The Department of Electrical and Computer Engineering (ECE) offers the following graduate degree programs:

- Master of Science in Electrical and Computer Engineering (MSECE)
- Master of Science in Electrical and Computer Engineering Leadership (MSECEL)
- Doctor of Philosophy in Computer Engineering (PhD)
- Doctor of Philosophy in Electrical Engineering (PhD)

All degrees can be pursued on either a full or part-time basis consistent with residence requirements for the degrees. The curriculum includes areas of concentration in communications, control, and signal processing; computer engineering; electromagnetics, plasma, and optics; microsystems, materials, and devices; and power systems, power electronics, and motion control.

MSECE students pursue their degree by selecting one of the two tracks—MSECE with thesis and course track (MS/T) or MSECE course-only track (MS/C). Students in all master’s degree programs must complete a minimum of 32 semester hours of approved course work (exclusive of any preparatory courses) with a minimum GPA of 3.000. Full-time students are responsible for meeting with their faculty academic or research advisor early in their program of study to determine an appropriate sequence of course work. Part-time students should follow the curriculum requirements and confer with their faculty academic advisor as needed.

Master of Science Degree Requirements

Students must complete a minimum of 32 semester hours of approved course work with a minimum GPA of 3.000. MS/T track students must complete an 8-semester-hour thesis as part of their program of study.

Students who select the MS/T track must form a thesis committee comprised of at least three members. The thesis committee must include the thesis advisor and at least two members must be tenured or tenure-track ECE faculty. The student shall present the thesis to this committee and to the ECE department at-large in the form of a seminar before final approval of the thesis.

The ECE department requires the master’s degree students who hold research assistantships to register full-time.

COURSE REQUIREMENTS FOR MS/C STUDENTS

The program requires 32 semester hours of graduate-level courses. At least five of these courses must be from the list of “depth” courses in the student’s concentration and at least two must be outside this list; these courses are known as “breadth” courses. None of these courses can be from the list of “excluded courses.” For all concentrations except computer engineering, at least 24 semester hours of the 32 required semester hours must be graduate-level ECE courses. For students in the computer engineering concentration, at least 20 semester hours of the 32 required semester hours must be graduate-level ECE courses.

COURSE REQUIREMENTS FOR MS/T STUDENTS

The program requires 24 semester hours of graduate-level courses. At least three of these courses must be from the list of “depth” courses in the student’s concentration and at least two must be outside this list; these courses are known as “breadth” courses. None of these courses can be from the list of “excluded courses.” At least 16 semester hours of the required 24 semester hours must be graduate-level ECE courses. In addition, the program requires 8 semester hours of EECE 7990 (MS Thesis).

MSECE—Master of Science in Electrical and Computer Engineering with Concentration in Communications, Control, and Signal Processing

Complete all courses and requirements listed below unless otherwise indicated.

OPTIONS

Complete one of the following options:

Course Work Option

DEPTH COURSES
Complete five courses (20 semester hours) from the list of depth courses below.

BREADTH COURSES
Complete two courses (8 semester hours) from the list of breadth courses below. Note: Depth courses cannot be taken for breadth.

ADDITIONAL ELECTIVE
Complete one additional course (4 semester hours) from either the list of depth courses below or the list of breadth courses below.

Thesis Option

DEPTH COURSES
Complete three courses (12 semester hours) from the list of depth courses below.

BREADTH COURSES
Complete two courses (8 semester hours) from the list of breadth courses below. Note: Depth courses cannot be taken for breadth.
ADDITIONAL ELECTIVE

Complete one additional course (4 semester hours) from either the list of depth courses below or the list of breadth courses below.

