

CEEN2220 Electronic Circuits I

UNO, Spring 1999

TR 1:00-2:15pm, EN112

Introduction to the design and analysis of solid-state electronic circuits. Terminal characteristics and models of diodes, bipolar and field-effect transistors. Design and analysis of diode circuits, bipolar and field-effect transistor circuits, transistor amplifier, op-amp and feedback circuits.

1. Instructor: Dr. Lim Nguyen, EN 239, ext. 4-2752, nguyenl@unomaha.edu; office hrs M-R 4pm-5pm, W 9am.
2. Text: A. S. Sedra and K. C. Smith *Microelectronic Circuits*, 4th edition, Oxford 1998.
3. Problem sets: there will be approximately 10 problem sets assigned weekly and due the following week in class. Late turn-in (within 1 week of due date) without prior arrangement will be 50% off; no credit after 1-week late. Discussion and collaboration are strongly encouraged. However you must turn in solutions of your own (no division of work, please).
4. Exams: three hourly exams and one final exams, take home or in-class TBD.
5. Grading: problem sets 25%, exams 45%, final 30%.
6. Course outline:
 - Diode and diode circuits: basics of semiconductor concepts; the pn junction. The junction diode equation, ideal diode model and small-signal diode descriptions; Zener diode; design and analysis of diode circuits.
 - Bipolar junction transistors (BJTs): structure and modes of operation, npn and pnp transistors. Design and analysis of BJT circuits: biasing and small-signal models. Amplifier and switching applications.
 - Field-effect transistors (FETs): structure and modes of operation of JFETs and MOSFETs; enhancement and depletion types. Design and analysis of FET circuits: biasing and small-signal models. Amplifier and switching applications.
 - Differential and multi-stage amplifiers; amplifier frequency response.
 - Feedback and operational amplifier circuits.
 - Waveform generation and shaping (time permitted).