circuit analysis: Theory and practice", 5th edition, Delmar 2006. 2. James W. Nilsson, Susan A. Riedel "Electric Circuits"
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Activites	Number	Duration (hour)	Total Work Load (hour)
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23	Assessment			
	Theoretical	14	2.00	28.00

TERM LEARNING ACTIVITIES	NUMBER	WEIGHT		
Practicals/Labs	0	0.00	0.00	

Self study and preparation	1	40/40	1.50	21.00
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Homeworks	0	0.00	0.00
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Projects	0	0	0.00	0.00
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Field Studies	0	0.00	0.00
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Midterm exams	2	100.00	15.00	15.00
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Others	0	0.00	0.00
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Success Grade	1	26.00	26.00
Final Exams	1	26.00	26.00

Final Exams	1	2015	2015
Total Work Load			90.00

Total work load/ 30 hr	100.00	3.00
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Total work load/ 50 hr	100.00		3.00
ECTS Credit of the Course			3.00

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Course			

24	ECTS / WORK LOAD TABLE
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1	2010, 2011, 2012, 2013
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25	CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS
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	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	PQ9	PQ10	PQ11	PQ12	PQ13	PQ14	PQ15	PQ16
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ÖK4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LO: Learning Objectives PQ: Program Qualifications																
Contribution Level:	1 very low			2 low			3 Medium			4 High			5 Very High			