THESIS

Requires 8 semester hours:

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4 to 8 SH

COURSE LISTS

**Depth Courses**

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<td>Image Processing and Pattern Recognition</td>
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<td>EECE 5639</td>
<td>Computer Vision</td>
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<td>EECE 5644</td>
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<td>EECE 5664</td>
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<td>Complex Variable Theory and Differential Equations</td>
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**Breadth Courses**

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<td>Multivariable Control Systems</td>
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<td>Power Systems State Estimation</td>
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EECE 7297 Advanced Magnetic Materials—Magnetic Devices 4 SH
EECE 7298 Magnetic Materials—Fundamentals and Measurements 4 SH
EECE 7309 Special Topics in Electromagnetics, Plasma, and Optics 4 SH
EECE 7352 Computer Architecture 4 SH
EECE 7353 VLSI Design 4 SH
EECE 7357 Fault-Tolerant Computers 4 SH
EECE 7360 Combinatorial Optimization 4 SH
EECE 7368 High-Level Design of Hardware-Software Systems 4 SH
EECE 7370 Advanced Computer Vision 4 SH
EECE 7374 Fundamentals of Computer Networks (pending approval) 4 SH
EECE 7375 Operating Systems: Interface and Implementation 4 SH
EECE 7390 Computer Hardware Security 4 SH
EECE 7394 Networks and Systems Security 4 SH
EECE 7399 Preparing High-Stakes Written and Oral Materials 4 SH
ENGR 5670 Sustainable Energy: Materials, Conversion, Storage, and Usage 4 SH
MATH 7232 Combinatorial Analysis 4 SH
MATH 7233 Graph Theory 4 SH
CS 5100 Foundations of Artificial Intelligence 4 SH
CS 5200 Database Management Systems 4 SH
CS 5310 Computer Graphics 4 SH
CS 5340 Computer/Human Interaction 4 SH
CS 5400 Principles of Programming Language 4 SH
CS 5500 Managing Software Development 4 SH
CS 5600 Computer Systems 4 SH
CS 5770 Software Vulnerabilities and Security 4 SH
CS 6110 Knowledge-Based Systems 4 SH
CS 6200 Information Retrieval 4 SH
CS 6310 Computational Imaging 4 SH
CS 6410 Compilers 4 SH
CS 6510 Advanced Software Development 4 SH
CS 6520 Methods of Software Development 4 SH
CS 6530 Analysis of Software Artifacts 4 SH
CS 6540 Foundations of Formal Methods and Software Analysis 4 SH
CS 6610 Parallel Computing 4 SH
CS 6740 Network Security 4 SH
CS 6750 Cryptography and Communications Security 4 SH
CS 6760 Privacy, Security, and Usability 4 SH
CS 6810 Distributed Algorithms 4 SH
CS 7800 Advanced Algorithms 4 SH

PROGRAM CREDIT/GPA REQUIREMENTS
32 total semester hours required
Minimum 3.000 GPA required

MSECE—Master of Science in Electrical and Computer Engineering with Concentration in Computer Engineering
Complete all courses and requirements listed below unless otherwise indicated.

OPTIONS
Complete one of the following options:

Course Work Option

DEPTH COURSES
Complete five courses (20 semester hours) from the list of depth courses below.

BREADTH COURSES
Complete two courses (8 semester hours) from the list of breadth courses below. Note: Depth courses cannot be taken for breadth.

ADDITIONAL ELECTIVE
Complete one additional course (4 semester hours) from either the list of depth courses below or the list of breadth courses below.

Thesis Option

DEPTH COURSES
Complete three courses (12 semester hours) from the list of depth courses below.

BREADTH COURSES
Complete two courses (8 semester hours) from the list of breadth courses below. Note: Depth courses cannot be taken for breadth.

ADDITIONAL ELECTIVE
Complete one additional course (4 semester hours) from either the list of depth courses below or the list of breadth courses below.

Thesis
Requires 8 semester hours:
EECE 7990 Thesis 4 to 8 SH

COURSE LISTS

Depth Courses
EECE 5626 Image Processing and Pattern Recognition 4 SH
EECE 5627 Arithmetic and Circuit Design for Inexact Computing with Nanoscaled CMOS 4 SH
EECE 5639 Computer Vision 4 SH
EECE 5640 High-Performance Computing 4 SH
EECE 5642 Data Visualization 4 SH
EECE 5644 Introduction to Machine Learning and Pattern Recognition 4 SH
EECE 5645 (pending approval)
EECE 7205 Fundamentals of Computer Engineering 4 SH
EECE 7240 Analog Integrated Circuit Design 4 SH
EECE 7313 Pattern Recognition 4 SH
EECE 7332 Error Correcting Codes 4 SH
EECE 7334 Wireless Communications 4 SH
EECE 7352 Computer Architecture 4 SH
EECE 7353 VLSI Design 4 SH
Curriculum and Graduation Requirements by Program

