

ELECTRICAL ENGINEERING (E E)

Students may be expected to purchase supplementary materials for senior projects and special topic laboratory and activity classes.

1. Introduction to Electrical Engineering (1)

The electrical engineering profession and its career opportunities; educational requirements and the EE curriculum; EE laboratory facilities, requirements, and engineering methods for experimentation; graphic electrical engineering data presentation; calculator comparison and selection; familiarization with electronic components.

85. Minicomputers as System Components (2)

Prerequisite: Engr 70. Basic principles for the application of a small digital computer as a dedicated electronic system component for on-line and real-time measurement, control, and computation in such areas as data acquisition, automated testing, corrective measurement, real-time computation, and visual display. (1 lecture, 3 lab hours)

92. Electrical Engineering Laboratory Techniques (1; max total 8)

Prerequisite: permission of instructor. Individual laboratory work involving measurement, construction, or operation of electronic equipment or systems. Preparation of informal reports, procedures, and drawings as appropriate to the project. Student selected projects supplemented by instructor assignments.

104. Basic Electronics (3)

Not open to electrical engineering majors. Prerequisite: Math 75, Phys 2B. Basic concepts of electronic circuits, oscillators, and high-frequency transmitters and receivers, with applications to measurements in surveying. (2 lecture, 3 lab hours)

106. Introduction to Switching Theory (3)

Prerequisite: Phys 2B or Phys 4B. Axiomatic development of Boolean algebra; logic gates and memory elements; realization of Boolean networks; Boolean function minimization procedures; state assignment and state transitions; analysis and synthesis of linear sequential networks; synchronous and asynchronous behavior.

107. Digital Data Handling (3)

Prerequisite: Engr 70 or permission of instructor. Data acquisition by computers; data encoding and machine representation; data storage devices; logical and physical-media data structures; data structure processing algorithms; static and dynamic properties of data structures; applications of symbol manipulation to engineering.

114. Physical Electronics (3)

Prerequisite: Phys 4C. Electronic structure of metals, semiconductors, and insulators; crystal lattices; energy band structure; thermal, optical, dielectric and magnetic properties; transport properties; microscopic and macroscopic behavior.

121. Electromechanical Systems and Energy Conversion (3)

Prerequisite: Engr 110, 110L. Principles of direct- and alternating-current machinery and other energy-conversion devices and associated apparatus.

121L. Electromechanical Systems and Energy Conversion Laboratory (1)

Prerequisite: E E 121 (concurrently). Experiments and computations on direct- and alternating-current machinery and on other energy-conversion devices and associated apparatus. (3 lab hours)

124. Electrical Circuit Analysis (3)

Prerequisite: Engr 110, 110L. Introduction to the operational analysis of linear electric circuits and related systems; Laplace transformation; Fourier analysis; state-space representations; computer solutions.

124L. Electrical Circuit Analysis Laboratory (1)

Prerequisite: E E 124 (concurrently). Experiments on linear electric networks, including response, transformations, and identification of circuits. (3 lab hours)