

EDUC 6403. Seminar in Learning Disabilities. Advanced study of physical, psychological and environmental causes of learning disabilities, and interrelationships among the causes. 3 lecture hours a week. Prerequisite(s): EDUC 5443 or equivalent courses in the area and permission of instructor.

EDUC 6423. Seminar in Policies and Procedures of Special Education Administration. Theory, research and practices related to special education administration. Analysis of administrative behavior, the process of decision making, special education leadership and organization changes, models of state and federal funding, budgeting, litigation procedures and program evaluation. 3 lecture hours a week. Prerequisite(s): EDUC 5603 or equivalent courses in the area and permission of instructor.

EDUC 6723. Practicum. 3–12 hours. Field placement. Type of placement will vary with student's area of major concentration and past experiences. Prerequisite(s): 12 semester hours of doctoral credit or permission of instructor.

EDUC 6903. Special Topics. Variable content; topics selected as needed. 3 lecture hours a week.

Electrical Engineering

Electrical Engineering, EENG

5310. Control Systems Design. 3 hours. Control systems analysis, modeling and design constraints, goals, and performance specifications, state-space analysis of linear systems; Root-locus, frequency response and state-space design methods; MATLAB simulations; system stability-introduction to Lyapunov methods; controllability; observability; canonical forms and minimal realizations, fundamentals of feedback control dynamic programming and the Hamilton-Jacobi-Bellman equation; synthesis of optimum state regulatory systems; introduction to the minimum principle, necessary conditions for optimal trajectories; minimum principle for bounded controls, and time-optimal control of linear systems. Prerequisite(s): EENG 2620 or equivalent.

5520. Digital Integrated Circuit Design. 3 hours. Thorough investigation of the fundamentals in design and analysis of MOS digital integrated circuits. Topics include MOS transistor, transistor circuit design and analysis, interconnect modeling, dynamic logic circuits, memories and low-power circuit design. Prerequisite(s): EENG 2710, EENG 3520 or equivalent.

5530. Analog Integrated Circuit Design. 3 hours. This course thoroughly investigates the fundamentals in design and analysis of analog and mixed-signal integrated circuits. Topics include analog MOS transistor models, current sources and sinks, circuit reference, amplifier, feedback amplifiers, differential amplifiers and operational amplifiers. Prerequisite(s): EENG 3520 or equivalent.

5610. Digital Signal Processing. 3 hours. Introduction to modern digital signal processing theory and techniques. Topics covered include discrete time signals and systems, sampling theorem, Z-transform, frequency analysis of signals and systems, discrete Fourier transform, fast Fourier transform algorithms, digital filter design, and multi-rate digital signal processing. Prerequisite(s): EENG 2620 or equivalent.

5620. Statistical Signal Processing. 3 hours. Introduction to detection and estimation theories. Vector space, multivariate normal distribution, quadratic forms, sufficiency and minimum variance unbiased estimator, hypothesis testing, Neyman-Pearson detection theory, Bayesian detection theory, maximum-likelihood estimation, Cramer-Rao bound, Bayesian and minimum mean-squared error estimators, Kalman filter, least-squares estimation, singular value decomposition algorithm. Prerequisite(s): EENG 4610 and MATH 6810 or equivalent.

5630. Adaptive Signal Processing. 3 hours. Provides students with fundamental knowledge of modern adaptive signal processing theorems and algorithms and their applications in radar and wireless communications. Search algorithms, LMS, RLS adaptive filtering, adaptive signal modeling and applications. Prerequisite(s): EENG 2620, 3910 or equivalent.

5640. Computer Vision and Image Analysis. 3 hours. Introduction to computer vision and image processing, image geometry and photogrammetry, edge detection, feature extraction, shape representation, structural descriptions, object modeling, shape matching, semantic knowledge bases and imaging architectures, depth perception with stereo and photometric stereo, moving scene analysis and object tracking, multi-sensor data fusion, occluded object recognition by multi-sensor/multi-view integration, Computer vision applications.

5810. Digital Communications. 3 hours. Decision theory, signal space, optimal receivers, modulation schemes, error performance, bandwidth, channel capacity, block coding, convolutional coding, trellis coded modulation, intersymbol interference, fading channels and spread spectrum. Prerequisite(s): EENG 3810 or equivalent. (Same as CSCE 5570.)

5820. Wireless Communications. 3 hours. Fundamentals of wireless communications. Topics covered include radio propagation channel characteristics and models, modulation, coding and receiver signal processing techniques in fading channels, multiple access techniques for wireless systems, fundamentals of wireless networks, and major cellular and wireless LAN standards. Prerequisite(s): EENG 5810 or equivalent. (Same as CSCE 5510.)

5830. Coding Theory. 3 hours. Channel coding theorem, error-correcting codes, algebraic block codes, linear codes, BCH codes, convolutional codes, burst-error correcting codes, and design of encoders and decoders. Prerequisite(s): EENG 3810 or equivalent.

5890. Directed Study. 1–3 hours. Study of topics in electrical engineering. The student should prepare a plan for study of a topic and a plan for evaluation of study achievements. Open to students with graduate standing who are capable of developing problems, independently. May be repeated for credit. Prerequisite(s): consent of department.

5900. Special Problems. 1–3 hours. Independent research of a specific problem in a field of electrical engineering. A report is required defining the problem and a solution. Prerequisite(s): consent of department.

5950. Master's Thesis. 3–6 hours. To be scheduled only with consent of department. No credit assigned until thesis has been completed and filed with the School of Graduate Studies. Prerequisite(s): consent of department.

Electronics Engineering Technology

see Engineering Technology