

E01 - Mathematical Methods

- [ENCS 6021](#) Engineering Analysis (4.00)
- [ENCS 6111](#) Numerical Methods (4.00)
- [ENCS 6141](#) Probabilistic Methods in Design (4.00)
- [ENCS 6161](#) Probability and Stochastic Processes (4.00)
- [ENCS 6181](#) Optimization Techniques I (4.00)
- [ENCS 6191](#) Fuzzy Sets and Fuzzy Logic (4.00)

E02 - Developments In Engineering

- [ENCS 591](#) Topics in Engineering and Computer Science (4.00)
- [ENCS 691](#) Topics in Engineering and Computer Science (4.00)
- [ENGR 691](#) Topics in Engineering I (4.00)
- [ENGR 791](#) Topics in Engineering II (4.00)
- [COEN 691](#) Topics In Computer Engineering I (4.00)
- [COEN 791](#) Topics In Computer Engineering II (4.00)
- [ELEC 691](#) Topics in Electrical Engineering I (4.00)
- [ELEC 791](#) Topics in Electrical Engineering II (4.00)

E03 - Systems and Control

- [ELEC 6041](#) Large-scale Control Systems (4.00)
- [ENGR 6141](#) Nonlinear Systems (4.00)
- [ENGR 6412](#) Autonomy for Mobile Robots (4.00)
- [ENGR 7121](#) Analysis and Design of Linear Multivariable Systems (4.00)
- [ENGR 7131](#) Adaptive Control (4.00)
- [ENGR 7181](#) Digital Control of Dynamic Systems (4.00)
- [MECH 6681](#) Dynamics and Control of Nonholonomic Systems (4.00)
- [ELEC 6061](#) Real-time Computer Control Systems (4.00)
- [ELEC 6091](#) Discrete Event Systems (4.00)
- [ENGR 6071](#) Switched and Hybrid Control Systems (4.00)
- [ENGR 6131](#) Linear Systems (4.00)

E09 - Professional Leadership Skills

- [ENCS 6031](#) Cultures of Engineering Practice (4.00)
- [ENCS 6041](#) Creativity, Innovation, and Critical Thinking (4.00)
- [ENCS 6042](#) Communication Techniques for the Innovation Process (4.00)
- [ENCS 6821](#) Development and Global Engineering (4.00)

E10 - Robotics

- [ENGR 6411](#) Robotic Manipulators I: Mechanics (4.00)
- [ENGR 7401](#) Robotic Manipulators II: Control (4.00)

E42 - Communications

- [ELEC 6111](#) Detection and Estimation Theory (4.00)
- [ELEC 6131](#) Error Detecting and Correcting Codes (4.00)
- [ELEC 6141](#) Wireless Communications (4.00)
- [ELEC 6151](#) Information Theory and Source Coding (4.00)
- [ELEC 6171](#) Modelling and Analysis of Telecommunications Networks (4.00)
- [ELEC 6181](#) Real-time and Multimedia Communication over Internet (4.00)
- [ELEC 6831](#) Digital Communications (4.00)
- [ELEC 6841](#) Advanced Digital Communications (4.00)
- [ELEC 6851](#) Telecommunications Networks (4.00)
- [ELEC 6861](#) Higher Layer Telecommunications Protocols (4.00)
- [ELEC 6871](#) Fiber-Optic Communication Systems and Networks (4.00)
- [ELEC 6881](#) Fundamentals and Applications of MIMO Communications (4.00)
- [ELEC 6891](#) Broadcast Signal Transmission (4.00)
- [ELEC 7151](#) Broadband Communications Networks (4.00)
- [ENCS 6811](#) Optical Networking: Architectures and Protocols (4.00)

E43 - Micro-Devices and Fabrication Processes

- [ELEC 6221](#) Solid State Devices (4.00)
- [ELEC 6231](#) Design of Integrated Circuit Components (4.00)
- [ELEC 6241](#) VLSI Process Technology (4.00)
- [ELEC 6251](#) Microtransducer Process Technology (4.00)
- [ELEC 6261](#) Optical Devices for High-Speed Communications (4.00)
- [ELEC 6271](#) Nanoscience and Nanotechnology: Opto-Electronic Devices (4.00)
- [ELEC 6281](#) Principles of Solid State Nanodevices (4.00)