EECE 7357 Fault-Tolerant Computers 4 SH EECE 5686 Electrical Machines 4 SH
EECE 7360 Combinatorial Optimization 4 SH EECE 5688 Analysis of Unbalanced Power Grids 4 SH
EECE 7364 Mobile and Wireless Networking 4 SH EECE 5694 Electromagnetic Photonic Devices 4 SH
EECE 7368 High-Level Design of Hardware- Software Systems 4 SH EECE 5695 Radio-Frequency and Optical Antennas 4 SH
EECE 7370 Advanced Computer Vision 4 SH EECE 5696 Energy Harvesting Systems 4 SH
EECE 7374 Fundamentals of Computer Networks 4 SH EECE 5697 Acoustics and Sensing 4 SH
EECE 7375 (pending approval) EECE 7105 Optics for Engineers 4 SH
EECE 7376 Operating Systems: Interface and Implementation 4 SH EECE 7200 Linear Systems Analysis 4 SH
EECE 7390 Computer Hardware Security 4 SH EECE 7201 Solid State Devices 4 SH
EECE 7394 Networks and Systems Security 4 SH EECE 7202 Electromagnetic Theory 1 4 SH
EECE 7397 Advanced Machine Learning 4 SH EECE 7203 Complex Variable Theory and Differential Equations 4 SH
MATH 7232 Combinatorial Analysis 4 SH EECE 7204 Applied Probability and Stochastic Processes 4 SH
MATH 7233 Graph Theory 4 SH EECE 7211 Nonlinear Control 4 SH
CS 5100 Foundations of Artificial Intelligence 4 SH EECE 7212 Multivariable Control Systems 4 SH
CS 5200 Database Management Systems 4 SH EECE 7213 System Identification and Adaptive Control 4 SH
CS 5310 Computer Graphics 4 SH EECE 7214 Optimal and Robust Control 4 SH
CS 5340 Computer/Human Interaction 4 SH EECE 7220 Power System Analysis 2 4 SH
CS 5400 Principles of Programming Language 4 SH EECE 7221 Power System Operation and Control 4 SH
CS 5500 Managing Software Development 4 SH EECE 7222 Power Systems State Estimation 4 SH
CS 5600 Computer Systems 4 SH EECE 7224 Modeling and Simulation of Power System Transients 4 SH
CS 5770 Software Vulnerabilities and Security 4 SH EECE 7226 Special Topics in Control 4 SH
CS 6110 Knowledge-Based Systems 4 SH EECE 7227 Special Topics in Power Electronics 4 SH
CS 6200 Information Retrieval 4 SH EECE 7228 Special Topics in Electric Drives 4 SH
CS 6310 Computational Imaging 4 SH EECE 7229 Special Topics in Power Systems 4 SH
CS 6410 Compilers 4 SH EECE 7230 Analog Integrated Circuit Design 4 SH
CS 6510 Advanced Software Development 4 SH EECE 7231 Advanced Solid State Devices 4 SH
CS 6520 Methods of Software Development 4 SH EECE 7241 Integrated Circuits for Communications and Mixed-Signal Processing 4 SH
CS 6530 Analysis of Software Artifacts 4 SH EECE 7242 Integrated Circuits for Wireless Communication 4 SH
CS 6540 Foundations of Formal Methods and Software Analysis 4 SH EECE 7243 Integrated Circuit Fabrication 4 SH
CS 6610 Parallel Computing 4 SH EECE 7244 Introduction to Microelectromechanical Systems (MEMS) 4 SH
CS 6740 Network Security 4 SH EECE 7245 Microwave Circuit Design for Wireless Communication 4 SH
CS 6750 Cryptography and Communications Security 4 SH EECE 7246 Design and Analysis of Digital Integrated Circuits 4 SH
CS 6760 Privacy, Security, and Usability 4 SH EECE 7247 Radio Frequency Integrated Circuit Design 4 SH
CS 6810 Distributed Algorithms 4 SH EECE 7270 Electromagnetic Theory 2 4 SH
CS 7800 Advanced Algorithms 4 SH EECE 7271 Computational Methods in Electromagnetics 4 SH

