Course Name	Faculty Qualifications Needed	Related Disciplines	Acceptable Alternative Qualifications
EECE 2100 Solid State Fundamentals and Devices	Earned Master's or Doctorate degree in Electrical Engineering and/or Computer Engineering in the teaching discipline; or Master's or Doctorate degree with a concentration in the teaching discipline with at least 18 graduate semester hours in the teaching discipline.	Applied Physics, Semiconductor Engineering	Acceptable alternative qualifications include substantial academic or industry experience in semiconductor physics, solid-state device modeling, or electronic materials. Relevant expertise may include practical experience with diodes, BJTs, MOSFETs, JFETs, and energy band theory, as well as laboratory or simulation-based instruction. *Peer-reviewed publications*, device fabrication or modeling experience, or development of instructional content in solid-state electronics will also be considered.
EECE 2200 Circuits II	Earned Master's or Doctorate degree in Electrical Engineering and/or Computer Engineering in the teaching discipline; or Master's or Doctorate degree with a concentration in the teaching discipline with at least 18 graduate semester hours in the teaching discipline.	Power Systems, Electronics Engineering	Acceptable alternative qualifications include substantial academic or industry experience in electrical circuit analysis, AC systems, and signal processing. Relevant expertise may include work with resonance, frequency response, Bode plots, coupled circuits, and Fourier analysis. Experience in designing and analyzing two-port networks or polyphase systems, as well as *peer-reviewed publications*, technical reports, or instructional materials in AC circuit analysis and systems theory, will also be considered.
EECE 3100 Design of Digital Logic System	Earned Master's or Doctorate degree in Electrical Engineering and/or Computer Engineering, Electronics Engineering in the teaching discipline; or Master's or Doctorate degree with a concentration in the teaching discipline with at least 18 graduate semester hours in the teaching discipline.	Digital Systems Design, Embedded Systems	Acceptable alternative qualifications include substantial academic or industry experience in digital logic design, including combinational and sequential circuit design, Boolean algebra, and VHDL simulation. Relevant expertise may also include microprogramming, programmable logic devices (PLDs), and assembly language programming. *Peer-reviewed publications*, open-source contributions, or instructional materials in digital system architecture or logic circuit simulation will also be considered.
EECE 3101 Design of Digital Logic Systems Lab	Earned Master's or Doctorate degree in Electrical Engineering and/or Computer Engineering in the teaching discipline; or Master's or Doctorate degree with a concentration in the teaching discipline with at least 18 graduate semester hours in the teaching discipline.	Digital Systems Design, Embedded Systems, Electronics Engineering	Acceptable alternative qualifications include substantial hands-on experience in digital logic design and laboratory instruction, including use of VHDL for simulation, PLDs, combinational and sequential logic, and assembly language programming. Experience with lab-based teaching, hardware prototyping, or the development of digital logic experiments is highly relevant. *Peer-reviewed publications*, lab manuals, or instructional contributions in digital systems and logic circuit design will also be considered.
EECE 3200 Linear Systems	Earned Master's or Doctorate degree in Electrical Engineering and/or Computer Engineering, Applied Mathematics in the teaching discipline; or Master's or Doctorate degree with a concentration in the teaching discipline with at least 18 graduate semester hours in the teaching discipline.	Systems Engineering, Electronics Engineering	Acceptable alternative qualifications include substantial academic or industry experience in signal processing, control systems, or systems analysis. Relevant expertise may include work with Fourier and Laplace transforms, Z-transforms, transfer functions, impulse response analysis, and state-space methods. *Peer-reviewed publications*, technical reports, or instructional materials in linear systems theory or signal modeling and analysis will also be considered.
EECE 3210 Electromagnetic Theory I	Earned Master's or Doctorate degree in Electrical Engineering, Applied Physics, Computer Engineering in the teaching discipline; or Master's or Doctorate degree with a concentration in the teaching discipline with at least 18 graduate semester hours in the teaching discipline.	Electromagnetics, Microwave Engineering	Acceptable alternative qualifications include substantial academic or professional experience in electromagnetic theory, including electrostatics, Maxwell's equations, wave propagation, and transmission line theory. Relevant experience may include antenna theory, high-frequency circuit design, or computational electromagnetics. *Peer-reviewed publications*, simulation work, or instructional materials in electromagnetics or field theory will also be considered.
