Leadership in Postsecondary Education
Spring, 3(3-0)
Leadership as a complex social phenomenon in higher, adult, and lifelong educational settings. Interdisciplinary theories of leadership as applied to postsecondary education.

Diversity and Equity in Postsecondary Education
Fall, 3(3-0)
Promote, challenge, and management of diversity and equity in higher education. Analysis of data and policy. Management responses and strategies.

Students in Postsecondary Education
Spring, 3(3-0) R: Open only to doctoral students in the Higher, Adult, and Lifelong Education major.
Research and theoretical foundations concerning traditional and non-traditional college students. Literature from diverse fields such as higher education, adult learning, and multicultural education. Psychosocial and cognitive development of college students, learning and development across the lifespan, experiences of diverse populations, impact of collegiate environments and structures on students.

Policy Development and Analysis in Postsecondary Education
Fall, 3(3-0) R: Open only to doctoral students in the Higher, Adult, and Lifelong Education major.
Higher education policy issues, policy-related research and development approaches.

Teaching, Learning, and Curriculum in Postsecondary Education
Spring, 3(3-0) R: Open only to doctoral students in the Higher, Adult, and Lifelong Education major.
Topics include learning contexts, learners, teachers, the learning process, curriculum.

Pedagogical Issues in Postsecondary Education
Fall, 3(3-0) R: Open only to doctoral students in the Higher, Adult, and Lifelong Education major.
Theories of learning for teaching adults in postsecondary contexts. Transformative pedagogy, sociocultural dimensions of teaching and learning, teacher formation and development, learning within technologically mediated environments. Authentic approaches to assessing teaching and learning.

Organization and Administration in Postsecondary Education
Fall, 3(3-0) R: Open only to doctoral students in the Higher, Adult, and Lifelong Education major. SA: EAD 970A
Principles and patterns of organization and governance characteristics of colleges and universities. Administrative, trustee, faculty, and student roles.

Planning, Evaluation, and Decision Making in Postsecondary Education
Spring of odd years. 3(3-0) R: Open only to doctoral students in the Higher, Adult, and Lifelong Education major. SA: EAD 971B
Concepts, theories and models of planning, evaluation, and decision making in the leadership and management of postsecondary institutions. Application to and usefulness for addressing complex problems facing institutions of postsecondary education.

Independent Study
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 15 credits in all enrollments for this course.
Advanced individual study in an area of K-12 administration or higher, adult, and lifelong education.

Special Topics in K-12 Administration
Fall, Spring, Summer. 3(3-0) A student may earn a maximum of 9 credits in all enrollments for this course.
Special topics in K-12 administration.

Special Topics in Higher, Adult, and Lifelong Education
Fall, Spring, Summer. 3(3-0) A student may earn a maximum of 15 credits in all enrollments for this course.
Special topics in the field of higher, adult and lifelong education.

Laboratory and Field Experience in Educational Administration
Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Open only to doctoral students.
Supervised advanced graduate practica, observations, internships, or externships in K-12 administration and in higher, adult, and lifelong education.

Research Practicum in Educational Administration
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 3 credits in all enrollments for this course. R: Open only to doctoral students in the College of Education. Approved of department. Supervised research practicum. Design, execution, analysis, presentation, critique, and revision of research projects.

Doctoral Dissertation Research
Fall, Spring, Summer. 1 to 24 credits. A student may earn a maximum of 100 credits in all enrollments for this course. R: Open only to doctoral students in the Department of Educational Administration.
Doctoral dissertation research.

Circuits and Systems II
Fall, Spring, Summer. 3(3-0) P: (ECE 201) and (MTH 235 or concurrently or LBS 119 or concurrently or MTH 255H or concurrently) SA: ECE 360

Digital Logic Fundamentals
Fall, Spring, Summer. 3(3-0) P: (CSE 131 or CSE 231) SA: ECE 330

Electrical Engineering Analysis
Fall, Spring. 3(3-0) P: (MTH 234) and (ECE 201 or concurrently)
Application of linear algebra, complex numbers, vectors, probability, and random processes to elementary problems in electrical and computer engineering. Application to signals, systems, noise, electromagnetics, and reliability. Modeling using standard software packages.