E44 - Fields, Waves and Optoelectronics

- [ELEC 6301](#) Advanced Electromagnetics (4.00)
- [ELEC 6311](#) Radiation and Scattering of Waves (4.00)
- [ELEC 6341](#) Antennas (4.00)
- [ELEC 6351](#) Modern Antenna Theory (4.00)
- [ELEC 6361](#) Acoustics (4.00)
- [ELEC 6371](#) Design of Wireless RF Systems (4.00)
- [ELEC 6381](#) Techniques in Electromagnetic Compatibility (4.00)
- [ELEC 6391](#) Microwave Engineering (4.00)

E45 - Electrical Power Engineering

- [ELEC 6411](#) Power Electronics I (4.00)
- [ELEC 6421](#) Renewable Energy Systems (4.00)
- [ELEC 6431](#) Advanced Electrical Machines and Drives (4.00)
- [ELEC 6461](#) Power Electronics II (4.00)
- [ELEC 6471](#) Hybrid Electric Vehicle Power System Design and Control (4.00)

- [ELEC 6481](#) Computer-Aided Analysis and Design of Electric Machines (4.00)
- [ELEC 6491](#) Controlled Electric Drives (4.00)
- [ELEC 7441](#) Design of Power Electronic Circuits (4.00)
- [ELEC 7451](#) Power System Compensation (4.00)

E47 - Signal Processing

- [ELEC 6601](#) Digital Signal Processing (4.00)
- [ELEC 6611](#) Digital Filters (4.00)
- [ELEC 6621](#) Digital Waveform Compression (4.00)
- [ELEC 6631](#) Video Processing and Compression (4.00)
- [ELEC 6641](#) Two-dimensional Signal and Image Processing (4.00)
- [ELEC 6651](#) Adaptive Signal Processing (4.00)
- [ELEC 6661](#) Medical Image Processing (4.00)
- [ELEC 6671](#) Biological Signal Processing (4.00)

E48 - Computer Engineering

- [COEN 6211](#) Biological Computing and Synthetic Biology (4.00)
- [COEN 6311](#) Software Engineering (4.00)
- [COEN 6312](#) Model-Driven Software Engineering (4.00)
- [COEN 6313](#) Programming on the Cloud (4.00)
- [COEN 6321](#) Applied Evolutionary and Learning Algorithms (4.00)
- [COEN 6331](#) Neural Networks (4.00)
- [COEN 6341](#) Embedded System Modelling (4.00)
- [COEN 6561](#) Cyber-Physical Systems (4.00)
- [COEN 6611](#) Real-time Systems (4.00)
- [COEN 6711](#) Microprocessors and Their Applications (4.00)
- [COEN 6721](#) Fault-Tolerant Distributed Systems (4.00)
- [COEN 6741](#) Computer Architecture and Design (4.00)
- [COEN 7311](#) Protocol Design and Validation (4.00)
- [COEN 7741](#) Advanced Computer Architecture (4.00)
- [ENGR 6231](#) Microfluidic Devices for Synthetic Biology (4.00)

E61 - Doctoral/PHD Seminar

- [ENCS 8011](#) PhD Seminar (2.00)

E62 - Thesis and Comprehensive Examination

- [ENCS 8501](#) Comprehensive Examination (0.00)
- [ENCS 8511](#) Doctoral Research Proposal (6.00)
- [ENGR 8901](#) Master of Applied Science Research and Thesis (29.00)
- [ENGR 8911](#) Doctoral Research and Thesis (70.00)

E63 - Project, Report And Industrial Training

- [ENCS 6931](#) Industrial Stage and Training (9.00)
- [ELEC 6961](#) Graduate Seminar in Electrical and Computer Engineering (1.00)
- [ENGR 692](#) Case Study and Report (1.00)
- [ENGR 6971](#) Project and Report I (4.00)
- [ENGR 6981](#) Project and Report II (4.00)
- [ENGR 6991](#) Project and Report III (5.00)

F03 - Application Specific Integrated Circuits

- [COEN 6501](#) Digital System Design and Synthesis (4.00)
- [COEN 6511](#) VLSI Circuit Design (4.00)
- [COEN 6521](#) Design for Testability (4.00)
- [COEN 6531](#) ASIC Synthesis (4.00)
- [COEN 6541](#) Functional Hardware Verification (4.00)
- [COEN 6551](#) Formal Hardware Verification (4.00)
- [ELEC 6051](#) Introduction to Analog VLSI (4.00)
- [ELEC 6071](#) Mixed-Signal VLSI for Communication Systems (4.00)
- [ELEC 6081](#) Modern Analog Filter Design (4.00)