

ECE 4160 / 6160	Smart Grid	This introductory course on smart grid covers the concepts and technologies that transform the traditional power system into an intelligent power system, now referred to as the smart grid. The interdisciplinary technologies needed for this transformation are introduced in this course.
ECE 4190 / 6190	Electric Machines and Drives	Performance, characteristics, and modeling of AC and DC machines during steady-state and transient conditions. Introduction to power electronics devices and their use in adjustable speed motor drives. Students are expected to have completed courses comparable to ECE 3210 and ECE 3600 and ECE 3800 before enrolling in this course. Additionally, students are expected to have completed, or be concurrently enrolled in, a course comparable to MATH 4340 when enrolling in this course.
ECE 4400 / 6400	Performance Analysis of Local Computer Networks	Introduction to the design and performance analysis of local computer networks. Emphasizes performance analysis of representative multi-access procedures. Three common types of networks are considered in detail. Students are expected to have completed courses comparable to ECE 2720 and ECE 3170 before enrolling in this course.
ECE 4460 / 6460	Antennas and Propagation	Study of the theoretical and practical aspects of antenna design and utilization, input impedances, structural considerations, and wave propagation. Students are expected to have completed courses comparable to ECE 3300 and ECE 3810, as well as a course comparable to either MATH 3110 or MATH 4340, before enrolling in this course.
ECE 4930 / 6930	Selected Topics	Classroom study of current and new technical developments in electrical and computer engineering. May be repeated for a maximum of six credits, but only if different topics are covered. Preq: Consent of instructor.
ECE 4960	Integrated System Design II	Project-oriented course which brings together electrical and computer engineering students of dissimilar training in teams or project groups. Group assignments are designed to develop an appreciation for individual and creative thinking, as well as team effort. Preq: Electrical Engineering major and ECE 3210 and ECE 3710 and ECE 3810 and ECE 4090 and ECE 4950, each with a C or better; or Computer Engineering major and ECE 3270 and ECE 4090 and ECE 4950, each with a C or better.
ECE 8170	Power System Transients	Electrical transients in power systems; frequency domain and time domain techniques for power systems transient analysis; capacitor switching, load switching, fault-induced transients, line reclosing and single pole switching. Students are expected to have completed a course comparable to ECE 4180 before enrolling in this course.
ECE 8240	Power System Protection	Coordination of power system protection components including microprocessor based relay-adaptive protection of power system, power system disturbance identification and system restoration following a major disturbance. Students are expected to have completed a course comparable to ECE 4180 before enrolling in this course; and are expected to have completed or be concurrently enrolled in a course comparable to MATH 4340 when enrolling in this course.
ECE 8730	Parallel and Distributed Systems	Design, analysis and evaluation of algorithms for parallel and distributed computer systems; time complexity, speedup, efficiency and isoefficiency; communication costs; numerical algorithms including solving systems of equations (both sparse and dense) as well as symbolic algorithms; substantial parallel programming projects.
ECE 8910	Master's Thesis Research	Master's Thesis Research
ECE 8930	Selected Topics in Electrical and Computer Engineering	Topics not covered in other courses; current literature and results of current research. Topics vary from year to year in keeping with developments in the field. May be repeated for credit.
ECE 9910	Doctoral Dissertation Research	Doctoral Dissertation Research