Biomedical Engineering			
BMEN 5000 Biomedical Instrumentation	Earned Doctorate degree in Biomedical Engineering in the teaching discipline or a closely related discipline.	Bioengineering, Biotechnology	Acceptable alternative qualifications include substantial academic or professional experience in biomedical instrumentation and the analysis of physiological signals. Expertise in measurement theory, electrodes, sensors, transducers, data acquisition, and electrical safety is highly valued, along with proven proficiency in using systems such as Biopac for physiological measurements (e.g., EEG, ECG, EMG) and tools like Matlab and LabVIEW for developing analysis and data interpretation applications. Individuals with peer-reviewed publications, recognized scholarly contributions, or significant professional achievements in biomedical instrumentation or related areas will also be considered.
BMEN 5010 Introduction to Biomedical Engineering	Earned Doctorate degree in Biomedical Engineering in the teaching discipline or a closely related discipline.	Bioengineering, Biotechnology	Acceptable alternative qualifications include substantial academic or professional experience in biomedical engineering encompassing a historical perspective on the field; a strong foundation in anatomy, physiology, and bio-electric phenomena; and expertise in biomedical sensors, bio-instrumentation, and bio-signal processing. Additionally, proficiency in physiological modeling, skeletal muscle and cardiovascular mechanics, biomaterials, tissue engineering, radiation imaging, rehabilitation engineering, and technology-assisted therapies is highly valued. Individuals with peer-reviewed publications, recognized scholarly contributions, or significant professional achievements in these interdisciplinary areas will also be considered.

BMEN 5030 Medical Imaging and Signal Processing	Earned Doctorate degree in Biomedical Engineering in the teaching discipline or a closely related discipline.	Bioengineering, Biotechnology	Acceptable alternative qualifications include substantial academic or professional experience in the methods for representing, storing, processing, coding, transmitting, and analyzing biomedical images using digital computers. Expertise in sampling theorems, image transforms, as well as image enhancement and restoration techniques within both frequency and spatial domains is highly valued. In addition, experience with image coding, transmission, segmentation, and description—applied to imaging modalities such as MRI, CAT, and Ultrasound—will also be considered. Individuals with peer-reviewed publications, recognized scholarly contributions, or significant professional achievements in biomedical imaging and signal processing are encouraged to apply.
BMEN 5040 Biomechanics	Earned Doctorate degree in Biomedical Engineering in the teaching discipline or a closely related discipline.	Bioengineering, Biotechnology	Acceptable alternative qualifications include substantial academic or professional experience in biomechanics, including the study of solid mechanics as applied to biological tissues, fundamentals of fluid mechanics, and physiological fluid mechanics. Expertise in mass transfer, bioheat transfer, and the modeling approach to the study of physiological systems is highly valued, as is experience with biomaterials and their interaction with biomechanical environments. Additional relevant experience includes research or professional work in locomotion and muscle biomechanics, principles of electrophoretic separation, and proficiency in using MATLAB and/or LabVIEW tools for developing analysis and data interpretation applications. Individuals with peer-reviewed publications, recognized scholarly contributions, or significant professional achievements in biomechanics or related fields will also be considered.
Civil Engineering			
Course Name	**Faculty Qualifications Needed**	**Related Disciplines**	**Acceptable Alternative Qualifications**

AREN 5100 Computer Codes	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Computational Engineering, Computer Science	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or computational engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.
CVEN 5020 Optimization Methods for Engineering Design	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Environmental Engineering, Geotechnical Engineering, Structural Engineering, and Transportation Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or mechanical engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.
CVEN 5050 Transportation Modeling	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Environmental Engineering, Geotechnical Engineering, Structural Engineering, and Transportation Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or transportation engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.
CVEN 5090 Traffic Engineering	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Environmental Engineering, Geotechnical Engineering, Structural Engineering, and Transportation Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or transportation engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.
CVEN 5100 Pavement Design-I	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Environmental Engineering, Geotechnical Engineering, Structural Engineering, and Transportation Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or transportation engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.
CVEN 5130 Airport Planning and Design	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Environmental Engineering, Geotechnical Engineering, Structural Engineering, and Transportation Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or transportation engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.

CVEN 5140 Urban Mass Transit Planning-I	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Environmental Engineering, Geotechnical Engineering, Structural Engineering, and Transportation Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or transportation engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.
CVEN 5200 Geometric Design of Highways	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Environmental Engineering, Geotechnical Engineering, Structural Engineering, and Transportation Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or transportation engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.
CVEN 5270 Groundwater Contamination	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Water Resources Engineering, Environmental Engineering, Geotechnical Engineering, Structural Engineering, and Transportation Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or water resources engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.
CVEN 5280 Solid Waste Management	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Environmental Engineering, Geotechnical Engineering, Structural Engineering, and Transportation Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or environmental engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.
CVEN 5290 Air Pollution Control	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Environmental Engineering, Industrial Engineering, Chemical Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or environmental engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.

CVEN 5300 Environmental Engineering Processes I	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Environmental Engineering, Geotechnical Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or environmental engineering , relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.
CVEN 5320 Environmental Engineering Design	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Environmental Engineering, Geotechnical Engineering,	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or environmental engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.
CVEN 5330 Water Quality Management	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Water Resources Engineering, Environmental Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or environmental engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.
CVEN 5340 Industrial Waste Treatment and Disposal	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Water Resources Engineering, Environmental Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or industrial engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.
CVEN 5350 Hazardous Waste Management	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Water Resources Engineering, Environmental Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or environmental engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.
CVEN 5360 Environmental Engineering Laboratory	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Chemical Engineering, Environmental Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or chemical engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.

CVEN 5370 Environmental Chemistry	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Chemical Engineering, Environmental Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or chemical engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.
CVEN 5380 Environmental Impact Analysis	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Environmental Engineering, Chemical Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or environmental engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.
CVEN 5400 Theoretical Soil Mechanics	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Geotechnical Engineering, Geological Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or geotechnical engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.
CVEN 5410 Ground Water and Seepage	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Geotechnical Engineering, Geological Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or geotechnical engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.
CVEN 5420 Advanced Foundation Engineering	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Geotechnical Engineering, Structural Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or geotechnical engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.
CVEN 5430 Applied Soil Mechanics	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Geotechnical Engineering, Structural Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or geotechnical engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.

CVEN 5450 Applied Rock Mechanics	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Geotechnical Engineering, Geological Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or geotechnical engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.
CVEN 5460 Nuclear Chemistry	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Chemical Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or chemical engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.
CVEN 5500 Advanced Geometric Design of Highways	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Urban and Regional Planning, Transportation Engineering, Architectural Engineering, Structural Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or transportation engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.
CVEN 5600 Pavement Design-II	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Urban and Regional Planning, Transportation Engineering, Architectural Engineering, Structural Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or transportation engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.
CVEN 5620 Advanced Traffic Engineering	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Urban and Regional Planning, Transportation Engineering, Architectural Engineering, Structural Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or transportation engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.
CVEN 5640 Transportation Systems Evaluation Procedures	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Urban and Regional Planning, Transportation Engineering, Architectural Engineering, Structural Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or transportation engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.

CVEN 5650 Transportation Modeling	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Urban and Regional Planning, Transportation Engineering, Architectural Engineering, Structural Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or transportation engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.
CVEN 5660 Highway Safety Engineering	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Urban and Regional Planning, Transportation Engineering, Architectural Engineering, Structural Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or transportation engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.
CVEN 5680 Urban Mass Transit Planning-II	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Urban and Regional Planning, Transportation Engineering, Architectural Engineering, Structural Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or transportation engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.
CVEN 5700 Plastic Design in Steel	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Urban and Regional Planning, Transportation Engineering, Architectural Engineering, Structural Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or structural engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.
CVEN 5710 Advanced Reinforced Concrete Design	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Urban and Regional Planning, Transportation Engineering, Architectural Engineering, Structural Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or structural engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.
CVEN 5720 Composite Structure Design	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Urban and Regional Planning, Transportation Engineering, Architectural Engineering, Structural Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or structural engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.

CVEN 5730 Matrix Analysis of Structures	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Urban and Regional Planning, Transportation Engineering, Architectural Engineering, Structural Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or structural engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.
CVEN 5740 Elasticity	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Urban and Regional Planning, Transportation Engineering, Architectural Engineering, Structural Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or mechanical engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.
CVEN 5750 Stability and Vibrations of Structures	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Urban and Regional Planning, Transportation Engineering, Architectural Engineering, Structural Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or structural engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.
CVEN 5760 Advanced Indeterminate Structures	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Urban and Regional Planning, Transportation Engineering, Architectural Engineering, Structural Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or structural engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.
CVEN 5770 Theory of Plates and Shells	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Urban and Regional Planning, Transportation Engineering, Architectural Engineering, Structural Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or structural engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.
CVEN 5780 Finite Element Analysis	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Computational Engineering, Structural Engineering, Applied Mathematics	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or computational engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.

