Course Unit Title	Electrical Circuits
Course Unit Code	EE 207
Type of Course Unit	Compulsory
Level of Course Unit	
National Credits	3
Number of ECTS Credits Allocated	6
Theoretical (hour/week)	4
Practice (hour/week)	-
Laboratory (hour/week)	2
Year of Study	2
Semester when the course unit is delivered	4
Course Coordinator	Cemal Kavalcıoğlu
Name of Lecturer (s)	Cemal Kavalcıoğlu
Name of Assistant (s)	-
Mode of Delivery	Face to Face, Laboratory
Language of Instruction	English
Prerequisites	PHY 102
Recommended Optional Program Components	The modes of delivery include formal lectures, discussions and lab works.

Course description:

This course is designed for provide an understanding of the fundamentals and analysis of electric circuits. The course encompasses the fundamental concepts of electric circuits, such as Ohm's and Kirchhoff's laws. It develops into the circuit analysis techniques such as nodal and mesh analyses and the equivalent circuits. Energy storage elements and first order transient circuits are included in the course. The course also covers the analysis of sinusoidal circuits, including the power calculation.

Objectives of the Course:

- Conceptual overview of law and methods in engineering
- Teaching Methods of Circuit theory.
- Teaching Power in circuits

Learning Outcomes

	At the end of the course the student should be able to	Assessment
1	Analyze simple DC circuits using systemic analysis techniques (basic law).	1, 2, 5
2	Apply Thevenin's theorem, Norton's theorem and the superposition theorem to aid in circuit analysis.	1, 2, 5
3	Explain AC steady-state circuit concepts (impedance, reactance, etc.) and perform AC steady state analysis.	1, 2, 5
4	Perform DC and AC steady-state power calculations	1, 2, 5

Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work

Course's Contribution to Program

		CL
1	Apply knowledge of mathematics, natural science with relevant to life science and multidisciplinary context of engineering science.	5
2	Analyze, design and conduct experiments, as well as to analyze and interpret data.	4
3	Design a system, component or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability.	4
4	Function on multidisciplinary teams.	4
5	Control in design work, by using simulation, modelling and tests and integration in a problem solving oriented way.	4
6	Display an understanding of professional and ethical responsibility.	3
7	Communicate effectively aware of the non-technical effects of engineering.	2
8	Search technical literature and other information sources.	1
9	Recognize of the need for, and an ability to engage in life-long learning.	2
10	Exhibit a knowledge of contemporary issues.	2
11	Use the techniques, skills and modern engineering tools necessary for engineering practice to develop marketable products for the global market.	3

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

Course Contents

Week	Chapter	Topics	Exam
1		• Introduction	
2		• Definitions and Units	
3		• Kirchhoff's Laws.	
4		• Kirchhoff's Laws	
5		• Nodal Analysis, Mesh Analysis	
6		• Nodal Analysis, Mesh Analysis contd.	
7		• Superposition Theorem	
8		• Midterm	
9		• Source Transformation	
10		• Source Transformation	
11		• Thevenin's and Norton's Theorem	
12		• Thevenin's and Norton's Theorem contd.	
13		• Energy Storage Elements	
14		• Energy storage Elements contd.	
15		• Sinusoidally Forcing Function	Final
		• FINAL	

Recommended Sources

Textbook:

• James W. Nilsson, Susan A. Riedel "ELECTRIC CIRCUITS" Prentice Hall, Seventh Edition.

Supplementary Course Material

Assessment

Attendance	5 %	Less than 25% class attendance results in NA grade
Laboratory	15 %	

Midterm Exam	30 %	Written Exam	
Final Exam	50 %	Written Exam	
Total	100 %		

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies

Course Policies

- Attendance is Compulsory. Every student is expected to attend the class regularly on time.
- Students may use calculators during the exam.
- Cheating will not be tolerated. Cheating will be penalized according to the Near East University General Student Discipline Regulations

ECTS allocated based on Student Workload

Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	16	4	64
Labs and Tutorials	5	10	10
Assignment	-	-	-
Project/Presentation/Report	-	-	-
E-learning activities	-	-	-
Quizzes	-	-	-
Midterm Examination	1	15	15
Final Examination	1	15	15
Self-Study	14	3	42
Total Workload			176
Total Workload/30(h)			5.59
ECTS Credit of the Course			6