

COURSE	Name : Analog Circuits
	Code : EE184502
	Credits : 2
	Semester : V

Description of Course

The Analog Circuit course discusses the characteristics of integrating operational amplifier circuits, feedback and negative feedback concepts, feedback amplifier circuit, comparator, voltage level detector, hysteresis, square wave circuit, triangle, saw-tooth, Wien oscillator and analog computer, integrator, differentiator, as well as active filters of Butterworth LPF, HPF, BPF, and BSF implemented on operational amplifiers.

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

Mastering and understanding the concepts and principles of natural science and mathematical characteristics of operational amplifiers, and students are able to understand theories and concepts of negative feedback amplifiers, positive feedback, and analog computers that are applied using operational amplifiers.

SPECIFIC SKILL

Able to analyze and design amplifier circuit, signal generator, oscillator, filter, and analog computer on operational amplifier.

GENERAL SKILL

Able to analyze and design analog circuits on the system in the field of Electro using operational amplifier..

ATTITUDE

Demonstrating attitude of responsibility on his/her work in the field of analog circuit analysis, especially the operational amplifier circuit independently.

Main Subjects

1. The basic characteristics of integrating operational amplifier circuits
2. Amplifier: Inverting, Non-inverting, adder, buffer, differential, and instrumentation,
3. Comparator: open loop (zero crossing detector), positive feedback (with or without hysteresis)
4. Signal generator and Wien oscillator
5. Analog computer (Integrator, differentiator, adder)
6. Active Filter Butterworth (LPF, HPF, BPF, BSF)

Reference(s)

- [1] Diktat of Analog Circuits, Hendra Kusuma 2018
- [2] Robert F Coughlin, Frederick F Driscoll, Operational Amplifier and Linear Integrated Circuit, Prentice-Hall International, 2001.
- [3] James M. Fiore, Operational Amplifiers & Linear Integrated Circuits: Theory and Application, 2016
- [4] Ramakant A Gayakward, Op-Amp dan Linear Integrated Circuits, Prentice-Hall, 2000.

Prerequisite(s)

EE184306 Electronic Circuits