Circuits and Systems
Fall, Spring. 2(2-0) P: (MTH 235 or concurrently and LBS 119 or concurrently and MTH 255H or concurrently) R: Approval of department. SA: ECE 391

Electronic Circuits
Fall, Spring, 3(3-0) P: (ECE 202) R: Open only to students in the Department of Electrical and Computer Engineering or Department of Computer Science and Engineering. SA: EE 302
Volt-ampere characteristics of diodes and transistors. Modeling using Spice software. Differential, multistage, and integrated circuit amplifiers. High frequency effects.

Electronics Laboratory
Fall, Spring. 1(0-3) P: (ECE 202) and (ECE 302 or concurrently) R: Open only to students in the Department of Electrical and Computer Engineering or Department of Computer Science and Engineering. SA: EE 303
Electronic test equipment and measurement fundamentals.

Electromagnetic Fields and Waves I
Fall, Spring, Summer. 4(4-0) P: (MTH 235 or concurrently or LBS 119 or concurrently or MTH 255H or concurrently) and (PHY 184 or PHY 184B or PHY 234B) R: Open only to students in the Department of Electrical and Computer Engineering. SA: EE 305
313 Control Systems  
Fall, Spring. 3(3-0) P: (ECE 202 or ECE 345) R: Open only to juniors or seniors or graduate students in the Department of Electrical and Computer Engineering and Department of Computer Science and Engineering. SA: EE 413, EE 413  
Analysis and design of control systems using transfer functions and state variable methods.

320 Energy Conversion and Power Electronics  
Fall, Spring. 3(3-0) P: (ECE 302 and ECE 303 and ECE 305) SA: EE 320  

331 Microprocessors and Digital Systems  
Fall, Spring. 4(3-3) P: (CSE 231 and ECE 230) R: Open only to juniors or seniors or graduate students in the Department of Electrical and Computer Engineering. SA: EE 331  

345 Electronic Instrumentation and Systems  
Fall, Spring, Summer. 3(2-3) P: (MTH 235 or MTH 255H or LBS 119) and (PHY 184 or PHY 184B or PHY 234B) and completion of Tier I writing requirement. R: Open only to students in the College of Engineering with the exception of students in the Department of Electrical and Computer Engineering. SA: EE 345  
Electrical and electronic components, circuits and instruments. Circuit laws and applications, frequency response, operational amplifiers, semi-conductor devices, digital logic, counting circuits.

366 Introduction to Signal Processing  
Spring, Summer. 3(3-0) P: (ECE 202) R: Open only to students in the Department of Electrical and Computer Engineering. SA: EE 366  

401 VLSI Design  
Fall, Spring. 4(3-3) P: (ECE 302 and ECE 303 and ECE 230) R: Open only to juniors or seniors or graduate students in the Department of Electrical and Computer Engineering or Department of Computer Science and Engineering. SA: EE 411  

411 Electronic Design Automation  
Fall, Spring. 4(3-3) P: (CSE 320 or ECE 331) R: Open only to juniors or seniors or graduate students in the Department of Electrical and Computer Engineering or Department of Computer Science and Engineering. SA: EE 411  

415 Computer Aided Manufacturing  
Fall. 3(3-0) P: (ECE 313 or ME 451) R: Open only to juniors or seniors or graduate students in the Manufacturing Engineering major. SA: EE 415  
CAD/CAM fundamentals, programmable controllers, numerical control, NC part programming, sensors, data acquisition systems.

418 Algorithms of Circuit Design  
Fall. 3(3-0) P: (ECE 302 and ECE 303 and ECE 305) R: Open only to juniors or seniors or graduate students in the Department of Electrical and Computer Engineering. SA: EE 418  

420 Machines and Power Laboratory  
Spring. 1(3-0) P: (ECE 320 or concurrently or ECE 423 or concurrently) R: Open only to juniors or seniors or graduate students in the Department of Electrical and Computer Engineering. Experimental investigation of machines, power electronics, power systems. Experimental validation of material found in introductory courses on energy conversion with extension to power electronics and power systems.

423 Power System Analysis  
Spring. 3(3-0) P: (ECE 320) R: Open only to juniors or seniors in the Department of Electrical and Computer Engineering. SAE: EE 421  

458 Communication Systems Laboratory  
Spring. 1(0-3) P: (ECE 303 and ECE 457 or concurrently) SA: EE 458  
A projects laboratory in communication systems.