Breadth Courses
EECE 5576 Wireless Communication Systems 4 SH EECE 7275 Antennas and Radiation 4 SH
EECE 5580 Classical Control Systems 4 SH EECE 7276 Microwave Properties of Materials 4 SH
EECE 5606 Micro- and Nanofabrication 4 SH EECE 7284 Optical Properties of Matter 4 SH
EECE 5610 Digital Control Systems 4 SH EECE 7285 Opto-electronics and Fiber Optics 4 SH
EECE 5647 Nanophotonics 4 SH EECE 7287 Optical Detection 4 SH
EECE 5648 Biomedical Optics 4 SH EECE 7293 Modern Imaging 4 SH
EECE 5649 Design of Analog Integrated Circuits with Complementary Metal-Oxide-Semiconductor Technology 4 SH EECE 7295 Applied Magnetism 4 SH
EECE 5664 Biomedical Signal Processing 4 SH EECE 7296 Microwave Properties of Materials 4 SH
EECE 5666 Digital Signal Processing 4 SH EECE 7284 Optical Properties of Matter 4 SH
EECE 5680 Electric Drives 4 SH EECE 7285 Opto-electronics and Fiber Optics 4 SH
EECE 5682 Power Systems Analysis 1 4 SH EECE 7287 Optical Detection 4 SH
EECE 5684 Power Electronics 4 SH EECE 7293 Modern Imaging 4 SH
BREADTH COURSES

Complete three courses (12 semester hours) from the list of depth courses below or the list of breadth courses below.

DEPTH COURSES

Thesis Option

Complete one additional course (4 semester hours) from either the list of depth courses below or the list of breadth courses below.

ADDITIONAL ELECTIVE

Complete one additional course (4 semester hours) from either the list of depth courses below or the list of breadth courses below.

THESIS

Requires 8 semester hours:

EECE 7990  Thesis  4 to 8 SH

PROGRAM CREDIT/GPA REQUIREMENTS

32 total semester hours required
Minimum 3.000 GPA required

MSECE—Master of Science in Electrical and Computer Engineering with Concentration in Electromagnetics, Plasma, and Optics

Complete all courses and requirements listed below unless otherwise indicated.

OPTIONS

Complete one of the following options:

Course Work Option

DEPTH COURSES

Complete five courses (20 semester hours) from the list of depth courses below.

BREADTH COURSES

Complete two courses (8 semester hours) from the list of breadth courses below. Note: Depth courses cannot be taken for breadth.

ADDITIONAL ELECTIVE

Complete one additional course (4 semester hours) from either the list of depth courses below or the list of breadth courses below.

Thesis Option

DEPTH COURSES

Complete three courses (12 semester hours) from the list of depth courses below.

BREADTH COURSES

Complete two courses (8 semester hours) from the list of breadth courses below. Note: Depth courses cannot be taken for breadth.
### Curriculum and Graduation Requirements by Program

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<thead>
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**PROGRAM CREDIT/GPA REQUIREMENTS**

- **Minimum 3.00 GPA required**
- **32 total semester hours required**
MSECE—Master of Science in Electrical and Computer Engineering with Concentration in Microsystems, Materials, and Devices

Complete all courses and requirements listed below unless otherwise indicated.

OPTIONS
Complete one of the following options:

Course Work Option

DEPTH COURSES
Complete five courses (20 semester hours) from the list of depth courses below.

BREADTH COURSES
Complete two courses (8 semester hours) from the list of breadth courses below. Note: Depth courses cannot be taken for breadth.

ADDITIONAL ELECTIVE
Complete one additional course (4 semester hours) from either the list of depth courses below or the list of breadth courses below.

Thesis Option

DEPTH COURSES
Complete three courses (12 semester hours) from the list of depth courses below.

BREADTH COURSES
Complete two courses (8 semester hours) from the list of breadth courses below. Note: Depth courses cannot be taken for breadth.

ADDITIONAL ELECTIVE
Complete one additional course (4 semester hours) from either the list of depth courses below or the list of breadth courses below.

