

Biomedical Electronic Measurements

BME253L (Fall 2025)

Table of contents

| Module | Materials | Assessment | Lab Exercise |
|--|--|--|---|
| Resistive Circuit Analysis | -> Introduction to Circuits -> Ohm's Law, KCL & KVL, Resistive Loads, Meters -> Equivalent Resistance -> Circuit Analysis Approaches -> Source Equivalents | -> Software Installation & Tutorials -> Problem Set 01 -> Problem Set 02 -> Problem Set 03 | -> Introduction -> Ohm's Law & Power |
| ECAD (KiCad) | -> ECAD using KiCad: Schematic Capture -> ECAD using KiCad: SPICE Modeling | | -> Schematic Capture & SPICE Simulation |
| Midterm I (Sep 22, 2025) | | | |
| Capacitors & Inductors DC RC/RL Circuit Analysis | -> Reactive Components: Capacitors & Inductors | -> Problem Set 04 | Capacitors, Inductors & Oscilloscopes |
| Complex Impedance, AC Signals, Phasors | -> Sinusoidal Signals -> Complex Impedance | | Impedance |

| Module | Materials | Assessment | Lab Exercise |
|---|------------|-------------------|---|
| AC RLC Circuit Analysis Passive Filters Transfer Functions & Bode Plots (Frequency Domain) Transient Response (Time Domain) Midterm II (Oct 27, 2025) Operational Amplifiers & Active Filters Transformers & Diodes Midterm III (Dec 03, 2025) Wheatstone Bridge | -> Filters | -> Problem Set 05 | Filters Transient Response Opamps Transformers & Diodes Wheatstone Bridge: Temperature Measurement |
| Final Lab Practical (Dec 10, 2025) | | | |