

Depth and Excluded Courses

Depth Courses for Communication, Control, and Signal Processing

EECE 5576 Wireless Communication Systems 4 SH
EECE 5580 Classical Control Systems 4 SH
EECE 5610 Digital Control Systems 4 SH
EECE 5639 Computer Vision 4SH
EECE 5664 Biomedical Signal Processing 4SH
EECE 5666 Digital Signal Processing 4SH
EECE 5688 Image Processing and Pattern Recognition 4SH
EECE 5698 Special Topics Introduction to Machine Learning 4SH
EECE 5968 Special Topics in Security 4SH
EECE 7200 Linear Systems Analysis 4 SH
EECE 7203 Complex Variable Theory and Differential Equations 4 SH
EECE 7204 Applied Probability and Stochastic Processes 4 SH
EECE 7211 Nonlinear Control 4 SH
EECE 7213 System Identification and Adaptive Control 4 SH
EECE 7214 Optimal and Robust Control 4 SH
EECE 7242 Integrated Circuits for Communications and Analog Signal Processing 4 SH
EECE 7245 Microwave Circuit Design for Wireless Communications 4 SH
EECE 7293 Modern Imaging 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 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 7364 Mobile and Wireless Networking 4 SH
EECE 7398 Special Topics in Wireless Cognitive Radio Networks 4 SH

Depth Courses for Computer Engineering

ECE Courses

EECE 5639 Computer Vision 4SH
EECE 5640 High Performance Computing 4SH
EECE 5688 Image Processing and Pattern Recognition 4SH
EECE 5698 Special Topics Introduction to Visualization 4SH
EECE 5968 Special Topics in Security 4SH
EECE 5698 Special Topics Introduction to Machine Learning 4SH
EECE 5640 High Performance Computing 4SH
EECE 5698 Special Topics Computer Security 4SH
EECE 7205 Fundamentals of Computer Engineering 4 SH
EECE 7240 Analog Integrated Circuit Designs 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 7368 High Level Design of Hardware Software Systems 4 SH
EECE 7369 Simulation and Performance Evaluation 4SH
EECE 7374 Fundamentals of Computer Networking 4SH
EECE 7388 Special Topics: Computer Vision 2 4 SH

Mathematics Courses

MATH 7232 Combinatorial Analysis 4 SH
MATH 7233 Graph Theory 4 SH

CCIS Courses (subject to space availability, offering and approval from CCIS)

CS 5100 Foundations of Artificial Intelligence 4 SH
CS 5200 Introduction to Database Systems 4 SH
CS 5210 Implementation of Database Management Systems 4 SH
CS 5310 Computer Graphics 4 SH
CS 5340 Computer-Human Interaction 4 SH
CS 5400 Principles of Programming Languages 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 Architectures and Algorithms 4 SH
CS 6740 Network Security 4 SH
CS 6750 Cryptography and Communication Security 4 SH
CS 6760 Privacy, Security and Usability 4 SH
CS 6810 Distributed Algorithms 4 SH
CS 7800 Advanced Algorithms 4 SH

Depth Courses for Electromagnetics, Plasma, and Optics

EECE 5648 Biomedical Optics 4 SH
EECE 7105 Optics for Engineers 4 SH
EECE 7202 Electromagnetic Theory 1 4 SH
EECE 7203 Complex Variable Theory and Differential Equations 4 SH
EECE 7245 Microwave Circuit Design for Wireless Communication 4 SH
EECE 7270 Electromagnetic Theory 2 4 SH
EECE 7271 Computational Methods in Electromagnetics 4 SH
EECE 7275 Antennas and Radiation 4 SH
EECE 7276 Microwave Properties of Materials 4 SH
EECE 7284 Optical Properties of Matter 4 SH
EECE 7285 Optoelectronics and Fiber Optics 4 SH
EECE 7287 Optical Detection 4 SH
EECE 7293 Modern Imaging 4 SH
EECE 7309 Special Topics in Electromagnetics, Plasma, Optics 4 SH

Depth Courses for Microsystems, Material, and Devices

EECE 5606 Micro- and Nanofabrication 4 SH
EECE 5648 Biomedical Optics 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 Analog 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 7353 VLSI Design 4 SH
EECE 7276 Microwave Properties of Materials 4 SH
EECE 7284 Optical Properties of Matter 4 SH
EECE 7398 Special Topics in Magnetic Materials 4 SH

Depth Courses for Power Systems, Power Electronics, and Motion Control

EECE 5580 Classical Control Systems 4 SH
EECE5610 Digital Control Systems 4SH
EECE5666 Digital Signal Processing 4SH
EECE 5684 Power Electronics 4SH
EECE5686 Electrical Machines 4SH
EECE 5688 Analysis of Unbalanced Power Networks 4SH
EECE 5694 Numerical Optimization 4SH
EECE 5698 Special Topic: Energy Harvesting Systems 4 SH
EECE 7200 Linear System Analysis 4SH
EECE 7211 Nonlinear Control 4SH
EECE 7212 Multivariable Control Systems 4SH
EECE 7213 System Identification and Adaptive Control 4SH
EECE 7214 Optimal and Robust Control 4SH
EECE 7220 Power System Analysis 2 4SH
EECE 7221 Power Systems Operation and Control 4SH
EECE 7323 Numerical Optimization Methods 4SH
EECE 7224 Power System State Estimation 4SH
EECE 7226 Modeling of Transients in Power Systems 4SH
EECE 7236 Special Topics in Control 4SH
EECE 7237 Special Topics in Power Electronics 4SH
EECE 7238 Special Topics in Electric Drive 4SH
EECE 7239 Special Topics in Power Systems 4SH

EECE 7310 Modern Signal Processing 4SH
EECE 7312 Statistical and Adaptive Signal Processing 4SH
EECE 7325 Special Topics in Signal Processing 4SH
EECE 7335 Detection and Estimation 4SH
ENGR 5670 Sustainable Energy 4SH

Excluded Courses for All Concentrations

CS 5010 Programming Design Paradigm 4SH
CS 5320 Digital Image Processing 4SH
CS 5330 Pattern Recognition and Computer Vision 4SH
CS 5520 Mobile Application Development 4SH
CS 5610 Web Development 4SH
CS 5700 Computer Networks 4SH
CS 5800 Algorithms 4SH
CS 6350 Empirical Research Methods 4SH
CS 6120 Natural Language Processing 4SH
CS 6710 Wireless Networks 4SH

In addition to these courses, all courses offered by the Professional Masters Programs (Computer Systems Engineering, Energy Systems, Engineering Entrepreneurship, Engineering Management, Information Systems, Sustainable Building Systems, and Telecommunications Systems Management) are also excluded, except those explicitly listed under “Depth Courses” of one of the ECE concentrations.