THESIS

Requires 8 semester hours:
EECE 7990 Thesis 4 to 8 SH

COURSE LISTS

Depth Courses
EECE 5606 Micro- and Nanofabrication 4 SH
EECE 5647 Nanophotonics 4 SH
EECE 5648 Biomedical Optics 4 SH
EECE 5649 Design of Analog Integrated Circuits with Complementary Metal-Oxide-Semiconductor Technology 4 SH
EECE 5680 Electric Drives 4 SH
EECE 5696 Energy Harvesting Systems 4 SH
EECE 7201 Solid State Devices 4 SH
EECE 7240 Analog Integrated Circuit Design 4 SH
EECE 7241 Advanced Solid State Devices 4 SH
EECE 7242 Integrated Circuits for Communications and Mixed-Signal Processing 4 SH
EECE 7243 Integrated Circuit Fabrication 4 SH
EECE 7244 Introduction to Microelectromechanical Systems (MEMS) 4 SH
EECE 7245 Microwave Circuit Design for Wireless Communication 4 SH
EECE 7246 Design and Analysis of Digital Integrated Circuits 4 SH
EECE 7247 Radio Frequency Integrated Circuit Design 4 SH
EECE 7276 Microwave Properties of Materials 4 SH
EECE 7284 Optical Properties of Matter 4 SH
EECE 7295 Applied Magnetism 4 SH
EECE 7296 Electronic Materials 4 SH
EECE 7297 Advanced Magnetic Materials—Magnetic Devices 4 SH
EECE 7298 Magnetic Materials—Fundamentals and Measurements 4 SH
EECE 7353 VLSI Design 4 SH

Breadth Courses
EECE 5576 Wireless Communication Systems 4 SH
EECE 5580 Classical Control Systems 4 SH
EECE 5610 Digital Control Systems 4 SH
EECE 5626 Image Processing and Pattern Recognition 4 SH
EECE 5627 Arithmetic and Circuit Design for Inexact Computing with Nanoscaled CMOS 4 SH
EECE 5639 Computer Vision 4 SH
EECE 5640 High-Performance Computing 4 SH
EECE 5642 Data Visualization 4 SH
EECE 5644 Introduction to Machine Learning and Pattern Recognition 4 SH
EECE 5645 (pending approval)
EECE 5664 Biomedical Signal Processing 4 SH
EECE 5666 Digital Signal Processing 4 SH
EECE 5682 Power Systems Analysis 1 4 SH
EECE 5684 Power Electronics 4 SH
EECE 5686 Electrical Machines 4 SH
EECE 5688 Analysis of Unbalanced Power Grids 4 SH
EECE 5694 Electromagnetic Photonic Devices 4 SH
EECE 5695 Radio-Frequency and Optical Antennas 4 SH
EECE 5697 Acoustics and Sensing 4 SH
EECE 7200 Linear Systems Analysis 4 SH
EECE 7202 Electromagnetic Theory 1 4 SH
EECE 7205 Fundamentals of Computer Engineering 4 SH
EECE 7211 Nonlinear Control 4 SH
EECE 7212 Multivariable Control Systems 4 SH
EECE 7213 System Identification and Adaptive Control 4 SH
EECE 7214 Optimal and Robust Control 4 SH
EECE 7220 Power System Analysis 2 4 SH
EECE 7221 Power System Operation and Control 4 SH
EECE 7224 Power Systems State Estimation 4 SH
EECE 7226 Modeling and Simulation of Power System Transients 4 SH
EECE 7236  Special Topics in Control  4 SH
EECE 7237  Special Topics in Power Electronics  4 SH
EECE 7238  Special Topics in Electric Drives  4 SH
EECE 7239  Special Topics in Power Systems  4 SH
EECE 7310  Modern Signal Processing  4 SH
EECE 7311  Two Dimensional Signal and Image Processing  4 SH
EECE 7312  Statistical and Adaptive Signal Processing  4 SH
EECE 7313  Pattern Recognition  4 SH
EECE 7315  Digital Image Processing  4 SH
EECE 7323  Numerical Optimization Methods  4 SH
EECE 7327  Special Topics in Signal Processing  4 SH
EECE 7332  Error Correcting Codes  4 SH
EECE 7334  Wireless Communications  4 SH
EECE 7335  Detection and Estimation Theory  4 SH
EECE 7336  Digital Communications  4 SH
EECE 7337  Information Theory  4 SH
EECE 7347  Special Topics in Communications  4 SH
EECE 7352  Computer Architecture  4 SH
EECE 7357  Fault-Tolerant Computers  4 SH
EECE 7360  Combinatorial Optimization  4 SH
EECE 7364  Mobile and Wireless Networking  4 SH
EECE 7368  High-Level Design of Hardware-Software Systems  4 SH
EECE 7370  Advanced Computer Vision  4 SH
EECE 7374  Fundamentals of Computer Networks (pending approval)  4 SH
EECE 7375  Operating Systems: Interface and Implementation  4 SH
EECE 7390  Computer Hardware Security  4 SH
EECE 7394  Networks and Systems Security  4 SH
EECE 7397  Advanced Machine Learning  4 SH
EECE 7399  Preparing High-Stakes Written and Oral Materials  4 SH
ENGR 5670  Sustainable Energy: Materials, Conversion, Storage, and Usage  4 SH
MATH 7232  Combinatorial Analysis  4 SH
MATH 7233  Graph Theory  4 SH
CS 5100  Foundations of Artificial Intelligence  4 SH
CS 5200  Database Management Systems  4 SH
CS 5310  Computer Graphics  4 SH
CS 5340  Computer/Human Interaction  4 SH
CS 5400  Principles of Programming Language  4 SH
CS 5500  Managing Software Development  4 SH
CS 5600  Computer Systems  4 SH
CS 5770  Software Vulnerabilities and Security  4 SH
CS 6110  Knowledge-Based Systems  4 SH
CS 6200  Information Retrieval  4 SH
CS 6310  Computational Imaging  4 SH
CS 6410  Compilers  4 SH
CS 6510  Advanced Software Development  4 SH
CS 6520  Methods of Software Development  4 SH
CS 6530  Analysis of Software Artifacts  4 SH
CS 6540  Foundations of Formal Methods and Software Analysis  4 SH
CS 6610  Parallel Computing  4 SH
CS 6740  Network Security  4 SH
CS 6750  Cryptography and Communications Security  4 SH
CS 6760  Privacy, Security, and Usability  4 SH
CS 6810  Distributed Algorithms  4 SH
CS 7800  Advanced Algorithms  4 SH