CVEN 5790 Reinforced Masonry Design	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Urban and Regional Planning, Transportation Engineering, Architectural Engineering, Structural Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or structural engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.
CVEN 5800 Advanced Steel Design	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Urban and Regional Planning, Transportation Engineering, Architectural Engineering, Structural Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or structural engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.
CVEN 5820 Principles of Design	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Urban and Regional Planning, Transportation Engineering, Architectural Engineering, Structural Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or structural engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.
CVEN 5390 Principles of Sustainable and Geoenvironmental Engineering	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Urban and Regional Planning, Transportation Engineering, Architectural Engineering, Structural Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or environmental engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.
CVEN 5470 Soil Dynamics	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Geotechnical Engineering, Structural Engineering, Geological Engineering, Mechanical Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or geotechnical engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.
CVEN 5480 Unsaturated Soil Mechanics	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Geotechnical Engineering, Environmental Engineering, Geological Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in civil engineering or geotechnical engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in civil engineering related fields.
Computer and Information System Engineering			
Course Name	**Faculty Qualifications Needed**	**Related Disciplines**	**Acceptable Alternative Qualifications**

CISE 5005 Introduction to Computer Hardware Systems	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Computer Science, Computer Engineering	Acceptable alternative qualifications include substantial academic or professional experience in operational amplifier circuit design, combinational and sequential logic, RISC/CISC processor architectures, machine language and instruction set architectures, arithmetic unit design, memory and input/output systems, and experience with hardware description languages such as VHDL or Verilog. Individuals with peer-reviewed publications, patents, or recognized scholarly contributions in computer hardware systems, instructional materials development, or significant real-world implementation projects will also be considered.
CISE 5006 Introduction to Information Systems	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Computer Science, Information Technology, Cybersecurity	Acceptable alternative qualifications include substantial academic or professional experience in linear systems analysis, transforms (Fourier, Laplace, Z-transform), probability theory, random variables, modulation techniques, multiplexing methods, digital communications, and network protocols. Individuals possessing peer-reviewed publications, patents, significant industry experience, scholarly contributions, or instructional materials development related to information systems, communication theory, or computer networks will also be considered.
CISE 5007 Introduction to Computation and Computer Software	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Discrete Mathematics, Computer Science	Acceptable alternative qualifications include substantial academic or professional experience in discrete mathematics (logic, sets, functions, counting, probability, graph theory), data structures (arrays, lists, stacks, queues, binary search trees), algorithm design techniques (divide-and-conquer, dynamic programming, greedy algorithms), complexity analysis, sorting and searching algorithms, networked computing, and key operating systems concepts (processes, threads, scheduling, deadlock, memory management, virtual memory). Individuals with peer-reviewed publications, recognized scholarly contributions, instructional content creation, or significant industry experience in these computing and software areas will also be considered.

CISE 5010 Data Structures and Algorithms	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Discrete Mathematics, Computer Science	Acceptable alternative qualifications include substantial academic or professional experience in designing and implementing data structures (lists, hashing, indexing), relational database models, SQL database systems, database management systems, algorithm design and analysis, searching and sorting methods, pattern matching algorithms, and computational solutions to mathematical problems. Individuals with peer-reviewed publications, recognized scholarly work, instructional content development, or significant professional experience related to data structures, algorithms, databases, and computational methods will also be considered.
CISE 5020 Computer Architecture and Operating Systems	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Computer Science, Computer Engineering	Acceptable alternative qualifications include substantial academic or professional experience in various computer architectures (ranging from supercomputers to workstations), operating system design, resource management, parallel and distributed processing, real-time systems programming, and inquire-response system implementation. Individuals with peer-reviewed publications, scholarly contributions, instructional content development, or significant professional experience related to computer architecture and operating systems will also be considered.
CISE 5030 Software Systems Design	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Computer Science, Computer Engineering	Acceptable alternative qualifications include substantial academic or professional experience in software life-cycle management, software design methodologies, software development metrics and modeling, reliability and reusability practices, software tools and environments, analysis and design validation methods, software specifications and architectural design, and the application of computer-aided software engineering (CASE). Individuals with peer-reviewed publications, scholarly contributions, instructional materials, or significant professional experience in software systems design and engineering will also be considered.

CISE 5040 Systems Engineering	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Computer Science, Computer Engineering	Acceptable alternative qualifications include substantial academic or professional experience in systems design and analysis, decision-making methodologies, economic evaluation, optimization techniques, queuing theory, statistical methods, process control, operational feasibility, human factors integration, logistics, and management of engineering systems. Individuals with peer-reviewed publications, notable scholarly work, instructional content creation, or significant professional experience in systems engineering and related interdisciplinary areas will also be considered.
CISE 5050 Advanced Discrete Mathematics	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Computer Science, Computer Engineering	Acceptable alternative qualifications include substantial academic or professional experience in discrete mathematics, formal systems, mathematical deduction, logical reasoning, theorem proving, set theory including sets, relations, and functions, graph theory, algebraic structures and morphisms, semigroups, finite state machines and simulation, and applications of Kleene theorem. Individuals with peer-reviewed publications, recognized scholarly contributions, instructional content development, or significant professional experience in these areas will also be considered.
CISE 5060 Error Control Codes	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Computer Science, Computer Engineering	Acceptable alternative qualifications include substantial academic or professional experience in error detection and correction coding, linear algebra over finite fields, and the development and analysis of coding bounds. Expertise in designing perfect and quasi-perfect codes, conducting probability of error analysis, and practical application of Hamming, BCH, MDS, Reed-Solomon, and non-linear codes is also highly valued. Consideration will be given to individuals with peer-reviewed publications, recognized scholarly contributions, or demonstrated success in developing instructional content in coding theory and error control methodologies.

CISE 5110 Introduction to Artificial Intelligence	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Artificial Intelligence, Machine Learning, Computer Science, Computer Engineering	Acceptable alternative qualifications include substantial academic or professional experience in artificial intelligence concepts and techniques, including neural network topologies, training algorithms, fuzzy logic and decision-making systems, genetic algorithms and search algorithms, as well as probabilistic reasoning and belief functions. Individuals with peer-reviewed publications, recognized scholarly contributions, or significant professional experience in applying AI in engineering contexts will also be considered.
CISE 5210 Probability, Statistics and Risk Analysis	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Statistics, Data Science, Risk Analysis, Applied Mathematics	Acceptable alternative qualifications include substantial academic or professional experience in probability theory and statistical analysis, including the study of random variables, discrete and continuous probability distributions, sampling techniques, statistical inference, and hypothesis testing. Expertise in uncertainty measurement and modeling, Bayesian methods, and risk identification, analysis, and management in computer, information, and systems engineering projects is also highly valued. Individuals with peer-reviewed publications, recognized scholarly contributions, instructional content development, or significant industry experience in these areas will also be considered.
CISE 5220 Computer Aided Systems Design	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Software Engineering, Computer Science, Computer Engineering	Acceptable alternative qualifications include substantial academic or professional experience in advanced computer-aided analysis and design tools for evaluating system properties and performance. Expertise in the theory and structure of computer aided design software and hardware, as well as hands-on experience with the small scale design of such tools, will also be highly valued. Individuals with peer-reviewed publications, recognized scholarly contributions, instructional content development, or significant professional experience in computer aided systems design will also be considered.

CISE 5250 Introduction to System Modeling and Simulation	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Software Engineering, Computer Science, Computer Engineering	Acceptable alternative qualifications include substantial academic or professional experience in system modeling and simulation, including the formulation of modeling problems, effective model-building, and data analysis for evaluating alternative designs in complex systems. Expertise in decision analysis techniques such as Monte Carlo simulation, system dynamics modeling, concept graphs, Bayesian networks, Markov models, Petri nets, Bond graphs, cellular automata, and parallel and distributed simulation systems is also highly valued. Consideration will be given to individuals with peer-reviewed publications, recognized scholarly contributions, instructional content development, or significant professional experience in system modeling and simulation.
CISE 5230 Computer Communication and Network	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Software Engineering, Computer Science, Computer Engineering	Acceptable alternative qualifications include substantial academic or professional experience in the theory and practice of computer communication and networking, including the design and operation of open systems based on the ISO reference model, reliable data transmission over various communication media, and the implementation of switched communication networks. Expertise in network topology, packet switching, routing strategies, network management, as well as narrowband and broadband ISDN, and the application of traffic theory and switching fundamentals is highly valued. Individuals with peer-reviewed publications, recognized scholarly contributions, or significant professional experience in computer communication and network technologies will also be considered.

CISE 5240 Management of Information Systems	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Business Information Systems, Information Technology, Computer Information Systems	Acceptable alternative qualifications include substantial academic or professional experience in current methods for designing and implementing modern information technology solutions within organizational systems, coupled with a comprehensive understanding of the legal, economic, and regulatory environment of the information industry. Individuals with peer-reviewed publications, recognized scholarly contributions, or significant professional experience in managing and integrating IT in business or organizational settings will also be considered.
CISE 5260 Wireless Communications, Principles and Practice	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Software Engineering, Computer Science, Computer Engineering	Acceptable alternative qualifications include substantial academic or professional experience in the fundamental theory and design of high capacity wireless communications systems, including expertise in modern wireless standards, cellular concepts and implementations, mobile radio propagation, fading and multipath phenomena, and advanced modulation techniques. Additional valued experience includes equalization, diversity methods, channel coding, multiple access techniques, and wireless networking. Individuals with peer-reviewed publications, recognized scholarly contributions, or significant professional achievements in wireless communications will also be considered.
CISE 5300 Fundamentals of Robotics	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Robotics, Mechatronics, Computer Science, Computer Engineering	Acceptable alternative qualifications include substantial academic or professional experience in two-dimensional and three-dimensional transformation techniques, manipulator kinematics and dynamics, robot differential motion and control, path planning and trajectory generation, and task execution along with robot programming. Individuals with expertise in robot integration and simulation tools, as well as those with peer-reviewed publications, recognized scholarly contributions, or significant professional achievements in robotics, automation, or control systems, will also be considered.

