ELEC 401 *Electronics II* Three Credit Hours

Prerequisites: ELEC 306 and ELEC 313

Characteristics and applications of analog and digital integrated circuits. Topics to include CMOS digital logic, differential amplifiers, power amplifiers, feedback amplifiers, oscillators and filter circuits.

Lecture: three hours.

ELEC 403 *Electric Power Systems* Three Credit Hours

Prerequisites: ELEC 206, ELEC 316, and ELEC 318

A study of electrical power generation, transmission, and distribution; load flow, faults, and system stability; and system economics.

Lecture: three hours.

ELEC 405 *Electrical Measurements* Two Credit Hours

Prerequisite: Any two 300-level electrical engineering laboratory courses; prerequisite or corequisite: ELEC 415.

An introduction to modern electrical instrumentation and measurements. Topics include measurement theory, analog and digital signal conditioning, noise, transducers, instrumentation system design, digital interfaces, and computer-based instrumentation and measurement.

Lecture: two hours.

ELEC 407 *Systems II* Three Credit Hours

Prerequisite: ELEC 312

A continuation of Systems I with primary emphasis on digital control systems. Topics include state-variable analysis, simulation techniques, controllability, state-variable feedback, observability, and state estimator design.

Lecture: three hours.

ELEC 412 *Applied Probability and Statistics for Engineers* Three Credit Hours

Prerequisites: MATH 231, ELEC 206.

Required of all electrical engineering majors.

Application of the theory of probability and statistics in modeling random phenomena and signals; in the calculation of system responses; and in making estimates, inferences and decisions in the presence of chance and uncertainty. Applications will be studied in areas such as communications, power systems, device modeling, measurements, reliability and quality control.

Lecture: three hours.

ELEC 413 *Advanced Topics in Electrical Engineering* Three Credit Hours

Advanced topics in electrical engineering. Offered occasionally when the special interests of students and faculty coincide. The syllabus must be approved

by the Electrical Engineering Faculty. This course may be taken only once for credit.

Lecture: three hours.

ELEC 414 *System Simulation* Three Credit Hours

Prerequisite: ELEC 312

An introduction to system concepts, mathematical models of systems, and simulation methods applied to a broad range of systems. Design project required.

Lecture: three hours.

ELEC 415 *Electrical Measurements Laboratory* One Credit Hour

Prerequisite or corequisite: ELEC 405

A laboratory course to complement ELEC 405.

Laboratory: two hours.

ELEC 416 *Communications Engineering* Three Credit Hours

Prerequisites: ELEC 306, ELEC 312, ELEC 318, and ELEC 330

Principles of amplitude, frequency, phase, and pulse modulation; processing in communications systems; and analog and digital communication systems.

Lecture: three hours.

ELEC 418 *Advanced Digital Systems* Three Credit Hours

Prerequisites: ELEC 311, ELEC 330

Experience in advanced digital design techniques and exposure to the development tools used in the design of advanced digital systems. Topics include the design of digital systems using VHDL, industry standard FPGA devices and software, and microprocessor hardware components.

Lecture: three hours.

ELEC 419 *Computer Network Architecture* Three Credit Hours

Prerequisite: ELEC 311

This course will cover network architectures and protocols. Included are transmission technologies, encoding/decoding schemes, packet switching, frame relay, ISDN, ATM and performance modeling techniques.

Lecture: three hours.

ELEC 421 *Design I* Three Credit Hours

Prerequisites: ELEC 302, ELEC 306, ELEC 312, ELEC 316, ELEC 330, and ELEC 318, or consent of the department head.

Required of electrical engineering seniors.

Initiation, design, scheduling, documentation and reporting on a major design project. Normally accomplished by students working in small groups. All students will make written and oral presentations on their contributions to the