PROGRAM CREDIT/GPA REQUIREMENTS
32 total semester hours required
Minimum 3.00 GPA required

MSEE—Master of Science in Electrical and Computer Engineering with Concentration in Power Systems
Complete all courses and requirements listed below unless otherwise indicated.

OPTIONS
Complete one of the following options:

Course Work Option

DEPTH COURSES
Complete five courses (20 semester hours) from the list of depth courses below.

BREADTH COURSES
Complete two courses (8 semester hours) from the list of breadth courses below. Note: Depth courses cannot be taken for breadth.

ADDITIONAL ELECTIVE
Complete one additional course (4 semester hours) from either the list of depth courses below or the list of breadth courses below.

Thesis Option

DEPTH COURSES
Complete three courses (12 semester hours) from the list of depth courses below.

BREADTH COURSES
Complete two courses (8 semester hours) from the list of breadth courses below. Note: Depth courses cannot be taken for breadth.

ADDITIONAL ELECTIVE
Complete one additional course (4 semester hours) from either the list of depth courses below or the list of breadth courses below.

THESIS
Requires 8 semester hours:
EECE 7990  Thesis  4 to 8 SH

COURSE LISTS

Depth Courses
EECE 5580  Classical Control Systems  4 SH
EECE 5610  Digital Control Systems  4 SH
EECE 5666  Digital Signal Processing  4 SH
EECE 5680  Electric Drives  4 SH
EECE 5682  Power Systems Analysis  4 SH
Breadth Courses