CISE 5400 Special Topics in CISE	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Systems Engineering, Engineering Design, Computer Science, Computer Engineering	Acceptable alternative qualifications include substantial academic or professional experience in advanced and emerging topics within Computer and Information Systems Engineering as relevant to the course focus. Individuals with peer-reviewed publications, recognized scholarly contributions, or significant professional achievements in specialized research areas of CISE will also be considered.
CISE 5900 Systems Engineering Design	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Systems Engineering, Engineering Design, Computer Science, Computer Engineering	Acceptable alternative qualifications include substantial academic or professional experience in the application of systems engineering design principles, including the development of system requirements, evaluation of conceptual and logical alternatives, and integration methods such as top-down and bottom-up system development. Expertise in addressing life cycle issues, as well as planning system management and support for complex projects, is highly valued. Individuals with peer-reviewed publications, recognized scholarly contributions, or significant professional achievements in systems engineering design within computer, information, and systems engineering contexts will also be considered.
CISE 5905 Master of Science Thesis I	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Systems Engineering, Engineering Design, Computer Science, Computer Engineering	Acceptable alternative qualifications include substantial academic or professional experience in supervising the design and development of integrated systems that combine hardware, software, and systems approaches. This experience should encompass conducting need analysis, identifying operational and functional requirements, establishing TPMs and benchmarks for design evaluation, and selecting appropriate solutions. Expertise in developing comprehensive management plans with milestones and defining maintenance concepts for life cycle evaluation of optimal systems is also highly valued. Individuals with peer-reviewed publications, recognized scholarly contributions, or significant professional achievements in these areas will also be considered.

CISE 5906 Master of Science Thesis II	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Systems Engineering, Engineering Design, Computer Science, Computer Engineering	Acceptable alternative qualifications include substantial academic or professional experience in supervising the design and development of integrated systems that combine hardware, software, and systems approaches. This experience should encompass conducting need analysis, identifying operational and functional requirements, establishing TPMs and benchmarks for design evaluation, and selecting appropriate solutions. Expertise in developing comprehensive management plans with milestones and defining maintenance concepts for life cycle evaluation of optimal systems is also highly valued. Individuals with peer-reviewed publications, recognized scholarly contributions, or significant professional achievements in these areas will also be considered.
CISE 6000 Database Management Systems	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Systems Engineering, Engineering Design, Computer Science, Computer Engineering	Acceptable alternative qualifications include substantial academic or professional experience in database concepts and design, including data modeling with entity-relationship and relational models, proficiency in data manipulation languages such as SQL, and familiarity with data dictionaries and query processing techniques. Expertise in concurrency control, the development of commercial, expert, object-oriented, multimedia, and distributed database systems, as well as a solid understanding of database systems architecture, will also be highly valued. Individuals with peer-reviewed publications, recognized scholarly contributions, or significant professional achievements in the development and management of database systems will also be considered.

CISE 6100 Optimization in Operations Research	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Systems Engineering, Engineering Design, Computer Science, Computer Engineering	Acceptable alternative qualifications include substantial academic or professional experience in problem solving using mathematical models, deterministic optimization models in operations research, and techniques for improving search. Expertise in linear programming—including simplex search and interior point methods—as well as duality, sensitivity analysis, and multi-objective optimization, is highly valued. In addition, experience with shortest path algorithms, discrete dynamic programming, network flows, discrete optimization methods, and constrained or unconstrained nonlinear programming will also be considered. Individuals with peer-reviewed publications, recognized scholarly contributions, or significant professional achievements in optimization or operations research will also be considered.
CISE 6200 Introduction to Computational Intelligence	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Systems Engineering, Engineering Design, Computer Science, Computer Engineering	Acceptable alternative qualifications include substantial academic or professional experience in parallel computation techniques based on various artificial neural network architectures, including the development and application of learning rules for feed forward networks, associative learning, competitive networks, Grossberg networks, and Hopfield networks. Additional valuable expertise includes a comprehensive understanding of fuzzy logic theory, membership functions, fuzzy relations, fuzzy measures, approximate reasoning, and the design and application of fuzzy and neuro-fuzzy systems, as well as experience with genetic algorithms and their applications. Consideration will be given to individuals with peer-reviewed publications, recognized scholarly contributions, instructional content development, or significant professional achievements in these areas.

CISE 6300 Statistical Information Theory	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Statistics, Data Science, Applied Mathematics	Acceptable alternative qualifications include substantial academic or professional experience in the foundations of modern digital communication systems, including the analysis of random variables and random processes, autocorrelation functions, and the study of digital signaling waveforms and their spectra. Expertise in evaluating the probability of error in digital receivers, information measures, source coding, and the development of channels and codes for error detection and correction is highly valued, as is familiarity with traffic theory for telecommunications and optical communication. Individuals with peer-reviewed publications, recognized scholarly contributions, or significant professional achievements in the areas of information theory and digital communications will also be considered.
CISE 6340 Computer Communication and Networks II	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Systems Engineering, Engineering Design, Computer Science, Computer Engineering	Acceptable alternative qualifications include substantial academic or professional experience in wide area connectivity and the interconnection of autonomous networks, as well as expertise in Internet architecture and evolving protocol standards. Additionally, experience with high-speed networks—including frame relay, high-speed LANs and MANs, and the asynchronous transfer mode (ATM) architecture—along with proficiency in adaptation layers, switch architectures, congestion control strategies (both preventive and reactive), transmission schemes, signaling, and connectionless services over ATM will be highly valued. Individuals with peer-reviewed publications, recognized scholarly contributions, or significant professional achievements in these areas will also be considered.

CISE 6360 Distributed Computing Theory and Design	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Systems Engineering, Engineering Design, Computer Science, Computer Engineering	Acceptable alternative qualifications include substantial academic or professional experience in the fundamental and systems design aspects of distributed systems, including paradigms for distributed computing, client-server computing, and concurrency control. Expertise in distributed file systems, resource management, and high-performance computing aspects is also highly valued. Individuals with peer-reviewed publications, recognized scholarly contributions, or significant professional achievements in distributed computing and related areas will also be considered.
CISE 6400 Fundamentals of Robotics in Manufacturing	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Robotics, Engineering Design, Computer Science, Computer Engineering	Acceptable alternative qualifications include substantial academic or professional experience in robotic automation, robot classifications, robot specifications, direct and inverse kinematics, and workspace analysis. Expertise in trajectory planning, manipulator dynamics, robot control, integration of robot interfaces with manufacturing processes, machine interfaces, end-of-arm tooling, robot programming, and sensor integration and utilization in manufacturing will also be considered. Individuals with peer-reviewed publications, recognized scholarly contributions, or significant professional achievements in robotics and manufacturing automation are encouraged to apply.
CISE 6440 Numerical Visualization	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Systems Engineering, Engineering Design, Computer Science, Computer Engineering	Acceptable alternative qualifications include substantial academic or professional experience in numerical visualization, with expertise in three-dimensional rendering and modeling techniques, viewing transformations, illumination, and surface modeling. Experience in designing methodologies for visualizing scalar and vector fields in three dimensions and applying these visualization techniques to solve complex engineering or scientific problems is also highly valued. Individuals with peer-reviewed publications, recognized scholarly contributions, or significant professional achievements in computer graphics, numerical visualization, or computational science will also be considered.

CISE 7240 Computer Vision	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Systems Engineering, Engineering Design, Computer Science, Computer Engineering	Acceptable alternative qualifications include substantial academic or professional experience in digital image processing and computer vision fundamentals, including image analysis, image transforms, image restoration, image enhancement, image compression, image segmentation, image representation and description, and image recognition and interpretation. Expertise in the use of software tools such as the Matlab toolbox, Khoros, CVIPtools, and LabVIEW for image acquisition, processing, and visualization is highly valued. Individuals with peer-reviewed publications, recognized scholarly contributions, or significant professional achievements in computer vision or related areas will also be considered.
CISE 7300 Network Programming	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Systems Engineering, Engineering Design, Computer Science, Computer Engineering	Acceptable alternative qualifications include substantial academic or professional experience in TCP/IP and UDP protocols, transport layer concepts, and both elementary and advanced sockets programming techniques. This includes hands-on experience with TCP sockets and client-server implementations, I/O multiplexing, socket options, advanced UDP socket configurations, name and address conversions, daemon processes, advanced I/O functions, Unix Domain protocols, non-blocking I/O, routing sockets, broadcasting, multicasting, threading, and stream management. Individuals with peer-reviewed publications, recognized scholarly contributions, or significant professional achievements in network programming or related areas will also be considered.

CISE 7310 Metrics and Models in Software Quality Engineering	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Quality Engineering, Software Quality Assurance	Acceptable alternative qualifications include substantial academic or professional experience in software development and quality, process models, measurement theory, and software quality metrics. Expertise in applying Ishikawa's seven basic quality tools in software development, defect removal strategies, and evaluating effectiveness through models such as the Rayleigh model and reliability growth models is highly valued. Additional areas of significant experience include quality management models, complexity metrics and models, measuring and analyzing customer needs, and AS/400 software quality management. Individuals with peer-reviewed publications, recognized scholarly contributions, or significant professional achievements in software quality engineering will also be considered.
CISE 7340 High Performance Computer Applications	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Parallel Computing, Computer Science, Numerical Analysis	Acceptable alternative qualifications include substantial academic or professional experience in the design and analysis of parallel algorithms using fixed-connection network models and PRAM models. Expertise in numerical computations, sorting, routing, and comparisons of various parallel machine models, as well as the ability to relate machine models to architectural characteristics, will be highly valued. Individuals with peer-reviewed publications, recognized scholarly contributions, or significant professional achievements in high performance computing and parallel algorithm design will also be considered.