466 Digital Signal Processing and Filter Design  
Fall. 3(3-0) P: (ECE 366) R: Open only to seniors or graduate students in the Department of Electrical and Computer Engineering. SA: EE 466  

474 Principles of Electronic Devices  
Fall, Spring. 3(3-0) P: (ECE 302 and ECE 305) SA: EE 474  
Energy levels in atoms. Crystal properties, energy bands and charge carriers, semiconductors, transport properties of bulk materials. P-n junction diodes, bipolar transistors, field effect transistors.

476 Electro-Optics  
Fall, Summer. 3(3-0) P: (ECE 302 and ECE 303 and ECE 305) R: Open only to juniors or seniors or graduate students in the Electrical Engineering major and juniors or seniors in the Computer Engineering major. SA: EE 476  
Operational theory, characteristics and applications of optical components, light emitting diodes, lasers, laser diodes, photodetectors, photovoltaics, fiber optics, optical modulators and non-linear optical devices.

477 Microelectronic Fabrication  
Fall. 3(2-3) P: (ECE 474 or concurrently) R: Open only to juniors or seniors in the Department of Electrical and Computer Engineering. SA: EE 483  
Microelectronic processing fundamentals and simulations. Comparison of current microfabrication technologies and their limitations.

480 Senior Design  
Fall, Spring. 5(3-6) P: (ECE 303 and ECE 313 and ECE 320 and ECE 331 and ECE 366) or (CSE 410 and CSE 420) and completion of Tier I writing requirement. R: Open only to seniors in the Department of Electrical and Computer Engineering. SA: EE 481, EE 482, EE 483  
Electrical engineering and computer engineering senior design experience involving contemporary design tools and practices, engineering standards, ethics, cross-functional teaming, oral and written technical communication, lifelong learning.

484 Applications of Analog Integrated Circuits  
Spring. 4(3-3) P: (ECE 302 and ECE 303) R: Open only to juniors or seniors or graduate students in the Department of Electrical and Computer Engineering. SA: EE 484  
Circuit design using analog integrated circuits. SPICE macromodeling. Operational amplifiers, comparators, timers, oscillators, multipliers, and converters. Design project with hardware and software verification.
Electrical and Computer Engineering—ECE

807 Computer System Performance and Measurement
Spring of odd years. 3(3-0) Interdepartmental with Computer Science and Engineering. Administered by Department of Computer Science and Engineering. (CPS 410 and STT 441) R: Only open to Computer Science or Electrical Engineering majors. SA: EE 807

808 Modelling and Discrete Simulation
Fall of even years. 3(3-0) Interdepartmental with Computer Science and Engineering. Administered by Department of Computer Science and Engineering. (CPS 330 and STT 441) R: Open only to Computer Science or Electrical Engineering majors. SA: EE 808

809 Algorithms and Hardware Implementation
Fall. 3(3-0) Interdepartmental with Computer Science and Engineering. SA: EE 809

810 Advanced Computer Architecture
Spring. 3(3-0) Interdepartmental with Computer Science and Engineering. Administered by Department of Computer Science and Engineering. (CPS 410 and CPS 420) R: Open only to Computer Science or Electrical Engineering majors. SA: EE 820

811 Cryptography and Network Security
Fall. 3(3-0) R: Open only to graduate students in the College of Engineering.

812 Embedded Wireless RF Transceivers
Fall of even years. 3(3-0) R: Open only to seniors or graduate students. SA: EE 812

813 Advanced VLSI Design
Spring. 3(3-0) Interdepartmental with Computer Science and Engineering. P/M: (ECE 410) SA: EE 813

814 Advanced Wireless Transceivers
Fall of even years. 3(3-0) R: Open only to seniors or graduate students. SA: EE 814

815 Adaptive Filtering and Signal Processing
Spring. 3(3-0) R: Open only to seniors or graduate students. SA: EE 815

816 Analog and Digital Signal Processing
Fall. 3(3-0) R: Open only to seniors or graduate students. SA: EE 816

817 Advanced Power Electronics and Drives
Spring of even years. 3(3-0) RB: (ECE 826) SA: EE 817

818 Robotics
Spring. 3(3-0) R: (ECE 313 and ECE 313) SA: EE 818

819 Advanced Control System Design
Fall of odd years. 3(2-3) R: Open only to seniors or graduate students. SA: EE 819

820 Advanced Power Electronics and Applications
Fall of odd years. 3(3-0) R: Open only to seniors or graduate students. SA: EE 820