EECE 3300 Electronics	Earned Master's or Doctorate degree in Electrical Engineering and/or Computer Engineering in the teaching discipline; or Master's or Doctorate degree with a concentration in the teaching discipline with at least 18 graduate semester hours in the teaching discipline.	Computer Engineering, Analog Circuit Design, Electronics	Acceptable alternative qualifications include substantial academic or industry experience in analog electronics, including analysis and design of diode circuits, BJTs, FETs, and multi-stage amplifiers. Relevant expertise may include op-amp circuit design, frequency response analysis, analog filters, and analog computing systems. *Peer-reviewed publications*, design experience, or instructional materials in analog electronics or amplifier design will also be considered.

EECE 3300 Electronics	Earned Master's or Doctorate degree in Electrical Engineering and/or Computer Engineering in the teaching discipline; or Master's or Doctorate degree with a concentration in the teaching discipline with at least 18 graduate semester hours in the teaching discipline.	Computer Engineering, Analog Circuit Design, Electronics	Acceptable alternative qualifications include substantial academic or industry experience in analog electronics, including analysis and design of diode circuits, BJTs, FETs, and multi-stage amplifiers. Relevant expertise may include op-amp circuit design, frequency response analysis, analog filters, and analog computing systems. *Peer-reviewed publications* , design experience, or instructional materials in analog electronics or amplifier design will also be considered.
EECE 3301 Electronics Lab	Earned Master's or Doctorate degree in Electrical Engineering and/or Computer Engineering in the teaching discipline; or Master's or Doctorate degree with a concentration in the teaching discipline with at least 18 graduate semester hours in the teaching discipline.	Computer Engineering, Analog Circuit Design, Electronics	Acceptable alternative qualifications include substantial hands-on experience in analog electronics and laboratory instruction, including building and testing diode, BJT, and FET circuits, as well as single and multi-stage amplifier circuits. Expertise in op-amp configurations, active filters, and use of lab instrumentation (e.g., oscilloscopes, signal generators) is highly relevant. *Peer-reviewed publications* , development of lab manuals, or instructional contributions in analog circuit experimentation will also be considered.
EECE 3330 Power Electronics	Earned Master's or Doctorate degree in Electrical Engineering and/or Computer Engineering in the teaching discipline; or Master's or Doctorate degree with a concentration in the teaching discipline with at least 18 graduate semester hours in the teaching discipline.	Computer Engineering, Analog Circuit Design, Electronics	Acceptable alternative qualifications include substantial academic or industry experience in power electronics, including the modeling and control of semiconductor devices such as diodes, SCRs, and triacs. Relevant expertise may also include rectifier design, motor control systems, and energy conversion. Experience with practical power systems or lab instruction, *peer-reviewed publications* , or development of instructional content in power electronics or motor drives will also be considered.
EECE 3410 Energy Conversion	Earned Master's or Doctorate degree in Electrical Engineering and/or Computer Engineering in the teaching discipline; or Master's or Doctorate degree with a concentration in the teaching discipline with at least 18 graduate semester hours in the teaching discipline.	Electromechanical Systems, Industrial Power Engineering, Computer Engineering,Power Systems, Electronic Engineering	Acceptable alternative qualifications include substantial academic or professional experience in electric machines, energy conversion systems, and transformer/motor modeling and design. Relevant expertise may include transformer analysis (voltage regulation, efficiency, thermal considerations), induction and synchronous machine modeling, and servo motor applications. *Peer-reviewed publications* , engineering design experience, or instructional content in electric machinery and energy systems will also be considered.
EECE 3420 Power Systems	Earned Master's or Doctorate degree in Electrical Engineering and/or Computer Engineering in the teaching discipline; or Master's or Doctorate degree with a concentration in the teaching discipline with at least 18 graduate semester hours in the teaching discipline.	Energy Systems Engineering, Electrical Infrastructure Engineering, Power Systems	Acceptable alternative qualifications include substantial academic or industry experience in power system analysis, modeling, and design. Relevant expertise may include per-unit system modeling, transformer and machine representation, transmission line analysis, load flow studies, fault analysis, and power factor correction. Experience with power system simulation tools, *peer-reviewed publications* , or instructional content in power transmission and distribution systems will also be considered.
