

COURSE	Name	: Advanced Electric Circuits
	Code	: EE184301
	Credits	: 3
	Semester	: III

Description of Course

Advanced Electrical Circuits is intended for use in a classroom course that deals with currents, Voltages and Power at Frequency domain, a Sinusoid function, Phasor Concept, Steady State Sinusoid Analysis, Thevenin and Norton Theorems, Temporary AC Power and Average AC Power, Maximum Power Transfer Theorems, Power Factor, Complex Power, Power Factor Correction, 3 phase AC Circuit, 3 Phase Power Measurement. Electrical System 3 Balanced and Unbalanced Phases. 3 phase Phase Power Measurement, magnetic coupling circuit, Linear and Ideal Transformer, as well as Ideal Auto transformer.

Learning Outcomes

KNOWLEDGE

(P02) Mastering the concepts and principles of engineering, and implementing them in the form of procedures for analysis and design in power systems, control systems, multimedia telecommunications, or electronics.

SPECIFIC SKILL

(KK02) Able to describe the completion of engineering problems in power systems, control systems, multimedia telecommunications, or electronics.

GENERAL SKILL

(KU08) Able to conduct self-evaluation process to work group under his/her responsibility, and able to manage learning independently

ATTITUDE

(S09) Demonstrating attitude of responsibility on work in his/her field of expertise independently

Course Learning Outcomes

KNOWLEDGE

Students should be able to understand the theory, concepts and principles of electrical circuit engineering, current, voltage and AC power single phase using Phasor concept. They also are should be able to understand 3 phase circuit, as well as magnetic coupling circuit.

SPECIFIC SKILL

Students should Able to describe the problem solving of electrical circuit engineering in frequency domain with phasor analysis on electric power system, control system, multimedia telecommunication, or electronics

GENERAL SKILL

Students should be able to analyze and design passive AC circuits on electric power system, control system, multimedia telecommunication, or electronics by using phasor concepts

ATTITUDE

Students should show a responsible attitude towards the work in the field of AC circuit analysis independently especially in analyzing and solving circuit problems in the frequency domain.

Main Subjects

1. Sinusoidal Functions,
2. Phasor Concepts,
3. AC Steady state analysis
4. AC Power analysis
5. 3 Phase AC Circuits
6. Mutual Inductance Circuits

Reference(s)

- [1] Alexander Charles K., Sadiku Matthew O. N., Fundamentals of Electric Circuit, Fifth edition, McGraw-Hill, New York, 2013.
- [2] Hyatt, William H., Kemmerly Jack E, Engineering circuit analysis, McGraw-Hill, New York, 1983.
- [3] Irwin, J. David, Nelms, R. Mark, Basic engineering circuit analysis, 11th edition, John Wiley & Sons, USA, 2015.

Prerequisite(s)

EW184003 Electric Circuits
