

**1. Course number and name**

EE 262: Electrical Circuits Laboratory

**2. Credit and contact hours**

1 Credit, 3 Lab Hours

**3. Instructor's or course coordinator's name**

Sandip Roy

**4. Textbook, title, author, and year**

Nilsson and Riedel. 2019. *Electric Circuits* (11th ed.). Pearson. ISBN-13: 978-0-13-474696-8.

**5. Specific course information**

- a. *Catalog Description:* Electrical instruments; laboratory applications of electric laws; transient and steady-state responses of electrical circuits.
- b. *Prerequisites or corequisites:* EE 261: Electrical Circuits I

**6. Specific goals for the course**

By the end of the course, students will be able to

- Build and test electrical circuits; correlate experimental results with analytical expectation (1a-1e, 2a-2e,2g, 5a-5g, 6a-6d, 7a,7b,7f,7g).
- Design, build, and test instrumentation systems for electric circuits; compare experimental results with analytical expectations. (1a-1e, 2a-2e,2g, 5a-5g, 6a-6d, 7a,7b,7f,7g).
- Perform basic circuit analysis using computer-based tools such as PSPICE (1a-1e, 2a-2g).

**7. Brief list of topics to be covered**

- Equipment familiarization.
- Resistors and Ohm's law.
- Kirchoff's laws.
- Series and parallel resistor combinations; circuit reduction.
- Thevenin's theorem.
- Non-ideal power supplies; non-ideal meters; operational amplifiers.
- Design project – instrumentation system design.
- Design project – control system design.
- First-order electrical circuits.
- Second-order electrical circuits.
- Steady-state sinusoidal response and phasors.
- Frequency response.
- Circuit simulation.