CISE 7350 Network Security and Risk Analysis	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Computer Security, Information Assurance, Cryptography, Network Engineering	Acceptable alternative qualifications include substantial academic or professional experience in network security fundamentals, security in layered protocol architectures, and the application of cryptographic techniques, authentication, and access control measures to ensure confidentiality and integrity. Expertise in standard security techniques, electronic mail and EDI security, comprehensive network security practices, and the implementation of security evaluation measures is highly valued. Individuals with peer-reviewed publications, recognized scholarly contributions, or significant professional achievements in network security and risk analysis will also be considered.
CISE 7370 Optical Communication	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Optical Communication, Communication Systems, Photonics, Signal Processing	Acceptable alternative qualifications include substantial academic or professional experience in optical communication systems, including expertise in optical wave propagation, photodetection statistics, heterodyne receivers, and the analysis of noise sources. Experience in evaluating communication performance for free-space channels and an introduction to fiber optic communication and fiber optic networks is also highly valued. Individuals with peer-reviewed publications, recognized scholarly contributions, or significant professional achievements in optical communications or related fields will also be considered.
CISE 7420 Advanced Robotics	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Robotics, Engineering Design, Computer Science, Computer Engineering, Mechatronics	Acceptable alternative qualifications include substantial academic or professional experience in mobile robotics platforms—encompassing unmanned ground vehicles and aerial vehicles—with a proven record in robot system integration. Expertise in applying intelligent technologies in robotics to develop adaptive robot behaviors, advanced sensing and control methodologies, vision systems, and sensor fusion techniques is highly valued. Individuals with peer-reviewed publications, recognized scholarly contributions, or significant professional achievements in advanced robotics and related interdisciplinary fields will also be considered.

CISE 7430 Mechatronics Systems	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Robotics, Engineering Design, Computer Science, Computer Engineering, Mechatronics	Acceptable alternative qualifications include substantial academic or professional experience in the design, fabrication, and integration of electro-mechanical systems, including expertise in transducers, active and passive sensors, measurement devices, and actuation systems. Additionally, experience with open, closed, and adaptive controllers, microprocessors, electronic interfacing, and communication systems is highly valued. Individuals with peer-reviewed publications, recognized scholarly contributions, or significant professional achievements in mechatronics and integrated systems engineering will also be considered.
CISE 7450 A. I. Robotics	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Robotics, Engineering Design, Computer Science, Computer Engineering, Mechatronics	Acceptable alternative qualifications include substantial academic or professional experience in the theory and programming of artificially intelligent robotics for real-world applications. Expertise in intelligence organization architectures, such as hierarchical and reactive paradigms, along with practical experience in mobile robot sensing, perception, programming techniques, and navigation, is highly valued. Individuals with peer-reviewed publications, recognized scholarly contributions, or significant professional achievements in AI robotics or related fields will also be considered.
CISE 7505 Special Topics	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Computer Science, Computer Engineering	Acceptable alternative qualifications include substantial academic or professional experience in the specific area of interest designated for the special topics course. Expertise demonstrated through peer-reviewed publications, recognized scholarly contributions, or significant professional achievements in the designated research area will also be considered. Faculty candidates with extensive experience in innovative research topics relevant to emerging trends or specialized subjects within Computer and Information Systems Engineering are encouraged to apply.

CISE 7506 Special Topics	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Computer Science, Computer Engineering	Acceptable alternative qualifications include substantial academic or professional experience in the specific area of interest designated for the special topics course. Expertise demonstrated through peer-reviewed publications, recognized scholarly contributions, or significant professional achievements in the designated research area will also be considered. Faculty candidates with extensive experience in innovative research topics relevant to emerging trends or specialized subjects within Computer and Information Systems Engineering are encouraged to apply.
CISE 7507 Special Topics	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Computer Science, Computer Engineering	Acceptable alternative qualifications include substantial academic or professional experience in the specific area of interest designated for the special topics course. Expertise demonstrated through peer-reviewed publications, recognized scholarly contributions, or significant professional achievements in the designated research area will also be considered. Faculty candidates with extensive experience in innovative research topics relevant to emerging trends or specialized subjects within Computer and Information Systems Engineering are encouraged to apply.
CISE 7600 Seminar	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Computer Science, Computer Engineering	Acceptable alternative qualifications include substantial academic or professional experience in the specific area of interest designated for the special topics course. Expertise demonstrated through peer-reviewed publications, recognized scholarly contributions, or significant professional achievements in the designated research area will also be considered. Faculty candidates with extensive experience in innovative research topics relevant to emerging trends or specialized subjects within Computer and Information Systems Engineering are encouraged to apply.

CISE 7900 CISE Ph.D. Dissertation	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Computer Science, Computer Engineering	Acceptable alternative qualifications include substantial academic or professional experience in advanced research and scholarly work in the candidate's area of specialization. Expertise demonstrated through peer-reviewed publications, recognized scholarly contributions, and significant professional achievements in conducting original research will be highly valued. Faculty candidates with extensive experience in supervising doctoral research and innovative research leadership in Computer and Information Systems Engineering are encouraged to apply.
Computer Science			
Course Name	**Faculty Qualifications Needed**	**Related Disciplines**	**Accetable Alternative Qualifications**
COMP 5100 Software Engineering	Earned Doctorate degree in Computer Science in the teaching discipline or a closely related discipline.	Software Engineering, Computer Engineering	Acceptable alternative qualifications include substantial professional experience (e.g. software developer, network engineer, game developer, IT support specialist, robotics engineer, algorithm engineer, tech consultant) in business or business administration, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Computer Science related fields.
COMP 5200 Advanced Algorithms Design and Analysis	Earned Doctorate degree in Computer Science in the teaching discipline or a closely related discipline.	Software Engineering, Computer Engineering	Acceptable alternative qualifications include substantial professional experience (e.g. software developer, network engineer, game developer, IT support specialist, robotics engineer, algorithm engineer, tech consultant) in business or business administration, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Computer Science related fields.
COMP 5300 Advanced Computer Architectures	Earned Doctorate degree in Computer Science in the teaching discipline or a closely related discipline.	Software Engineering, Computer Engineering	Acceptable alternative qualifications include substantial professional experience (e.g. software developer, network engineer, game developer, IT support specialist, robotics engineer, algorithm engineer, tech consultant) in business or business administration, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Computer Science related fields.

COMP 5400 Hybrid and Relational Databases	Earned Doctorate degree in Computer Science in the teaching discipline or a closely related discipline.	Software Engineering, Computer Engineering	Acceptable alternative qualifications include substantial professional experience (e.g. software developer, network engineer, game developer, IT support specialist, robotics engineer, algorithm engineer, tech consultant) in business or business administration, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Computer Science related fields.
COMP 5440 Mobile Robotics	Earned Doctorate degree in Computer Science in the teaching discipline or a closely related discipline.	Robotics, Megatronics, Software Engineering, Computer Engineering	Acceptable alternative qualifications include substantial professional experience (e.g. software developer, network engineer, game developer, IT support specialist, robotics engineer, algorithm engineer, tech consultant) in business or business administration, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Computer Science related fields.
COMP 5520 Introduction to High Performance Computing	Earned Doctorate degree in Computer Science in the teaching discipline or a closely related discipline.	Software Engineering, Computer Engineering	Acceptable alternative qualifications include substantial professional experience (e.g. software developer, network engineer, game developer, IT support specialist, robotics engineer, algorithm engineer, tech consultant) in business or business administration, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Computer Science related fields.
COMP 5600 Mobile Applications Development	Earned Doctorate degree in Computer Science in the teaching discipline or a closely related discipline.	Software Engineering, Computer Engineering	Acceptable alternative qualifications include substantial professional experience (e.g. software developer, network engineer, game developer, IT support specialist, robotics engineer, algorithm engineer, tech consultant) in business or business administration, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Computer Science related fields.

COMP 5700 Fundamentals of Computer Networks	Earned Doctorate degree in Computer Science in the teaching discipline or a closely related discipline.	Software Engineering, Computer Engineering	Acceptable alternative qualifications include substantial professional experience (e.g. software developer, network engineer, game developer, IT support specialist, robotics engineer, algorithm engineer, tech consultant) in business or business administration, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Computer Science related fields.
COMP 5720 Cryptography and Computer Security	Earned Doctorate degree in Computer Science in the teaching discipline or a closely related discipline.	Software Engineering, Computer Engineering, Cybersecurity, Computer/Information Technology	Acceptable alternative qualifications include substantial professional experience (e.g. software developer, network engineer, game developer, IT support specialist, robotics engineer, algorithm engineer, tech consultant) in business or business administration, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Computer Science related fields.
COMP 5750 Computer Network Management and Security	Earned Doctorate degree in Computer Science in the teaching discipline or a closely related discipline.	Software Engineering, Computer Engineering, Cybersecurity, Computer/Information Technology	Acceptable alternative qualifications include substantial professional experience (e.g. software developer, network engineer, game developer, IT support specialist, robotics engineer, algorithm engineer, tech consultant) in business or business administration, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Computer Science related fields.
COMP 5800 Introduction to Bioinformatics	Earned Doctorate degree in Computer Science in the teaching discipline or a closely related discipline.	Software Engineering, Computer Engineering, Bioinformatics	Acceptable alternative qualifications include substantial professional experience (e.g. software developer, network engineer, game developer, IT support specialist, robotics engineer, algorithm engineer, tech consultant) in business or business administration, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Computer Science related fields.

