Course Number and Title	EG 172 Circuit Analysis II

Credit Hours	4

Course Description	This course provides a study of the steady-state sinusoidal response of electrical circuits using the phase method of network analysis. This course will consider advanced sinusoidal waveforms; phase relationships; reactance; impedance; admittance and susceptance; methods of analyzing series; parallel and series/parallel A.C. circuits. Also covered are major circuit theorems; use of test equipment; malfunction analysis; troubleshooting techniques; real, apparent, and reactive power in both single and three phase systems in A.C. motors, A.C. generators and transformers.

Prerequisite(s) and/or Corequisite(s)	EG 171

Required Textbooks/References/Course Materials:

Grob's Basic Electronics	12th	Grob, Schultz	McGraw-Hill	0073373877

	General Education Outcomes
1	Utilize written and verbal language to discuss and comprehend information, incorporating a variety of technologies, such as text, data, and images (written language, verbal language, and information technology).
2	Identify and interpret relevant information in order to formulate an opinion or conclusion (critical thinking).
3	Demonstrate and communicate computational methods and mathematical reasoning in a variety of formats (using words, tables, graphs, mathematical equations, etc., as appropriate) (quantitative literacy and fluency).
4	Communicate in appropriate ways with those who are culturally diverse (intercultural competence).

	Program/Department Outcomes
1	Prepare students to become safe and competent electrical technicians
2	Provide opportunities to display critical thinking skills
3	Demonstrate responsible professional conduct and behavior.
4	Effectively communicate.
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	Course Outcomes (CO)	Bloom's Domain for CO (C, A, P), Category, and Level	Program/ Department Outcome(s)	Written Language	Verbal Language	Information Technology	Critical Thinking	Quantitative Literacy and Fluency	Intercultural Competence
1	Compute peak, peak-to-peak, root-mean-square, average values of the sine wave, frequency, period, wavelength, phase angles, harmonics of the sine wave.	C-Applying (3)	1, 2, 4	1	1	1	1	2	0
2	Define capacitor dielectric, charge and discharge, the unit of capacitance, physical factors, characteristics, coding, leakage.	C-Remembering (1)	1, 2, 4	1	1	1	2	1	0
3	Compute the total capacitance, stored energy, capacitive reactance, of series and parallel connected capacitors; current, voltage, total impedance, phase angle, of RC circuits	C-Applying (3)	1, 2, 4	1	1	1	1	2	0
4	Define impedance, phase angle, inductance, unit of inductance, mutual inductance, physical factors	C-Remembering (1)	1, 2, 4	1	1	1	1	2	0
5	Compute inductance, inductive reactance, induced voltage and current	C-Applying (3)	1, 2, 4	1	1	1	1	2	0
6	Describe how a transformer works, transformer ratings, core types, common troubles, inductive reactance for series and parallel circuits	C-Remembering (1)	1, 2, 4	1	1	1	2	1	0
7	Compute inductive reactance of series and parallel circuits, total impedance, phases angle of series and parallel RL circuits	C-Applying (3)	1, 2, 4	1	1	1	1	2	0
8	Compute the total impedance and phase angle of a series RL circuit, of the parallel RL circuit	C-Applying (3)	1, 2, 4	1	1	1	1	2	0
9	Compute the total impedance and phase angle of a series circuits and parallel circuits containing resistance, capacitance, and inductance	C-Applying (3)	1, 2, 4	1	1	1	1	2	0
10	Define the terms real power, apparent power, volt-ampere reactive and power factor	C-Remembering (1)	1, 2, 4	1	1	1	2	1	0

Bloom's Domain Legend
C = Cognitive
A = Affective
P = Psychomotor

General Education Outcome Legend
2 = Included and Measurable
1 = Introduced and/or Minimally Addressed and Not Measurable
0 = Not included

Approved: May 2021
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