EECE 3430 Electric Power Distribution	Earned Master's or Doctorate degree in Electrical Engineering and/or Computer Engineering in the teaching discipline; or Master's or Doctorate degree with a concentration in the teaching discipline with at least 18 graduate semester hours in the teaching discipline.	Energy Systems Engineering, Electrical Infrastructure Engineering, Power Systems	Acceptable alternative qualifications include substantial academic or professional experience in electric power distribution systems, including planning, analysis, and design. Relevant expertise may include transformer application, substation design, primary and secondary distribution layout, load forecasting, voltage regulation, and protective device coordination. Experience in utility systems design, use of power system planning software, *peer-reviewed publications* , or development of instructional materials in power distribution engineering will also be considered.
EECE 3500 Communication Systems	Earned Master's or Doctorate degree in Electrical Engineering and/or Computer Engineering in the teaching discipline; or Master's or Doctorate degree with a concentration in the teaching discipline with at least 18 graduate semester hours in the teaching discipline.	Computer Engineering, Signal Processing	Acceptable alternative qualifications include substantial academic or industry experience in analog and digital communication systems, including spectral analysis, modulation techniques (AM, FM, PM, and pulse), multiplexing strategies (FDM, TDM), and the impact of noise on system performance. Experience with communication system simulation tools, RF systems, or protocol design is highly relevant. *Peer-reviewed publications* , technical documentation, or instructional materials in communication theory and systems design will also be considered.

EECE 4000 Control Systems I	Earned Master's or Doctorate degree in Electrical Engineering and/or Computer Engineering in the teaching discipline; or Master's or Doctorate degree with a concentration in the teaching discipline with at least 18 graduate semester hours in the teaching discipline.	Systems Engineering, Mechanical Engineering (with control focus), Control Systems Engineering	Acceptable alternative qualifications include substantial academic or professional experience in control systems design and analysis, including transfer functions, time and frequency domain methods, and state-space modeling. Relevant expertise may include Root Locus, Bode and Nyquist techniques, stability analysis, or simulation and implementation of linear control systems. *Peer-reviewed publications*, industrial design experience, or development of instructional content in classical and modern control systems will also be considered.
EECE 4001 Control Systems Laboratory	Earned Master's or Doctorate degree in Electrical Engineering and/or Computer Engineering in the teaching discipline; or Master's or Doctorate degree with a concentration in the teaching discipline with at least 18 graduate semester hours in the teaching discipline.	Mechatronics, Systems Engineering, Control Systems Engineering	Acceptable alternative qualifications include substantial hands-on experience in control systems experimentation, including AC and DC servo systems, compensator design, and implementation of programmable logic controllers (PLCs) and robotic control systems. Relevant expertise in lab-based instruction, system modeling, and hardware-in-the-loop testing is highly valued. *Peer-reviewed publications*, development of lab manuals, or instructional materials in applied control systems and automation will also be considered.
EECE 4020 Introduction to Robotics	Earned Master's or Doctorate degree in Electrical Engineering and/or Computer Engineering in the teaching discipline; or Master's or Doctorate degree with a concentration in the teaching discipline with at least 18 graduate semester hours in the teaching discipline.	Mechatronics, Control Systems Engineering, Robotics, Mechanical Engineering	Acceptable alternative qualifications include substantial academic or industry experience in robotics, including kinematics, dynamics, sensor integration, and motion/path/force control. Relevant experience may also include development with robotic programming languages, implementation of robotic vision systems, or control of multi-joint manipulators. *Peer-reviewed publications*, hands-on projects, or instructional content in autonomous systems, robot design, or robotic programming will also be considered.
EECE 4100 Digital Signal Processing	Earned Master's or Doctorate degree in Electrical Engineering and/or Computer Engineering in the teaching discipline; or Master's or Doctorate degree with a concentration in the teaching discipline with at least 18 graduate semester hours in the teaching discipline.	Signal Processing, Applied Mathematics	Acceptable alternative qualifications include substantial academic or professional experience in digital signal processing (DSP), including discrete-time systems analysis, digital filter design, and spectral analysis techniques such as the DFT and FFT. Relevant expertise may also include algorithm development, implementation of DSP systems, or applications in communications, audio, or biomedical signals. *Peer-reviewed publications*, technical reports, or instructional materials in DSP or time-frequency analysis will also be considered.