COMP 5900 Special Topics	Earned Doctorate degree in Computer Science in the teaching discipline or a closely related discipline.	Software Engineering, Computer Engineering, Cybersecurity, Computer/Information Technology	Acceptable alternative qualifications include substantial professional experience (e.g. software developer, network engineer, game developer, IT support specialist, robotics engineer, algorithm engineer, tech consultant) in business or business administration, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Computer Science related fields.
COMP 6100 Bioinformatics and Computational Biology	Earned Doctorate degree in Computer Science in the teaching discipline or a closely related discipline.	Software Engineering, Computer Engineering, Bioinformatics	Acceptable alternative qualifications include substantial professional experience (e.g. software developer, network engineer, game developer, IT support specialist, robotics engineer, algorithm engineer, tech consultant) in business or business administration, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Computer Science related fields.
COMP 6200 Machine Learning	Earned Doctorate degree in Computer Science in the teaching discipline or a closely related discipline.	Robotics, Megatronics, Software Engineering, Computer Engineering	Acceptable alternative qualifications include substantial professional experience (e.g. software developer, network engineer, game developer, IT support specialist, robotics engineer, algorithm engineer, tech consultant) in business or business administration, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Computer Science related fields.
COMP 6280 Advanced Web Applications Development	Earned Doctorate degree in Computer Science in the teaching discipline or a closely related discipline.	Software Engineering, Computer Engineering, Cybersecurity, Computer/Information Technology	Acceptable alternative qualifications include substantial professional experience (e.g. software developer, network engineer, game developer, IT support specialist, robotics engineer, algorithm engineer, tech consultant) in business or business administration, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Computer Science related fields.

COMP 6300 Advanced Software Engineering	Earned Doctorate degree in Computer Science in the teaching discipline or a closely related discipline.	Software Engineering, Computer Engineering, Cybersecurity, Computer/Information Technology	Acceptable alternative qualifications include substantial professional experience (e.g. software developer, network engineer, game developer, IT support specialist, robotics engineer, algorithm engineer, tech consultant) in business or business administration, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Computer Science related fields.
COMP 6800 Introduction to Computer Vision	Earned Doctorate degree in Computer Science in the teaching discipline or a closely related discipline.	Software Engineering, Computer Engineering, Cybersecurity, Computer/Information Technology	Acceptable alternative qualifications include substantial professional experience (e.g. software developer, network engineer, game developer, IT support specialist, robotics engineer, algorithm engineer, tech consultant) in business or business administration, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Computer Science related fields.
COMP 6900 Embedded Systems Programming	Earned Doctorate degree in Computer Science in the teaching discipline or a closely related discipline.	Software Engineering, Computer Engineering, Cybersecurity, Computer/Information Technology	Acceptable alternative qualifications include substantial professional experience (e.g. software developer, network engineer, game developer, IT support specialist, robotics engineer, algorithm engineer, tech consultant) in business or business administration, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Computer Science related fields.
COMP 5910 Master of Science Thesis I	Earned Doctorate degree in Computer Science in the teaching discipline or a closely related discipline.	Software Engineering, Computer Engineering, Cybersecurity, Computer/Information Technology	Acceptable alternative qualifications include substantial professional experience (e.g. software developer, network engineer, game developer, IT support specialist, robotics engineer, algorithm engineer, tech consultant) in business or business administration, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Computer Science related fields.

COMP 5920 Master of Science Thesis II	Earned Doctorate degree in Computer Science in the teaching discipline or a closely related discipline.	Software Engineering, Computer Engineering, Cybersecurity, Computer/Information Technology	Acceptable alternative qualifications include substantial professional experience (e.g. software developer, network engineer, game developer, IT support specialist, robotics engineer, algorithm engineer, tech consultant) in business or business administration, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Computer Science related fields.
COMP 6400 Distributed Algorithm and Data Analysis	Earned Doctorate degree in Computer Science in the teaching discipline or a closely related discipline.	Software Engineering, Computer Engineering, Cybersecurity, Computer/Information Technology	Acceptable alternative qualifications include substantial professional experience (e.g. software developer, network engineer, game developer, IT support specialist, robotics engineer, algorithm engineer, tech consultant) in business or business administration, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Computer Science related fields.
COMP 6700 Network Programming and Computing	Earned Doctorate degree in Computer Science in the teaching discipline or a closely related discipline.	Software Engineering, Computer Engineering, Cybersecurity, Computer/Information Technology	Acceptable alternative qualifications include substantial professional experience (e.g. software developer, network engineer, game developer, IT support specialist, robotics engineer, algorithm engineer, tech consultant) in business or business administration, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Computer Science related fields.
COMP 5500 Introduction to Data Science	Earned Doctorate degree in Computer Science in the teaching discipline or a closely related discipline.	Software Engineering, Computer Engineering, Data Science	Acceptable alternative qualifications include substantial professional experience (e.g. software developer, network engineer, game developer, IT support specialist, robotics engineer, algorithm engineer, tech consultant) in business or business administration, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Computer Science related fields.

COMP 5850 Data Visualization	Earned Doctorate degree in Computer Science in the teaching discipline or a closely related discipline.	Software Engineering, Computer Engineering, Data Science	Acceptable alternative qualifications include substantial professional experience (e.g. software developer, network engineer, game developer, IT support specialist, robotics engineer, algorithm engineer, tech consultant) in business or business administration, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Computer Science related fields.
DATA 5500 Business Data Analytics	Earned Doctorate degree in Computer Science in the teaching discipline or a closely related discipline.	Software Engineering, Computer Engineering, Data Science	Acceptable alternative qualifications include substantial professional experience (e.g. software developer, network engineer, game developer, IT support specialist, robotics engineer, algorithm engineer, tech consultant) in business or business administration, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Computer Science related fields.
Electrical Engineering			
Course Name	**Faculty Qualifications Needed**	**Related Disciplines**	**Accetable Alternative Qualifications**
EECE 5000 Statistical Communication Theory	Earned Doctorate degree in Electrical Engineering in the teaching discipline or a closely related discipline.	Computer Engineering, Signal Processing, Computer Science, Statistics	Acceptable alternative qualifications in Electrical Engineering include substantial professional experience as a AI research scientist, aerospace engineer, automation engineer, embedded systems developer, software developer, quantitative analyst, hardware engineer, electrical technician , or related field. Relevant professional licensure or certifications, and notable scholarly work such as published articles or conference presentations in Electrical Engineering
EECE 5010 Information Theory	Earned Doctorate degree in Electrical Engineering in the teaching discipline or a closely related discipline.	Computer Engineering, Signal Processing, Computer Science, Computer Information Systems	Acceptable alternative qualifications in Electrical Engineering include substantial professional experience as a AI research scientist, aerospace engineer, automation engineer, embedded systems developer, software developer, quantitative analyst, hardware engineer, electrical technician , or related field. Relevant professional licensure or certifications, and notable scholarly work such as published articles or conference presentations in Electrical Engineering

EECE 5020 Optimization Methods for Engineering Design	Earned Doctorate degree in Electrical Engineering in the teaching discipline or a closely related discipline.	Computer Engineering, Signal Processing, Computer Science, Computer Information Systems	Acceptable alternative qualifications in Electrical Engineering include substantial professional experience as a AI research scientist, aerospace engineer, automation engineer, embedded systems developer, software developer, quantitative analyst, hardware engineer, electrical technician , or related field. Relevant professional licensure or certifications, and notable scholarly work such as published articles or conference presentations in Electrical Engineering
EECE 5030 Artificial Neural Networks	Earned Doctorate degree in Electrical Engineering in the teaching discipline or a closely related discipline.	Computer Engineering, Signal Processing, Computer Science, Computer Information Systems	Acceptable alternative qualifications in Electrical Engineering include substantial professional experience as a AI research scientist, aerospace engineer, automation engineer, embedded systems developer, software developer, quantitative analyst, hardware engineer, electrical technician , or related field. Relevant professional licensure or certifications, and notable scholarly work such as published articles or conference presentations in Electrical Engineering
EECE 5100 Computer Structures	Earned Doctorate degree in Electrical Engineering in the teaching discipline or a closely related discipline.	Computer Engineering, Computer Science	Acceptable alternative qualifications in Electrical Engineering include substantial professional experience as a AI research scientist, aerospace engineer, automation engineer, embedded systems developer, software developer, quantitative analyst, hardware engineer, electrical technician , or related field. Relevant professional licensure or certifications, and notable scholarly work such as published articles or conference presentations in Electrical Engineering
EECE 5120 Computer Networks and Distributed Processing	Earned Doctorate degree in Electrical Engineering in the teaching discipline or a closely related discipline.	Computer Engineering, Signal Processing, Computer Science, Computer Information Systems	Acceptable alternative qualifications in Electrical Engineering include substantial professional experience as a AI research scientist, aerospace engineer, automation engineer, embedded systems developer, software developer, quantitative analyst, hardware engineer, electrical technician , or related field. Relevant professional licensure or certifications, and notable scholarly work such as published articles or conference presentations in Electrical Engineering