821 Advanced Power Electronics and Applications
Fall of odd years. 3(3-0) R: Open only to seniors or graduate students. SA: EE 821

822 Parallel Processing Computer Systems
Spring. 3(3-0) Interdepartmental with Computer Science and Engineering. Administered by Department of Computer Science and Engineering. (CPS 820) R: Open only to Computer Science or Electrical Engineering majors. SA: EE 822

823 Power System Stability and Control
Fall of even years. 3(3-0) RB: (ECE 826) SA: EE 823

824 Power System Operation and Control
Fall of odd years. 3(3-0) RB: (ECE 421 and STT 351) SA: EE 824

825 Alternating Current Machines and Drives
Spring of even years. 3(3-0) RB: (ECE 320) SA: EE 825

826 Linear Control Systems
Fall. 3(3-0) RB: (MTH 314) SA: EE 826

827 Optimal Control
Spring. 3(3-0) R: (ME 321) SA: EE 827

828 Analog Integrated Circuit Design
Fall of odd years. 3(3-0) SA: EE 828

829 Electromagnetics
Spring. 3(3-0) SA: EE 829

830 Advanced Electromagnetic Fields and Waves I
Fall. 3(3-0) SA: EE 830

831 Advanced Electromagnetic Fields and Waves II
Spring. 3(3-0) SA: EE 831

832 Fourier Transforms
Spring. 3(3-0) R: (ECE 360) SA: EE 832

833 Fourier Series
Spring. 3(3-0) SA: EE 833

834 Advanced Electromagnetic Fields and Waves III
Spring. 3(3-0) SA: EE 834
842 Quantum Electronics
Fall of even years. 3(3-0) RB: (ECE 835 and ECE 874) SA: EE 842

850 Electrodynamics of Plasmas
Spring of odd years. 3(3-0) Interdepartmental with Astronomy and Astrophysics; Physics. RB: (ECE 835 or PHY 488) SA: EE 850

859 Nonlinear Control
Spring. 3(3-0) Interdepartmental with Mechanical Engineering. RB: (ECE 826 and ME 857) SA: ECE 827

863 Analysis of Stochastic Systems
Fall. 3(3-0) RB: (STT 441) SA: EE 863
Advanced topics in random variable theory. Stochastic processes and stochastic calculus. Optimal systems for filtering and detection.

864 Detection and Estimation Theory
Spring. 3(3-0) RB: (ECE 863) SA: EE 864
Analysis and implementation of statistical estimation and detection methods used in signal processing, communications, and control applications. Bayesian, Neyman-Pearson, and minimax detection schemes. Bayesian, mean-square-error, and maximum-likelihood estimation methods.

865 Analog and Digital Communications
Fall of odd years. 3(3-0) RB: (ECE 457 and ECE 863) SA: EE 865

867 Information Theory and Coding
Spring. 3(3-0) P:M: (ECE 863) Shannon information measures. Uniqueness theorem and chain rules of the entropy measures. Kullback-Leibler relative-entropy. The I-measure. Asymptotic Equipartition Property (AEP) for various sources. Channel capacity, discrete-memoryless and symmetric channels. Channel coding theorem. Rate-distortion theory. Applications of coding to modern communications and compression methods such as image, video, speech and watermarking.

870 Introduction to Micro-Electro-Mechanical Systems
Fall. 3(3-0) RB: (ECE 477 and ECE 474) Micro-electro-mechanical systems (MEMS). Fundamentals of micromachining and microfabrication techniques. Design and analysis of devices and systems in mechanical, electrical, fluidic, and thermal environments and signal domains. Sensing and transduction mechanisms, including capacitive and piezoresistive techniques. Design and analysis of miniature sensors and actuators. Examples of existing devices and their applications.

871 Micro-electro-mechanical Systems Fabrication
Spring. 3(3-0) P:M: (ECE 870 or ECE 477) Development of a complete integrated microsystem from inception to final test. Design, fabrication and testing of integrated microsystems. Development of a complete multiphichip microsystem containing sensors, signal processing, and an output interface. Basic MOS device and circuit processes, wafer bonding and micromachining, low power portable devices and diamond MEMS chips.

874 Physical Electronics
Fall. 3(3-0) SA: EE 874

875 Electronic Devices
Spring. 3(3-0) RB: (ECE 874) SA: EE 875
Operating properties of semiconductor devices including DC, AC, transient and noise models of FET, BJT, metal-semiconductor contact, heterostructure, microwave and photonic devices.