EECE 4101 Electrical Systems Design Lab	Earned Master's or Doctorate degree in Electrical Engineering and/or Computer Engineeringin the teaching discipline; or Master's or Doctorate degree with a concentration in the teaching discipline with at least 18 graduate semester hours in the teaching discipline.	Systems Engineering, Engineering Design, Electronics	Acceptable alternative qualifications include substantial academic or professional experience in the design, implementation, and evaluation of electrical systems. Relevant expertise may include systems integration, project-based learning, hardware prototyping, and managing engineering design constraints and milestones. Experience supervising capstone or team-based engineering projects, along with *peer-reviewed publications*, technical design reports, or instructional content in electrical systems design, will also be considered.
EECE 4150 Introduction to Digital VLSI Design and Testing	Earned Master's or Doctorate degree in Electrical Engineering and/or Computer Engineering in the teaching discipline; or Master's or Doctorate degree with a concentration in the teaching discipline with at least 18 graduate semester hours in the teaching discipline.	Microelectronics, Semiconductor Engineering, Electronics	Acceptable alternative qualifications include substantial academic or professional experience in VLSI design, layout, and testing. Relevant expertise may include experience with CMOS design, physical layout tools, digital system integration, and design-for-testability (DFT) methodologies. Familiarity with industry-standard CAD tools, fabrication process fundamentals, and testing strategies for complex integrated circuits is highly relevant. *Peer-reviewed publications*, chip design projects, or instructional content in digital VLSI systems will also be considered.

EECE 4310 Software Engineering	Earned Master's or Doctorate degree in Electrical Engineering and/or Computer Engineering in the teaching discipline; or Master's or Doctorate degree with a concentration in the teaching discipline with at least 18 graduate semester hours in the teaching discipline.	Information Technology, Systems Engineering, Software Engineering,	Acceptable alternative qualifications include substantial academic or industry experience in software engineering, including experience with the full software development life cycle (SDLC), project management, team collaboration, and software testing and maintenance. Relevant expertise may also include CASE tools, documentation standards, and methodologies for software verification and evaluation. *Peer-reviewed publications* , industry software development experience, or instructional materials in software engineering practice and process will also be considered.
EECE 4320 Computer Hardware Design	Earned Master's or Doctorate degree in Electrical Engineering and/or Computer Engineering in the teaching discipline; or Master's or Doctorate degree with a concentration in the teaching discipline with at least 18 graduate semester hours in the teaching discipline.	Embedded Systems, Digital Systems Design	Acceptable alternative qualifications include substantial academic or professional experience in computer hardware design, including modular architecture, system bus protocols, synchronous system timing, and microprogrammed/peripheral hardware implementation. Relevant experience may include co-processing integration, hardware simulation, or FPGA/ASIC design. *Peer-reviewed publications* , hardware design projects, or instructional content in computer architecture or digital system integration will also be considered.
EECE 4350 Computer Communication and Networks	Earned Master's or Doctorate degree in Electrical Engineering and/or Computer Engineering in the teaching discipline; or Master's or Doctorate degree with a concentration in the teaching discipline with at least 18 graduate semester hours in the teaching discipline.	Network Engineering, Information Technology	Acceptable alternative qualifications include substantial academic or professional experience in computer networking and data communications. Relevant expertise may include network protocols, layered architecture (e.g., ISO/OSI), local and wide area networks, high-speed network design, packet switching, routing algorithms, and network performance optimization. Experience with network simulation tools, infrastructure planning, *peer-reviewed publications* , or instructional content in network technologies will also be considered.
EECE 4360 Embedded Systems Design	Earned Master's or Doctorate degree in Electrical Engineering and/or Computer Engineering in the teaching discipline; or Master's or Doctorate degree with a concentration in the teaching discipline with at least 18 graduate semester hours in the teaching discipline.	Embedded Software Engineering, Mechatronics, Electroincs	Acceptable alternative qualifications include substantial academic or professional experience in embedded systems design, including microprocessor integration, hardware/software co-design, and FPGA development using both HDL and high-level design tools. Relevant expertise may include real-time operating systems (RTOS), peripheral interfacing, communication protocols (e.g., I2C, SPI, UART), system testing, and optimization of memory and performance. *Peer-reviewed publications* , embedded system project experience, or instructional materials in real-time systems or FPGA design will also be considered.
