Course Descriptor
ECEN322 Circuit Theory II

ACADEMIC YEAR	2020/2021		
Course Code & Title	ECEN322 Circuit Theory II		
Credit hours	3	**Level of study**	Undergraduate
College / Centre	College of Engineering		
Co-requisites		**Pre-requisites**	ECEN221 Circuit Theory I

1. COURSE OUTLINE

This course introduces the following topics. Three-phase circuits. Magnetically coupled circuits. Frequency response and Bode plots. Analysis of linear circuits using the Laplace transform and Fourier series. Two-port networks]

2. AIMS

This course prepares students with additional skills of circuit analysis including Laplace transform and Fourier techniques. This course includes mathematics and engineering topics.]

3. LEARNING OUTCOMES, TEACHING, LEARNING and ASSESSMENT METHODS

Learning Outcomes ***(Definitive)*** Upon successful completion of this course, students will be able to**:**	**Teaching and Learning methods** ***(Indicative)***	**Assessment** ***(Indicative)***
1. Analyze three-phase circuits.	Lecturer, Presentation	Assignments, Written Examination, quizzes
2. Analyze electric circuits containing magnetically coupled elements.	Lecturer, Presentation	Assignments, Written Examination, quizzes
3. Determine the frequency response and sketch Bode plots.	Lecturer, Presentation	Assignments, Written Examination, quizzes
4. Analyze and design simple filter circuits.	Lecturer, Presentation	Assignments, Written Examination, quizzes
5. Determine the transient response using the Laplace transform	Lecturer, Presentation	Assignments, Written Examination, quizzes
6. Determine the steady state response using Fourier techniques.	. Lecturer, Presentation	Assignments, Written Examination, quizzes
7. Analyze two-port networks	Lecturer, Presentation	Assignments, Written Examination, quizzes

4. ASSESSMENT WEIGHTING

Assessment	**Percentage of final mark (%)**
Mid-term Examination	30
Quizzes	0
Assignments	30
Final Examination	40

TOTAL	**100%**

5. ACHIEVING A PASS

Students will achieve **3** credit hours for this course by passing **ALL** of the course assessments *[alternatively, list the compulsory pass assessments*]* and achieving a **minimum overall score of 50%**

NB *Ensure that ALL learning outcomes are taken into account

6. COURSE CONTENT (Indicative)

LECTURE TOPIC	TIME (HOURS)
Introduction and review of AC circuit analysis and phasor	6
Analyze three-phase circuits	6
Analyze of magnetically coupled elements and circuits	6
Frequency response and Bode plots	6
Analysis and design of passive filters	3
Analysis and design of active filters	3
Determining the transient response using the Laplace transform	6
Determining the steady state response using Fourier techniques	6
Analyze two-port networks	3
TOTAL HOURS	**45**
Plus **RECOMMENDED INDEPENDENT STUDY HOURS**	
TOTAL COURSE HOURS	**90**

7. RECOMMENDED READING

Core text/s:

C. Alexander, and M. Sadkin, Fundamentals of electric circuits, 4th ed., McGraw Hill, 2009.

Library + online resources:
Class notes
Chad Davis, AC Circuits, 1st ed.
https://open.umn.edu/opentextbooks/textbooks/ac-circuits
Tony R. Kuphaldt, Lessons In Electric Circuits, Volume II – AC, 6th ed.
http://nsdl.oercommons.org/courses/lessons-in-electric-circuits-vol-ii-ac/view