EECE 5220 Modern Signal Processing	Earned Doctorate degree in Electrical Engineering in the teaching discipline or a closely related discipline.	Computer Engineering, Signal Processing, Computer Science, Computer Information Systems	Acceptable alternative qualifications in Electrical Engineering include substantial professional experience as a AI research scientist, aerospace engineer, automation engineer, embedded systems developer, software developer, quantitative analyst, hardware engineer, electrical technician , or related field. Relevant professional licensure or certifications, and notable scholarly work such as published articles or conference presentations in Electrical Engineering
EECE 5230 Digital Image-Processing	Earned Doctorate degree in Electrical Engineering in the teaching discipline or a closely related discipline.	Computer Engineering, Signal Processing, Computer Science, Computer Information Systems	Acceptable alternative qualifications in Electrical Engineering include substantial professional experience as a AI research scientist, aerospace engineer, automation engineer, embedded systems developer, software developer, quantitative analyst, hardware engineer, electrical technician , or related field. Relevant professional licensure or certifications, and notable scholarly work such as published articles or conference presentations in Electrical Engineering
EECE 5240 Digital Communication	Earned Doctorate degree in Electrical Engineering in the teaching discipline or a closely related discipline.	Computer Engineering, Signal Processing, Computer Science, Computer Information Systems	Acceptable alternative qualifications in Electrical Engineering include substantial professional experience as a AI research scientist, aerospace engineer, automation engineer, embedded systems developer, software developer, quantitative analyst, hardware engineer, electrical technician , or related field. Relevant professional licensure or certifications, and notable scholarly work such as published articles or conference presentations in Electrical Engineering
EECE 5300 Computer Applications to Power Systems	Earned Doctorate degree in Electrical Engineering in the teaching discipline or a closely related discipline.	Computer Engineering, Signal Processing, Computer Science, Computer Information Systems	Acceptable alternative qualifications in Electrical Engineering include substantial professional experience as a AI research scientist, aerospace engineer, automation engineer, embedded systems developer, software developer, quantitative analyst, hardware engineer, electrical technician , or related field. Relevant professional licensure or certifications, and notable scholarly work such as published articles or conference presentations in Electrical Engineering

EECE 5310 Power System Relaying	Earned Doctorate degree in Electrical Engineering in the teaching discipline or a closely related discipline.	Computer Engineering, Signal Processing, Computer Science, Computer Information Systems	Acceptable alternative qualifications in Electrical Engineering include substantial professional experience as a AI research scientist, aerospace engineer, automation engineer, embedded systems developer, software developer, quantitative analyst, hardware engineer, electrical technician , or related field. Relevant professional licensure or certifications, and notable scholarly work such as published articles or conference presentations in Electrical Engineering
EECE 5320 Surge Phenomena in Power Engineering	Earned Doctorate degree in Electrical Engineering in the teaching discipline or a closely related discipline.	Computer Engineering, Signal Processing, Computer Science, Computer Information Systems	Acceptable alternative qualifications in Electrical Engineering include substantial professional experience as a AI research scientist, aerospace engineer, automation engineer, embedded systems developer, software developer, quantitative analyst, hardware engineer, electrical technician , or related field. Relevant professional licensure or certifications, and notable scholarly work such as published articles or conference presentations in Electrical Engineering
EECE 5330 Special Topics in Power Engineering	Earned Doctorate degree in Electrical Engineering in the teaching discipline or a closely related discipline.	Computer Engineering, Signal Processing, Computer Science, Computer Information Systems	Acceptable alternative qualifications in Electrical Engineering include substantial professional experience as a AI research scientist, aerospace engineer, automation engineer, embedded systems developer, software developer, quantitative analyst, hardware engineer, electrical technician , or related field. Relevant professional licensure or certifications, and notable scholarly work such as published articles or conference presentations in Electrical Engineering
EECE 5600 Optimal Control Methods for Engineering Design	Earned Doctorate degree in Electrical Engineering in the teaching discipline or a closely related discipline.	Computer Engineering, Signal Processing, Computer Science, Computer Information Systems	Acceptable alternative qualifications in Electrical Engineering include substantial professional experience as a AI research scientist, aerospace engineer, automation engineer, embedded systems developer, software developer, quantitative analyst, hardware engineer, electrical technician , or related field. Relevant professional licensure or certifications, and notable scholarly work such as published articles or conference presentations in Electrical Engineering

EECE 5610 Stochastic Estimation Methods for Engineering Design	Earned Doctorate degree in Electrical Engineering in the teaching discipline or a closely related discipline.	Computer Engineering, Signal Processing, Computer Science, Computer Information Systems	Acceptable alternative qualifications in Electrical Engineering include substantial professional experience as a AI research scientist, aerospace engineer, automation engineer, embedded systems developer, software developer, quantitative analyst, hardware engineer, electrical technician , or related field. Relevant professional licensure or certifications, and notable scholarly work such as published articles or conference presentations in Electrical Engineering
EECE 5630 Modern Control Systems	Earned Doctorate degree in Electrical Engineering in the teaching discipline or a closely related discipline.	Computer Engineering, Signal Processing, Computer Science, Computer Information Systems	Acceptable alternative qualifications in Electrical Engineering include substantial professional experience as a AI research scientist, aerospace engineer, automation engineer, embedded systems developer, software developer, quantitative analyst, hardware engineer, electrical technician , or related field. Relevant professional licensure or certifications, and notable scholarly work such as published articles or conference presentations in Electrical Engineering
EECE 5640 Advanced Topics in Control Systems	Earned Doctorate degree in Electrical Engineering in the teaching discipline or a closely related discipline.	Computer Engineering, Signal Processing, Computer Science, Computer Information Systems	Acceptable alternative qualifications in Electrical Engineering include substantial professional experience as a AI research scientist, aerospace engineer, automation engineer, embedded systems developer, software developer, quantitative analyst, hardware engineer, electrical technician , or related field. Relevant professional licensure or certifications, and notable scholarly work such as published articles or conference presentations in Electrical Engineering
EECE 6220 Robust Control Theory	Earned Doctorate degree in Electrical Engineering in the teaching discipline or a closely related discipline.	Computer Engineering, Signal Processing, Computer Science, Computer Information Systems	Acceptable alternative qualifications in Electrical Engineering include substantial professional experience as a AI research scientist, aerospace engineer, automation engineer, embedded systems developer, software developer, quantitative analyst, hardware engineer, electrical technician , or related field. Relevant professional licensure or certifications, and notable scholarly work such as published articles or conference presentations in Electrical Engineering

EECE 6230 Nonlinear Control Systems	Earned Doctorate degree in Electrical Engineering in the teaching discipline or a closely related discipline.	Computer Engineering, Signal Processing, Computer Science, Computer Information Systems	Acceptable alternative qualifications in Electrical Engineering include substantial professional experience as a AI research scientist, aerospace engineer, automation engineer, embedded systems developer, software developer, quantitative analyst, hardware engineer, electrical technician , or related field. Relevant professional licensure or certifications, and notable scholarly work such as published articles or conference presentations in Electrical Engineering
EECE 6250 Digital Spectral Analysis	Earned Doctorate degree in Electrical Engineering in the teaching discipline or a closely related discipline.	Computer Engineering, Signal Processing, Computer Science, Computer Information Systems	Acceptable alternative qualifications in Electrical Engineering include substantial professional experience as a AI research scientist, aerospace engineer, automation engineer, embedded systems developer, software developer, quantitative analyst, hardware engineer, electrical technician , or related field. Relevant professional licensure or certifications, and notable scholarly work such as published articles or conference presentations in Electrical Engineering
EECE 6260 Pattern Recognition and Classification	Earned Doctorate degree in Electrical Engineering in the teaching discipline or a closely related discipline.	Computer Engineering, Signal Processing, Computer Science, Computer Information Systems	Acceptable alternative qualifications in Electrical Engineering include substantial professional experience as a AI research scientist, aerospace engineer, automation engineer, embedded systems developer, software developer, quantitative analyst, hardware engineer, electrical technician , or related field. Relevant professional licensure or certifications, and notable scholarly work such as published articles or conference presentations in Electrical Engineering
EECE 7200 Statistical Signal Processing	Earned Doctorate degree in Electrical Engineering in the teaching discipline or a closely related discipline.	Computer Engineering, Signal Processing, Computer Science, Computer Information Systems	Acceptable alternative qualifications in Electrical Engineering include substantial professional experience as a AI research scientist, aerospace engineer, automation engineer, embedded systems developer, software developer, quantitative analyst, hardware engineer, electrical technician , or related field. Relevant professional licensure or certifications, and notable scholarly work such as published articles or conference presentations in Electrical Engineering

EECE 7210 Adaptive Control Systems	Earned Doctorate degree in Electrical Engineering in the teaching discipline or a closely related discipline.	Computer Engineering, Signal Processing, Computer Science, Computer Information Systems	Acceptable alternative qualifications in Electrical Engineering include substantial professional experience as a AI research scientist, aerospace engineer, automation engineer, embedded systems developer, software developer, quantitative analyst, hardware engineer, electrical technician , or related field. Relevant professional licensure or certifications, and notable scholarly work such as published articles or conference presentations in Electrical Engineering
EECE 7220 Intelligent Control Systems	Earned Doctorate degree in Electrical Engineering in the teaching discipline or a closely related discipline.	Computer Engineering, Signal Processing, Computer Science, Computer Information Systems	Acceptable alternative qualifications in Electrical Engineering include substantial professional experience as a AI research scientist, aerospace engineer, automation engineer, embedded systems developer, software developer, quantitative analyst, hardware engineer, electrical technician , or related field. Relevant professional licensure or certifications, and notable scholarly work such as published articles or conference presentations in Electrical Engineering
EECE 7230 Adaptive Filtering and Stochastic Control Systems	Earned Doctorate degree in Electrical Engineering in the teaching discipline or a closely related discipline.	Computer Engineering, Signal Processing, Computer Science, Computer Information Systems	Acceptable alternative qualifications in Electrical Engineering include substantial professional experience as a AI research scientist, aerospace engineer, automation engineer, embedded systems developer, software developer, quantitative analyst, hardware engineer, electrical technician , or related field. Relevant professional licensure or certifications, and notable scholarly work such as published articles or conference presentations in Electrical Engineering
Engineering & Computational Science			
Course Name	**Faculty Qualifications Needed**	**Related Disciplines**	**Accetable Alternative Qualifications**
ENCS 6020 Advanced Computing	Earned Doctorate degree in Engineering or Computational Science in the teaching discipline or a closely related discipline.	Computer Science, Mathematics, Computer Engineering, Software Engineering, Statistics, Engineering, Data Science, Information Technology	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Engineering or Computational Science, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Engineering/Computational Science related fields.

