

- ELEC 302     *Electrical Machinery Laboratory*     One Credit Hour  
Prerequisite or corequisite: ELEC 316  
Required of electrical engineering juniors.  
A laboratory course to accompany ELEC 316.  
Laboratory: two hours.
- ELEC 306     *Electronics I*     Three Credit Hours  
Prerequisites: ELEC 202, ELEC 204, ELEC 206; prerequisite or corequisite:  
ELEC 313  
Required of electrical engineering juniors.  
Characteristics of solid-state devices; theory and design of low-frequency  
amplifiers; transistor biasing and stabilization; design of multistage amplifiers,  
utilizing bipolar and MOS devices.  
Lecture: three hours.
- ELEC 307     *Nuclear Engineering*     Three Credit Hours  
Prerequisite: PHYS 222/272  
An introduction to the theory and application of nuclear energy. Topics in-  
clude fission and the chain reaction; nuclear fuels; nuclear reactor principles,  
concepts, examples, construction, operation, and ecological impact; radiation  
hazards and shielding; nuclear propulsion; and controlled fusion.  
Lecture: three hours.
- ELEC 308     *Elements of Electrical Engineering*     Three Credit Hours  
Prerequisite: MATH 132  
Required of civil engineering juniors.  
Fundamental electrical concepts and units; basic laws of electrical circuits;  
equivalent circuits; DC and steady-state AC circuit analysis; and effective cur-  
rent, average power, and three-phase power.  
Lecture: three hours.
- ELEC 309     *Signals and Systems*     Three Credit Hours  
Prerequisites: ELEC 202, ELEC 204, ELEC 206, MATH 234; prerequisite or  
corequisite: MATH 335  
Required of electrical engineering juniors.  
The study of continuous and discrete systems utilizing Laplace and z-trans-  
form theory.  
Lecture: three hours.
- ELEC 311     *Digital Logic and Circuits*     Three Credit Hours  
Prerequisite or corequisite: MATH 206 or consent of department head.  
Required of electrical engineering sophomores.  
Introduction to Boolean algebra; digital data coding; digital arithmetic; de-  
sign of combinational and sequential circuits; design, construction and evalua-

tion of digital circuits using industry-standard digital integrated circuits. Employs VHDL and other S/W design tools.

Lecture: three hours.

ELEC 312     *Systems I*     Three Credit Hours

Prerequisite: ELEC 309

Corequisite: ELEC 301

Required of electrical engineering juniors.

An introduction to feedback control systems, system representation, stability, root-locus and frequency response, and compensation.

Lecture: three hours.

ELEC 313     *Electronics Laboratory*     One Credit Hour

Prerequisites: ELEC 202, ELEC 204, ELEC 206

Corequisite: ELEC 306

Required of electrical engineering juniors.

Experimental studies coordinated with the subjects introduced in ELEC 306.

Laboratory: two hours.

ELEC 316     *Electromechanical Energy Conversion*     Three Credit Hours

Prerequisite: ELEC 309 or consent of the department head; prerequisite or corequisite: ELEC 302

Required of electrical engineering juniors.

Analysis of transformers; fundamentals of electromechanical energy conversion; and study of DC, induction, and synchronous machines.

Lecture: three hours.

ELEC 318     *Electromagnetic Fields*     Three Credit Hours

Prerequisites: ELEC 202, ELEC 204, ELEC 206, PHYS 222/272, MATH 234, MATH 335.

Required of electrical engineering juniors.

Static and magnetic fields; experimental laws and their relation to Maxwell's equations; Laplace and Poisson's equations; boundary value problems; time varying fields and plane waves.

Lecture: three hours.

ELEC 330     *Digital Systems Engineering*     Three Credit Hours

Prerequisite: ELEC 311

Required of electrical engineering juniors.

Characteristics, specifications, and design of digital systems; analysis and synthesis of sequential circuits; microcontroller interfacing.

Lecture: three hours.