The Republic of Iraq
Ministry of Higher Education and Scientific Research
Scientific Supervision and Evaluation Authority

University: Shatt Al-Arab University
College: College of technical Engineering

Department Laser and Optoelectronics Engineering Technology
The First stage
Lecturer Name: Dr. Murtadha Muayad Naeem
Academic qualification: PhD
Place of work: Shatt Al-Arab University

weekly lesson schedule

Course Lecturer	**Dr. Murtadha Muayad Naeem**
e-mail	
Title	Electric Circuits
Course Coordinator	
Course Objectives	This comprehensive course provides a basic understanding of the principles of Electric Circuits. The main objectives of this course are: • To develop problem-solving skills and understanding of circuit theory through the application of techniques. • To understand voltage, current, and power from a given circuit. This course deals with the basic concept of electrical circuits. • This is the basic subject for all electrical and electronic circuits. • To understand Kirchhoff's current and voltage Laws problems. • To perform mesh and Nodal analysis.
Course Description	This course provides a comprehensive understanding of the fundamentals of electric circuit principles and their applications in electrical and electronic systems. It covers the analysis of DC and AC circuits, including resistive, inductive, and capacitive elements, as well as RL, RC, and RLC configurations. Students will learn essential techniques such as Ohm's law, Kirchhoff's laws, mesh and nodal analysis, phasor methods, and the use of complex impedance. The course also introduces diode-based circuits for rectification and voltage regulation, equivalent circuit modeling, frequency response analysis, and basic filter design. Through lectures and problem-solving exercises, students will develop the skills necessary to analyze and design basic electrical circuits for practical applications. .
Textbooks	1. 1 Fundamentals of Electric Circuits, C.K. Alexander and M.N.O Sadiku, McGraw-Hill Education 2. DC Electrical Circuit Analysis: A Practical Approach Copyright Year: 2020, dissidents

final exam 50	**project**	**Assignment**	**daily exams**	**lab**	**Midterm Exam**
	10	**10**	**10**	**10**	**10**
General Notes					

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University: Shatt Al-Arab
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Department Laser and Optoelectronics Engineering Technology
The First stage
Lecturer Name: Alaa Naser Khraibet
..Scientific title:
Academic qualification:
Place of work: Shatt Al-Arab University

weekly lesson schedule

Week	Date	Topics Covered	Number of Hours	Notes
١	**13-11-2024**	Introduction - Difference between Circuit Theory and Field Theory		
٢	**20-11-2024**	Basics of Network Elements		
٣	**27-11-2024**	Resistance and Resistivity, Ohm's Law and Inductance, Capacitance		
٤	**4-12-2024**	Review of Kirchhoff's Laws, Circuit Analysis - Nodal and Mesh		
٥	**11-12-2024**	Linearity and Superposition, Source Transformations, Thévenin and Norton Equivalents		
٧-٦	**18-11-2024** **25-11-2024**	Review of Inductor and Capacitor as Circuit Elements, Source-free RL and RC Circuits, Transient Response		
٩-٨	**8-1-2025-**	Nodal and Mesh Revisited, Average Power, RMS, Introduction to Polyphase Circuits		
١٢-١١-١٠	**15-1-2025** **22-1-2025**	Mutual Inductance, Linear and Ideal Transformers, Circuits with Mutual Inductance Frequency Response of Series/Parallel Resonances, High-Q Circuits		
١٤-١٣	**29-1-2025** **5-2-2025**	Complex Frequency, s-Plane, Poles and Zeros, Response Function, Bode Plots		
١٥	**12-2-2025**	Two Port Networks, Admittance, Impedance, Hybrid, and Transmittance Parameters		

Weekly Lesson Plan (Lab)

Week	Number of hours	Topics covered
١-٢		Introduction to Agilent VEE and PSPICE
٣-٤		Thévenin's / Norton's Theorem
٥-٦		Kirchhoff's Laws
٧-٨		First-Order Transient Responses
٩-١٠		Second-Order Transient Responses
١١-١٢		Frequency Response of RC Circuits
١٤-١٣		Frequency Response of RLC Circuits
١٥		filters

Lecturer's signature: **Head of Department's signature:**