ENCS 6010 Advanced Applied Mathematics	Earned Doctorate degree in Engineering or Computational Science in the teaching discipline or a closely related discipline.	Computer Science, Mathematics, Computer Engineering, Software Engineering, Statistics, Engineering, Data Science, Information Technology	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Engineering or Computational Science, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Engineering/Computational Science related fields.
ENCS 6030 Modeling and Simulation of Cyber Physical Systems	Earned Doctorate degree in Engineering or Computational Science in the teaching discipline or a closely related discipline.	Computer Science, Mathematics, Computer Engineering, Software Engineering, Statistics, Engineering, Data Science, Information Technology	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Engineering or Computational Science, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Engineering/Computational Science related fields.
ENCS 6200 Engineering Design Optimization	Earned Doctorate degree in Engineering or Computational Science in the teaching discipline or a closely related discipline.	Computer Science, Mathematics, Computer Engineering, Software Engineering, Statistics, Engineering, Data Science, Information Technology	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Engineering or Computational Science, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Engineering/Computational Science related fields.
ENCS 6210 Engineering Management And Quality Control	Earned Doctorate degree in Engineering or Computational Science in the teaching discipline or a closely related discipline.	Computer Science, Mathematics, Computer Engineering, Software Engineering, Statistics, Engineering, Data Science, Information Technology	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Engineering or Computational Science, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Engineering/Computational Science related fields.
ENCS 6260 Engineering Statistics And Probability	Earned Doctorate degree in Engineering or Computational Science in the teaching discipline or a closely related discipline.	Computer Science, Mathematics, Computer Engineering, Software Engineering, Statistics, Engineering, Data Science, Information Technology	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Engineering or Computational Science, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Engineering/Computational Science related fields.

ENCS 6110 Advanced Robotic Systems	Earned Doctorate degree in Engineering or Computational Science in the teaching discipline or a closely related discipline.	Computer Science, Mathematics, Computer Engineering, Software Engineering, Statistics, Engineering, Data Science, Information Technology, Robotics	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Engineering or Computational Science, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Engineering/Computational Science related fields.
ENCS 7100 Artificial Intelligence Robotics	Earned Doctorate degree in Engineering or Computational Science in the teaching discipline or a closely related discipline.	Computer Science, Mathematics, Computer Engineering, Software Engineering, Statistics, Engineering, Data Science, Information Technology, Robotics	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Engineering or Computational Science, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Engineering/Computational Science related fields.
ENCS 6120 Mechatronics Systems Design	Earned Doctorate degree in Engineering or Computational Science in the teaching discipline or a closely related discipline.	Computer Science, Mathematics, Computer Engineering, Software Engineering, Statistics, Engineering, Data Science, Information Technology	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Engineering or Computational Science, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Engineering/Computational Science related fields.
ENCS 7110 Principles of Cyber Physical Systems	Earned Doctorate degree in Engineering or Computational Science in the teaching discipline or a closely related discipline.	Computer Science, Mathematics, Computer Engineering, Software Engineering, Statistics, Engineering, Data Science, Information Technology	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Engineering or Computational Science, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Engineering/Computational Science related fields.
ENCS 6280 Finite System Analysis	Earned Doctorate degree in Engineering or Computational Science in the teaching discipline or a closely related discipline.	Computer Science, Mathematics, Computer Engineering, Software Engineering, Statistics, Engineering, Data Science, Information Technology	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Engineering or Computational Science, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Engineering/Computational Science related fields.

ENCS 7200 Estimation Theory and System Identification	Earned Doctorate degree in Engineering or Computational Science in the teaching discipline or a closely related discipline.	Computer Science, Mathematics, Computer Engineering, Software Engineering, Statistics, Engineering, Data Science, Information Technology	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Engineering or Computational Science, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Engineering/Computational Science related fields.
ENCS 5300 Fundamentals of Nanomaterials	Earned Doctorate degree in Engineering or Computational Science in the teaching discipline or a closely related discipline.	Computer Science, Mathematics, Computer Engineering, Software Engineering, Statistics, Engineering, Data Science, Information Technology	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Engineering or Computational Science, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Engineering/Computational Science related fields.
ENCS 6300 Micro- and Nano-fabrication and Characterization Techniques	Earned Doctorate degree in Engineering or Computational Science in the teaching discipline or a closely related discipline.	Computer Science, Mathematics, Computer Engineering, Software Engineering, Statistics, Engineering, Data Science, Information Technology	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Engineering or Computational Science, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Engineering/Computational Science related fields.
ENCS 7300 Solid State Physics and Devices	Earned Doctorate degree in Engineering or Computational Science in the teaching discipline or a closely related discipline.	Computer Science, Mathematics, Computer Engineering, Software Engineering, Statistics, Engineering, Data Science, Information Technology	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Engineering or Computational Science, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Engineering/Computational Science related fields.
ENCS 6410 Transportation Facilities Evaluation and Design	Earned Doctorate degree in Engineering or Computational Science in the teaching discipline or a closely related discipline.	Computer Science, Mathematics, Computer Engineering, Software Engineering, Statistics, Engineering, Data Science, Information Technology	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Engineering or Computational Science, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Engineering/Computational Science related fields.

ENCS 6420 Transportation and Environmental Sustainability	Earned Doctorate degree in Engineering or Computational Science in the teaching discipline or a closely related discipline.	Computer Science, Mathematics, Computer Engineering, Software Engineering, Statistics, Engineering, Data Science, Information Technology	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Engineering or Computational Science, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Engineering/Computational Science related fields.
ENCS 6430 Pavement, Environmental and Ground Water Design	Earned Doctorate degree in Engineering or Computational Science in the teaching discipline or a closely related discipline.	Computer Science, Mathematics, Computer Engineering, Software Engineering, Statistics, Engineering, Data Science, Information Technology	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Engineering or Computational Science, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Engineering/Computational Science related fields.
ENCS 6440 Environmental and Transportation Risk Analysis	Earned Doctorate degree in Engineering or Computational Science in the teaching discipline or a closely related discipline.	Computer Science, Mathematics, Computer Engineering, Software Engineering, Statistics, Engineering, Data Science, Information Technology	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Engineering or Computational Science, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Engineering/Computational Science related fields.
ENCS 6530 Analysis of Modern Energy Conversion and Conservation Systems	Earned Doctorate degree in Engineering or Computational Science in the teaching discipline or a closely related discipline.	Computer Science, Mathematics, Computer Engineering, Software Engineering, Statistics, Engineering, Data Science, Information Technology	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Engineering or Computational Science, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Engineering/Computational Science related fields.
ENCS 6960 Digital and Computer Communications	Earned Doctorate degree in Engineering or Computational Science in the teaching discipline or a closely related discipline.	Computer Science, Mathematics, Computer Engineering, Software Engineering, Statistics, Engineering, Data Science, Information Technology	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Engineering or Computational Science, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Engineering/Computational Science related fields.

ENCS 6620 Data Mining	Earned Doctorate degree in Engineering or Computational Science in the teaching discipline or a closely related discipline.	Computer Science, Mathematics, Computer Engineering, Software Engineering, Statistics, Engineering, Data Science, Information Technology	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Engineering or Computational Science, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Engineering/Computational Science related fields.
ENCS 7700 High-Performance Computing Applications	Earned Doctorate degree in Engineering or Computational Science in the teaching discipline or a closely related discipline.	Computer Science, Mathematics, Computer Engineering, Software Engineering, Statistics, Engineering, Data Science, Information Technology	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Engineering or Computational Science, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Engineering/Computational Science related fields.
ENCS 6800 Introduction to Cyber Security	Earned Doctorate degree in Engineering or Computational Science in the teaching discipline or a closely related discipline.	Computer Science, Mathematics, Computer Engineering, Software Engineering, Statistics, Engineering, Data Science, Information Technology	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Engineering or Computational Science, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Engineering/Computational Science related fields.
ENCS 7800 Graph Theory and Networks Analysis	Earned Doctorate degree in Engineering or Computational Science in the teaching discipline or a closely related discipline.	Computer Science, Mathematics, Computer Engineering, Software Engineering, Statistics, Engineering, Data Science, Information Technology	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Engineering or Computational Science, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Engineering/Computational Science related fields.
ENCS 7900 Computer Vision	Earned Doctorate degree in Engineering or Computational Science in the teaching discipline or a closely related discipline.	Computer Science, Mathematics, Computer Engineering, Software Engineering, Statistics, Engineering, Data Science, Information Technology	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Engineering or Computational Science, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Engineering/Computational Science related fields.