885 Artificial Neural Networks
Fall. 3(3-0) Interdepartmental with Computer Science and Engineering. SA: EE 885

899 Master's Thesis Research
Fall, Spring, Summer. 1 to 8 credits. A student may earn a maximum of 24 credits in all enrollments for this course. SA: EE 899
Master's thesis research.

900 Selected Topics in High Performance Computer Systems
Spring of odd years. 3(3-0) A student may earn a maximum of 9 credits in all enrollments for this course. SA: EE 900
Topics vary each semester.

901 Advanced Topics in Digital Circuits and Systems
Fall. Spring. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. Interdepartmental with Computer Science and Engineering. SA: EE 901
Topics vary each semester.

903 Advanced Topics in Electronic Devices and Materials
Fall. Spring. 1 to 4 credits. A student may earn a maximum of 12 credits in all enrollments for this course. SA: EE 903
Topics vary each semester.

91B Embedded Architectures
Fall of odd years. Spring of odd years. 3(3-0) Interdepartmental with Computer Science and Engineering. RB: (ECE 809 and ECE 813) SA: EE 912B

91C Electronic Systems Packaging
Fall of odd years. Spring of odd years. 3(3-0) Interdepartmental with Computer Science and Engineering. RB: A basic background in electronics and electromagnetics. VLSI packaging technology, thermal management, electrical design, switching noise, multi-chip packaging, materials, device assembly, RF device packaging, and electrical testing.

925 Advanced Topics in Power
Spring. 3(3-0) A student may earn a maximum of 9 credits in all enrollments for this course. SA: EE 925
Topics vary each semester.

925C Advanced Machine Drives
Fall of odd years. Spring of odd years. 3(3-0) RB: (ECE 826 and ECE 829) SA: EE 925C
Nonlinear drives based on state reconstruction and nonlinear and adaptive control. Sensors, implementaiton, special computer architectures.

929 Advanced Topics in Electromagnetics
Fall. Spring. 3 to 4 credits. A student may earn a maximum of 10 credits in all enrollments for this course. SA: EE 929
Topics vary each semester.

929A Planar Waveguides and Circuits
Fall of odd years. Spring of odd years. 3(3-0) RB: (ECE 835) SA: EE 929A

929B Antenna Theory
Fall of odd years. Spring of odd years. 4(4-0) RB: (ECE 835) SA: EE 929B

929C Geometrical Theory of Diffraction
Fall of odd years. Spring of odd years. 3(3-0) RB: (ECE 835) SA: EE 929C

931 Advanced Topics in Electronic Devices and Materials
Fall. Spring. 1 to 4 credits. A student may earn a maximum of 12 credits in all enrollments for this course. SA: EE 931
Topics vary each semester.
931A VLSI Technology
Fall of odd years. Spring of odd years. 3(3-0) RB: (ECE 875) SA: EE 931A
Oxidation, doping techniques, simulation techniques, film deposition and etching, epitaxial growth, lithography, passivation, and packaging.

931B Microdevices and Microstructures
Fall of odd years. Spring of odd years. 3(3-0) RB: (ECE 875) SA: EE 931B

931C Properties of Semiconductors
Fall of odd years. Spring of odd years. 3(3-0) RB: (ECE 874) SA: EE 931C
Carrier scattering, single particle and collective transport, quantum effects, hot electron effects, electron-electron and electron-phonon interactions.

932 Advanced Topics in Analog Circuits
Spring of even years. 3(3-0)
Variable topics in advanced circuit analysis.

960 Advanced Topics in Control
Fall, Spring. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. RB: (ECE 827 and ECE 829) SA: EE 960
Topics vary each semester.

960A Adaptive Control
Fall, Spring. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. RB: (ECE 827 and ECE 829) SA: EE 960A

960B Nonlinear Control
Fall of odd years. Spring of odd years. 3(3-0) RB: (ECE 827 and ECE 829) SA: EE 960B

963 Advanced Topics in Systems
Fall, Spring. 3(3-0) A student may earn a maximum of 9 credits in all enrollments for this course. SA: EE 963
Topics vary each semester.

966 Advanced Topics in Signal Processing
Fall, Spring. 3(3-0) A student may earn a maximum of 9 credits in all enrollments for this course. SA: EE 966
Topics vary each semester.