EECE 5606  Micro- and Nanofabrication  4 SH
EECE 5626  Image Processing and Pattern Recognition
EECE 5627  Arithmetic and Circuit Design for Inexact Computing with Nanoscaled CMOS
EECE 5639  Computer Vision  4 SH
EECE 5640  High-Performance Computing  4 SH
EECE 5642  Data Visualization  4 SH
EECE 5644  Introduction to Machine Learning and Pattern Recognition
EECE 5645  Nanophotonics  4 SH
EECE 5649  Design of Analog Integrated Circuits with Complementary Metal-Oxide-Semiconductor Technology
EECE 5664  Biomedical Signal Processing  4 SH
EECE 5694  Electromagnetic Photonic Devices  4 SH
EECE 5695  Radio-Frequency and Optical Antennas
EECE 5697  Acoustics and Sensing  4 SH
EECE 7105  Optics for Engineers  4 SH
EECE 7201  Solid State Devices  4 SH
EECE 7202  Electromagnetic Theory I  4 SH
EECE 7203  Complex Variable Theory and Differential Equations
EECE 7204  Applied Probability and Stochastic Processes
EECE 7205  Fundamentals of Computer Engineering
MATH 7233 Graph Theory 4 SH
CS 5100 Foundations of Artificial Intelligence 4 SH
CS 5200 Database Management Systems 4 SH
CS 5310 Computer Graphics 4 SH
CS 5340 Computer/Human Interaction 4 SH
CS 5400 Principles of Programming Language 4 SH
CS 5500 Managing Software Development 4 SH
CS 5600 Computer Systems 4 SH
CS 5770 Software Vulnerabilities and Security 4 SH
CS 6110 Knowledge-Based Systems 4 SH
CS 6200 Information Retrieval 4 SH
CS 6310 Computational Imaging 4 SH
CS 6410 Compilers 4 SH
CS 6510 Advanced Software Development 4 SH
CS 6520 Methods of Software Development 4 SH
CS 6530 Analysis of Software Artifacts 4 SH
CS 6540 Foundations of Formal Methods and Software Analysis 4 SH
CS 6610 Parallel Computing 4 SH
CS 6740 Network Security 4 SH
CS 6750 Cryptography and Communications Security 4 SH
CS 6760 Privacy, Security, and Usability 4 SH
CS 6810 Distributed Algorithms 4 SH
CS 7800 Advanced Algorithms 4 SH
EECE 5639 Computer Vision 4 SH
EECE 5640 High-Performance Computing 4 SH
EECE 5688 Analysis of Unbalanced Power Grids 4 SH
EECE 5698 Special Topics in Electrical and Computer Engineering 4 SH
EECE 7205 Fundamentals of Computer Engineering 4 SH
EECE 7240 Analog Integrated Circuit Design 4 SH
EECE 7313 Pattern Recognition 4 SH
EECE 7332 Error Correcting Codes 4 SH
EECE 7334 Wireless Communications 4 SH
EECE 7352 Computer Architecture 4 SH
EECE 7353 VLSI Design 4 SH
EECE 7357 Fault-Tolerant Computers 4 SH
EECE 7360 Combinatorial Optimization 4 SH
EECE 7364 Mobile and Wireless Networking 4 SH
EECE 7366 Special Topics in Computer Engineering 1 4 SH
EECE 7368 High-Level Design of Hardware-Software Systems 4 SH
EECE 7374 Fundamentals of Computer Networks 4 SH
EECE 7388 Special Topics in Computer Engineering 2 4 SH
EECE 7398 Special Topics 4 SH
MATH 7232 Combinatorial Analysis 4 SH
MATH 7233 Graph Theory 4 SH
ENLR 5121 Engineering Leadership 1 2 SH
ENLR 5122 Engineering Leadership 2 2 SH
ENLR 5131 Scientific Foundations of Engineering 1 2 SH
ENLR 5132 Scientific Foundations of Engineering 2 2 SH
ENLR 7440 Engineering Leadership Challenge Project 1 4 SH
ENLR 7442 Engineering Leadership Challenge Project 2 4 SH

PROGRAM CREDIT/GPA REQUIREMENTS
32 total semester hours required
Minimum 3.000 GPA required

MSECEL—Master of Science in Electrical and Computer Engineering Leadership
Complete all courses and requirements listed below unless otherwise indicated.

REQUIREMENTS
Approved Concentration Courses
Complete four of the following courses:

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Leadership
ENLR 5121 Engineering Leadership 1 2 SH
ENLR 5122 Engineering Leadership 2 2 SH

PROGRAM CREDIT/GPA REQUIREMENTS
32 total semester hours required
Minimum 3.000 GPA required