EECE 4361 Embedded Systems Design Lab	Earned Master's or Doctorate degree in Electrical Engineering and/or Computer Engineering in the teaching discipline; or Master's or Doctorate degree with a concentration in the teaching discipline with at least 18 graduate semester hours in the teaching discipline.	Embedded Software Engineering, Mechatronics, Electroincs	Acceptable alternative qualifications include substantial academic or professional experience in embedded systems design, including microprocessor integration, hardware/software co-design, and FPGA development using both HDL and high-level design tools. Relevant expertise may include real-time operating systems (RTOS), peripheral interfacing, communication protocols (e.g., I2C, SPI, UART), system testing, and optimization of memory and performance. *Peer-reviewed publications* , embedded system project experience, or instructional materials in real-time systems or FPGA design will also be considered.
EECE 4410 Design of Renewable Energy Systems for Remote Community	Earned Master's or Doctorate degree in Electrical Engineering and/or Computer Engineering in the teaching discipline; or Master's or Doctorate degree with a concentration in the teaching discipline with at least 18 graduate semester hours in the teaching discipline.	Power Systems, Energy Systems Engineering, Environmental Engineering (with energy focus)	Acceptable alternative qualifications include substantial academic or professional experience in the design and implementation of renewable energy systems, especially in off-grid or remote community contexts. Relevant expertise may include photovoltaic systems, wind energy, battery storage, hybrid power systems, and distribution system planning. Experience with load forecasting, system simulation, and sustainable energy project design is highly valuable. *Peer-reviewed publications* , real-world implementation projects, or instructional content in renewable and community energy systems will also be considered.

Course	Degree Requirement	Teaching Disciplines	Alternative Qualifications
EECE 4600 Introduction to Biomedical Engineering	Earned Master's or Doctorate degree in Electrical Engineering and/or Computer Engineering in the teaching discipline; or Master's or Doctorate degree with a concentration in the teaching discipline with at least 18 graduate semester hours in the teaching discipline.	Biomedical Engineering	Acceptable alternative qualifications include substantial academic or professional experience in biomedical engineering, including biomedical instrumentation, physiological systems modeling, bio-signal processing, medical imaging, and rehabilitation technologies. Relevant experience may also include interdisciplinary collaboration in health technology design or clinical applications. *Peer-reviewed publications*, biomedical device development, or instructional materials in biomedical systems and engineering design will also be considered.
EECE 4800 Introduction to Microprocessors	Earned Master's or Doctorate degree in Electrical Engineering and/or Computer Engineering in the teaching discipline; or Master's or Doctorate degree with a concentration in the teaching discipline with at least 18 graduate semester hours in the teaching discipline.	Embedded Systems, Digital Systems Design	Acceptable alternative qualifications include substantial academic or professional experience in microprocessor architecture, programming, and integration. Relevant expertise may include assembly language development, use of cross-compilers and cross-assemblers, debugging tools, and hardware-software co-design for 8-bit and 16-bit microprocessor systems. *Peer-reviewed publications*, microprocessor-based system projects, or instructional content in microprocessor systems and embedded design will also be considered.
ENGR 3250 Introduction to Systems Engineering Design	Earned Master's or Doctorate degree in Electrical Engineering and/or Computer Engineering in the teaching discipline; or Master's or Doctorate degree with a concentration in the teaching discipline with at least 18 graduate semester hours in the teaching discipline.	Mechanical Engineering, Systems Engineering, Industrial Engineering, Engineering Management	Acceptable alternative qualifications include substantial academic or professional experience in systems engineering design, including requirement analysis, systems modeling, design synthesis, decision-making theory, and engineering economics. Relevant expertise may also include interdisciplinary project leadership, development of complex systems, or integration of statistical and economic tools into engineering design. *Peer-reviewed publications*, design project experience, or instructional content in systems engineering and decision-support tools will also be considered.
