College	**Engineering and Technology**		
Department	**Electrical and Electronic Engineering**		
Program	BSc		
Course Title	Electric Circuits	**Course Number:**	12110236
Year	2023/2024	**Semester:**	Summer
Prerequisite(s)	General Physics I		
Instructor	Eng. Muntaser Sh. Al-Dabe		
Instructor's e-mail	m.dabe@ptuk.edu.ps		
Office Hours	*Sun , Mon. Tue 12-2*		
Class Time	Sun, Mon, Tue 10-12	**Class Room:**	
Course description	This course will include the following topics: Basics of **DC** circuit elements, Circuit Analysis (Series, Parallel, and Compound), Circuits Laws (Ohms, Kirchhoff, Divider Rules and source Transformation), Network Analysis (Mesh, Nodal, Bridges Networks, and Δ-Y connection and conversion), Network Theorems (Superposition, Thevenin, Norton, and Maximum Power Transfer), Basics of **AC** waveforms and circuit elements, principles of phasors and its diagrams, Circuit Analysis (Series, Parallel, and Compound), Network Analysis (Mesh, Nodal, Bridges Networks, and Δ-Y connection and conversion), Network Theorems (Superposition, Thevenin, Norton, and Maximum Power Transfer)		
Course Intended Learning Outcomes (CILOs)	**A) Knowledge and understanding** a1) Define the basics of Dc circuit elements, their response to electrical quantities, network theorems and circuit analysis techniques a2) Identify the sinusoidal alternating waveforms and their properties. a3) Define the basics of ac circuit elements and phasors, their response to electrical quantities, complex numbers and its mathematical operations. a4) Recognize the most famous Network Theorems. a5) Identify the Power concepts and types, Power triangle techniques and Power Factor Correction. a6) Understand the Resonance Circuits and properties. **B) Intellectual/Cognitive skills**		

	b1) Analyze the electric Networks using Mesh and Nodal approaches. Also, the ability to analyze Bridge Networks, Δ-Y connection and conversion b2) Analyze the Polyphase Systems (Y-Y, Δ-Y, Y-Δ, Δ-Δ). **C) General and transferable skills** Be able to use outcomes A and B in afterwards courses such as Electronics, Measurements, and Electrical machines.
Textbook(s)	**Engineering Circuit Analysis**, 6th edition, W. Hayt , J. Kemmerly and S. Durbin, Mc Graw Hill.(CH. 2,3,4,5,7) **Introductory Circuit Analysis, 10th edition, Robert L. Boylestad, Prentice Hall. (Ch-13, 14,15,16,17,18,19,22)**
Other required material (References):	1. Electric Circuits, 8th edition, J. Nilsson & S. Riedel, Prentice Hall. 2. Engineering Circuit Analysis, 6th edition, Hayt & Durbin, Mc Graw Hill. 3. Electric Circuit Analysis, 3rd edition, D.E Johnson & J.R. Johnson, Prentice Hall. 4. Circuit Analysis, 2nd edition, Robbins & Miller, Delmar.
Other Resources used (e.g. e-learning, field visits, periodicals, software, etc.)	**A. Electronic resources, Websites related to the course** **1. LMS learning management system ptuk E-learning (moodle)**

Course Teaching Methods	
Teaching Method	**CILOs**
Direct Instruction	A
Problem Based	B
procedural	D

Assessment Type	Details/Explanation of assessment in relation to CILOs	Weight	Date(s)
Mid term	B	35%	4th week
Course Work	A,B	20%	5th week
Final Exam	A, B, D	45%	8th week
Total		100%	

Course Intended Learning Outcomes (CILOs)										
CILOs	**Mapping to Program ILOs**									
On successful completion of the course, students will be able to:	**a**	**b**	**c**	**d**	**e**	**f**	**g**	**h**	**I**	**j**
A	√				√					
B	√				√					
D					√					

Week	Date	Topics Covered	CILOs
1	21/7/2024 25/7/2024	Basic components and Electric Circuits (chapter 2) Voltage and Current Laws (chapter 3)	A
2	28/7/2024 1/8/2024	Basic Nodal and Mesh Analysis (chapter 4) Useful Circuit Analysis Techniques (chapter 5)	A
3	4/8/2024 8/8/2024	Capacitors and Inductors (chapter 7) Sinusoidal Alternating Waveforms (chapter 13)	A,B
4	11/8/2024 15/8/2024	The Basic Elements and Phasors (chapter 14)	A,B
5	18/8/2024 22/8/2024	Series and Parallel ac Circuits (chapter 15) Series-Parallel ac Networks (chapter 16)	A,B
6	25/8/2024 29/8/2024	Methods of analysis and Selected Topics (chapter 17)	A,B
7	1/9/2024 5/9/2024	Power (ac) (chapter 19)	B

Prepared by:	Eng. Muntaser Aldabe	Signature	
Head of Department		Signature	
Date	21-7-2024		