966A Discrete Time Processing of Speech Signals
Fall of odd years. Spring of odd years. 3(3-0) RB: (ECE 466 and ECE 863 and ECE 864) SA: EE 966A

966B Multidimensional Signal Processing
Fall of odd years. Spring of odd years. 3(3-0) RB: (ECE 466 and ECE 864) SA: EE 966B

966C Advanced Topics in Statistical Signal Processing
Fall of odd years. Spring of odd years. 3(3-0) RB: (ECE 466 and ECE 863 and ECE 864) SA: EE 966C
Communication channels, noise models, hypothesis testing of signals by Bayesian minimax, and Neyman-Pearson criteria. Performance evaluation using ROC. Bayesian and maximum likelihood parameter estimation. Kalman-Bucy filtering.

989 Advanced Topics in Plasma
Fall of odd years. Spring of odd years. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. SA: EE 989
Topics vary each semester.

989A Plasma Processing for IC Fabrication
Fall of odd years. Spring of odd years. 3(3-0) RB: (ECE 835 and ECE 850) SA: EE 989A
Process requirements. Plasma reactors. Etching and deposition applications. Broad ion beam processing.

999 Doctoral Dissertation Research
Fall, Spring, Summer. 1 to 24 credits. A student may earn a maximum of 72 credits in all enrollments for this course. R: Open only to freshmen or sophomores in the College of Engineering.

101 Preview of Science
Fall. 1 credit. Interdepartmental with Natural Science; Agriculture and Natural Resources; Social Science. Administered by College of Natural Science. R: Approval of college.

124 Internet and Technology
Fall, Spring, Summer. 2(2-0) The Internet from a user perspective and from a technical perspective. History and social impact of the Internet. Internet tools.

150 Engineers and the Engineering Profession
Spring. 2(2-0) P: (MTH 116 or concurrently or MTH 132 or concurrently) or (LBS 118 or concurrently) R: Open only to freshmen or sophomores.

160 Diversity and Engineering
Fall, Spring. 2(2-0) P: (MTH 116 or concurrently or MTH 132 or concurrently) or (LBS 118 or concurrently) R: Open only to freshmen or sophomores in the College of Engineering.

192 Environmental Issues Seminar
Fall, Spring. 1 credit. A student may earn a maximum of 4 credits in all enrollments for this course. Interdepartmental with Natural Science; Agriculture and Natural Resources; Social Science; Communication Arts and Sciences. Administered by College of Natural Science. R: Open only to students in the College of Agriculture and Natural Resources or College of Engineering or College of Natural Science or College of Communication Arts and Sciences or College of Social Science. Approval of college.
Environmental issues and problems explored from a variety of perspectives, including legal, scientific, historical, political, socio-economic, and technical points of view.

290 Independent Study
Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 4 credits in all enrollments for this course. R: Open only to students in the College of Engineering, approval of college.
Independent undergraduate research in engineering.

291 Selected Topics
Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 4 credits in all enrollments for this course. R: Open only to freshmen or sophomores.
Experimental course development or special topics appropriate for freshmen and sophomores.

ENGINEERING EGR
College of Engineering

101 Preview of Science
Fall. 1 credit. Interdepartmental with Natural Science; Agriculture and Natural Resources; Social Science. Administered by College of Natural Science. R: Approval of college.

124 Internet and Technology
Fall, Spring, Summer. 2(2-0) The Internet from a user perspective and from a technical perspective. History and social impact of the Internet. Internet tools.

150 Engineers and the Engineering Profession
Spring. 2(2-0) P: (MTH 116 or concurrently or MTH 132 or concurrently) or (LBS 118 or concurrently) R: Open only to freshmen or sophomores.

290 Independent Study
Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 4 credits in all enrollments for this course. R: Open only to freshmen or sophomores in the College of Engineering.

300 Technology, Society and Public Policy
Fall. 2(2-0) P: Completion of Tier I writing requirement. RB: Two courses in mathematics or engineering or science. SA: EGR 200, MSM 300

393 Engineering Cooperative Education
Fall, Spring, Summer. 1(1-0) A student may earn a maximum of 6 credits in all enrollments for this course. R: Open only to students in the College of Engineering.
Pre-professional educational employment experiences in industry and government related to student's major. Educational employment assignment approved by College of Engineering.