

BME303 Applied Electronic Circuit

(Spring, 2014)

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1. Description

Designs of analog linear and nonlinear circuits for biomedical instrumentation. Characteristics of operational amplifier. Linear amplifier, filter, nonlinear analog circuit, signal generator, comparator, rectifier, ADC and DAC. Characteristics of noise and interference and their reduction.

2. Prerequisites

Electric Circuit, Signal and System

3. Text and References

Title	Author	Publisher	Year	Remark
Design with Operational Amplifiers and Analog Integrated Circuits, 3rd. Ed	S. Franco	McGraw-Hill	2002	Main Text
Analog Signal Processing	R. Palles-Arney, J. G. Webster	Wiley Interscience	1999	Reference

4. Grading Plan

Midterm	Final	Homework	Four or more absences
45%	45%	10%	F

5. Schedule

Week	Topics
1	Basics of operational amplifier
2	Negative feedback
3	Basic linear amplifier
4	Laplace transform
5	Basics of active filter
6	Analysis of active filter circuit
7	Design of active filter
8	Midterm
9	Static characteristics of operational amplifier
10	Dynamic characteristics of operational amplifier
11	Noise and interference
12	Stability and frequency compensation
13	Comparator, rectifier, switch and other nonlinear circuit
14	Signal generator, voltage reference and voltage regulator
15	DAC and ADC
16	Final