

<b>COURSE</b>	Name	: Electric Circuits
	Code	: EW184003
	Credits	: 2 SKS
	Semester	: II

### Description of Course

Electric Circuit course discusses the basic concepts of the electric circuit and its analysis. The course including two basic laws of the circuit (Ohm's Law and Kirchhoff's Law), two methods of analysis (nodes and mesh), some useful circuit methods (superposition theorem, thevenin equivalent circuit, Norton equivalent circuits, and maximum power transfer). The next topic of discussion is the principle of capacitors and inductors, responses of circuits with capacitor or inductor (first order circuit), and responses of circuit with resistor, capacitor and inductor (second order circuit) in both series and parallel circuits.

### Learning Outcomes

#### KNOWLEDGE

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

#### SPECIFIC SKILL

(KK02) Able to describe the engineering problem solving procedures in the field of power systems, control systems, multimedia telecommunications, or electronics.

#### GENERAL SKILL

(KU01) Able to apply logical, critical, systematic, and innovative thinking in the context of development or implementation of science and technology that considering the value of humanities appropriate to its area of expertise.

#### ATTITUDE

(S09) Demonstrate a responsible attitude towards the work in the field of his/her expertise independently.

### Course Learning Outcomes

#### KNOWLEDGE

Mastering the concept of electric circuits and its analysis for the purpose of analysis and system design in the field of electrical technology.

#### SPECIFIC SKILL

Able to describe the procedure of electric circuit analysis in the field of electrical technology.

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### **GENERAL SKILL**

Able to apply logical, critical, systematic, and innovative thinking in electric circuit and its analysis to the context of the development or implementation of science and technology considering the humanities value appropriate to his/her area of expertise.

### **Attitude**

Demonstrate responsible attitude toward the work in his/her own field of expertise related to electrical circuitry.

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### **Main Subjects**

1. Electric circuits and circuit laws.
2. Basic Nodal and Mesh analysis
3. Useful circuit analysis technique.
4. Capacitor, inductor, and first order circuits.
5. The RLC circuits.

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### **Reference(s)**

- [1] Electric Circuits, Lecture Notes.
- [2] Pujiono, Rangkaian Listrik, Graha Ilmu, 2010.
- [3] WH Hayt, JE Kemmerly, and SM Durbin, Engineering Circuit Analysis, McGraw Hill, 8<sup>th</sup> Edition, 2007.
- [4] CK Aexander and MNO Sadiku, Fundamental of Electric Circuit, McGraw Hill, 8<sup>th</sup> Edition, 2013.

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### **Prerequisite(s)**

KM184101 Mathematics I

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