EECE 4560 AI AND MACHINE LEARNING FOR ENGINEERS	Earned Master's or Doctorate degree in Electrical Engineering and/or Computer Engineering in the teaching discipline; or Master's or Doctorate degree with a concentration in the teaching discipline with at least 18 graduate semester hours in the teaching discipline.	Data Science, Robotics, Computational Intelligence, Software Engineering, Artificial Intelligence	Acceptable alternative qualifications include substantial academic or industry experience in artificial intelligence and machine learning, including neural networks, deep learning, supervised and unsupervised learning, and algorithm implementation. Relevant expertise may include application of AI/ML methods in engineering domains such as signal processing, control systems, robotics, or biomedical engineering. *Peer-reviewed publications*, applied AI/ML research, or instructional content in intelligent systems and learning algorithms will also be considered.
EECE 4570 CYBERSECURITY FOR CYBER-PHYSICAL SYSTEMS	Earned Master's or Doctorate degree in Electrical Engineering and/or Computer Engineering in the teaching discipline; or Master's or Doctorate degree with a concentration in the teaching discipline with at least 18 graduate semester hours in the teaching discipline.	Information Assurance, Systems Engineering, Control Systems Security, Cybersecurity	Acceptable alternative qualifications include substantial academic or professional experience in cybersecurity for embedded or cyber-physical systems (CPS). Relevant expertise may include CPS architecture and vulnerabilities, secure networking, risk assessment models (e.g., Purdue model), defense-in-depth strategies, and protective schemes for physical and software layers. Experience with securing industrial control systems (ICS), IoT platforms, or smart infrastructure is especially valuable. *Peer-reviewed publications*, security framework development, or instructional content in CPS security and applied cybersecurity will also be considered.
ENGR 2200 Probability and Statistics	Earned Master's or Doctorate degree in Electrical Engineering and/or Computer Engineering in the teaching discipline; or Master's or Doctorate degree with a concentration in the teaching discipline with at least 18 graduate semester hours in the teaching discipline.	Engineering Mathematics, Mathematics, Statistics, Data Science	Acceptable alternative qualifications include substantial academic or professional experience in applied statistics and probability, especially within engineering contexts. Relevant expertise may include statistical modeling, hypothesis testing, regression analysis, probability distributions, and operations research applications. Experience in applying statistical methods to real-world engineering problems, *peer-reviewed publications*, or instructional materials in engineering statistics or probabilistic methods will also be considered.

Course	Minimum Qualifications	Additional Qualifications	Alternative Qualifications
EECE 1151 MATLAB based Engineering Graphics	Earned Master's or Doctorate degree in Electrical Engineering and/or Computer Engineering in the teaching discipline; or Master's or Doctorate degree with a concentration in the teaching discipline with at least 18 graduate semester hours in the teaching discipline.	Engineering Graphics, Computational Engineering, Applied Computing	Acceptable alternative qualifications include substantial academic or professional experience in MATLAB programming and its application to engineering visualization. Relevant expertise may include 2D/3D plotting, image processing, animation, GUI development, or MATLAB-based simulation and modeling. *Peer-reviewed publications* , instructional materials, or project-based experience involving MATLAB for engineering computation and graphics will also be considered.
EECE 3600 Advanced Programming for Engineering	Earned Master's or Doctorate degree in Electrical Engineering and/or Computer Engineering in the teaching discipline; or Master's or Doctorate degree with a concentration in the teaching discipline with at least 18 graduate semester hours in the teaching discipline.	Embedded Systems, Software Engineering	Acceptable alternative qualifications include substantial academic or professional experience in advanced programming with Python, particularly as applied to engineering problem-solving and embedded system integration. Relevant expertise may include GUI programming, data structures (lists, dictionaries, sets), file I/O, and hardware interfacing. *Peer-reviewed publications* , software development projects, or instructional materials involving Python for engineering applications or embedded systems will also be considered.
EECE 4300 Digital Computer Structures	Earned Master's or Doctorate degree in Electrical Engineering and/or Computer Engineering in the teaching discipline; or Master's or Doctorate degree with a concentration in the teaching discipline with at least 18 graduate semester hours in the teaching discipline.	Computer Architecture, Embedded Systems, Engineering Graphics	Acceptable alternative qualifications include substantial academic or professional experience in digital computer architecture, including CPU design, memory hierarchies, control units, instruction set architectures (ISAs), and bus structures. Relevant expertise may also include experience with hardware description languages (e.g., VHDL, Verilog), FPGA development, and performance optimization of computing systems. *Peer-reviewed publications* , hardware design projects, or instructional content in digital computer structures or system-level design will also be considered.