ENCS 7930 Applied Signal Processing	Earned Doctorate degree in Engineering or Computational Science in the teaching discipline or a closely related discipline.	Computer Science, Mathematics, Computer Engineering, Software Engineering, Statistics, Engineering, Data Science, Information Technology	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Engineering or Computational Science, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Engineering/Computational Science related fields.
ENCS 7070 Professional Development and Ethics	Earned Doctorate degree in Engineering or Computational Science in the teaching discipline or a closely related discipline.	Computer Science, Mathematics, Computer Engineering, Software Engineering, Statistics, Engineering, Data Science, Information Technology	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Engineering or Computational Science, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Engineering/Computational Science related fields.
ENCS 7080 PhD Seminar	Earned Doctorate degree in Engineering or Computational Science in the teaching discipline or a closely related discipline.	Computer Science, Mathematics, Computer Engineering, Software Engineering, Statistics, Engineering, Data Science, Information Technology	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Engineering or Computational Science, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Engineering/Computational Science related fields.
ENCS 7090 Dissertation Courses	Earned Doctorate degree in Engineering or Computational Science in the teaching discipline or a closely related discipline.	Computer Science, Mathematics, Computer Engineering, Software Engineering, Statistics, Engineering, Data Science, Information Technology	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Engineering or Computational Science, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Engineering/Computational Science related fields.
Mechanical Engineering			
Course Name	**Faculty Qualifications Needed**	**Related Disciplines**	**Acceptable Alternative Qualifications**
MEEN 5010 Introduction to Manufacturing	Earned Doctorate degree in Mechanical Engineering in the teaching discipline or a closely related discipline.	Automotive Engineering, Manufacturing Engineering, Industrial Engineering, Mechatronics	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Mechanical Engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Mechanical Engineering related fields.

MEEN 5020 Optimization Methods for Engineering Design	Earned Doctorate degree in Mechanical Engineering in the teaching discipline or a closely related discipline.	Aerospace Engineering, Automotive Engineering, Manufacturing Engineering, Industrial Engineering, Robotics, Mechatronics, Civil Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Mechanical Engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Mechanical Engineering related fields.
MEEN 5030 Artificial Neural Networks	Earned Doctorate degree in Mechanical Engineering in the teaching discipline or a closely related discipline.	Robotics, Mechatronics, Computer Engineering, Software Engineering, Information Technology	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Mechanical Engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Mechanical Engineering related fields.
MEEN 5040 Vibrations Analysis	Earned Doctorate degree in Mechanical Engineering in the teaching discipline or a closely related discipline.	Robotics, Mechatronics, Computer Engineering, Software Engineering, Information Technology	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Mechanical Engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Mechanical Engineering related fields.
MEEN 5050 Energy Conservation Systems	Earned Doctorate degree in Mechanical Engineering in the teaching discipline or a closely related discipline.	Computer Engineering, Civil Engineering, Environmental Engineering, Chemical Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Mechanical Engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Mechanical Engineering related fields.
MEEN 5100 Theory of Elasticity and Applications	Earned Doctorate degree in Mechanical Engineering in the teaching discipline or a closely related discipline.	Computer Engineering, Civil Engineering, Environmental Engineering, Chemical Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Mechanical Engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Mechanical Engineering related fields.

MEEN 5110 Theory of Plasticity and Application	Earned Doctorate degree in Mechanical Engineering in the teaching discipline or a closely related discipline.	Computer Engineering, Civil Engineering, Environmental Engineering, Chemical Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Mechanical Engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Mechanical Engineering related fields.
MEEN 5130 Flexible Manufacturing Systems	Earned Doctorate degree in Mechanical Engineering in the teaching discipline or a closely related discipline.	Automotive Engineering, Manufacturing Engineering, Industrial Engineering, Mechatronics	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Mechanical Engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Mechanical Engineering related fields.
MEEN 5200 Advanced Dynamics	Earned Doctorate degree in Mechanical Engineering in the teaching discipline or a closely related discipline.	Aerospace Engineering, Automotive Engineering, Manufacturing Engineering, Industrial Engineering, Robotics, Mechatronics, Quantum Physics, Thermodynamics	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Mechanical Engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Mechanical Engineering related fields.
MEEN 5310 Dynamics and Thermodynamics of Compressible Fluid Flow	Earned Doctorate degree in Mechanical Engineering in the teaching discipline or a closely related discipline.	Aerospace Engineering, Automotive Engineering, Manufacturing Engineering, Industrial Engineering, Robotics, Mechatronics, Quantum Physics, Thermodynamics	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Mechanical Engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Mechanical Engineering related fields.
MEEN 5400 Conduction and Radiation Heat Transfer	Earned Doctorate degree in Mechanical Engineering in the teaching discipline or a closely related discipline.	Computer Engineering, Civil Engineering, Environmental Engineering, Chemical Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Mechanical Engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Mechanical Engineering related fields.

MEEN 5410 Convection Heat Transfer	Earned Doctorate degree in Mechanical Engineering in the teaching discipline or a closely related discipline.	Computer Engineering, Civil Engineering, Environmental Engineering, Chemical Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Mechanical Engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Mechanical Engineering related fields.
MEEN 5420 Advanced Thermodynamics	Earned Doctorate degree in Mechanical Engineering in the teaching discipline or a closely related discipline.	Aerospace Engineering, Automotive Engineering, Manufacturing Engineering, Industrial Engineering, Robotics, Mechatronics, Quantum Physics, Thermodynamics	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Mechanical Engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Mechanical Engineering related fields.
MEEN 5780 Finite Element Analysis	Earned Doctorate degree in Mechanical Engineering in the teaching discipline or a closely related discipline.	Aerospace Engineering, Automotive Engineering, Manufacturing Engineering, Industrial Engineering, Robotics, Mechatronics, Civil Engineering	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Mechanical Engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Mechanical Engineering related fields.
MEEN 5820 Principles of Design	Earned Doctorate degree in Mechanical Engineering in the teaching discipline or a closely related discipline.	Aerospace Engineering, Automotive Engineering, Manufacturing Engineering, Industrial Engineering, Robotics, Mechatronics	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Mechanical Engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Mechanical Engineering related fields.
MEEN 5610 Computer-Aided Design and Manufacturing	Earned Doctorate degree in Mechanical Engineering in the teaching discipline or a closely related discipline.	Automotive Engineering, Manufacturing Engineering, Computer Engineering, Robotics, Mechatronics	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Mechanical Engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Mechanical Engineering related fields.

MEEN 5620 Design for Manufacturability	Earned Doctorate degree in Mechanical Engineering in the teaching discipline or a closely related discipline.	Automotive Engineering, Manufacturing Engineering, Computer Engineering, Robotics, Mechatronics	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Mechanical Engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Mechanical Engineering related fields.
MEEN 5630 Manufacturing Management and Control	Earned Doctorate degree in Mechanical Engineering in the teaching discipline or a closely related discipline.	Automotive Engineering, Manufacturing Engineering, Computer Engineering, Robotics, Mechatronics	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Mechanical Engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Mechanical Engineering related fields.
MEEN 5640 Manufacturing Modeling and Simulation	Earned Doctorate degree in Mechanical Engineering in the teaching discipline or a closely related discipline.	Automotive Engineering, Manufacturing Engineering, Computer Engineering, Robotics, Mechatronics	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Mechanical Engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Mechanical Engineering related fields.
MEEN 5650 Predictive and Preventive Maintenance	Earned Doctorate degree in Mechanical Engineering in the teaching discipline or a closely related discipline.	Automotive Engineering, Manufacturing Engineering, Computer Engineering, Robotics, Mechatronics	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Mechanical Engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Mechanical Engineering related fields.
MEEN 5660 Concurrent Manufacturing	Earned Doctorate degree in Mechanical Engineering in the teaching discipline or a closely related discipline.	Automotive Engineering, Manufacturing Engineering, Computer Engineering, Robotics, Mechatronics	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Mechanical Engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Mechanical Engineering related fields.

MEEN 6430 Manufacturing Diagnosis and Prognosis Techniques	Earned Doctorate degree in Mechanical Engineering in the teaching discipline or a closely related discipline.	Automotive Engineering, Manufacturing Engineering, Computer Engineering, Robotics, Mechatronics	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Mechanical Engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Mechanical Engineering related fields.
MEEN 6450 Transport Phenomena in Manufacturing	Earned Doctorate degree in Mechanical Engineering in the teaching discipline or a closely related discipline.	Automotive Engineering, Manufacturing Engineering, Computer Engineering, Robotics, Mechatronics	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Mechanical Engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Mechanical Engineering related fields.
MEEN 5430 Introduction to Computational Fluid Dynamics	Earned Doctorate degree in Mechanical Engineering in the teaching discipline or a closely related discipline.	Automotive Engineering, Manufacturing Engineering,Computer Engeering, Quantum Physics, Thermodynamics	Acceptable alternative qualifications include substantial professional experience (e.g., publications, awards) in Mechanical Engineering, relevant professional licensure/certifications, and notable scholarly work such as published articles or conference presentations in Mechanical Engineering related fields.
ENGR 5120 HVAC System Modeling and Controls	Earned Doctorate degree in Mechanical Engineering in the teaching discipline or a closely related discipline.	HVAC Engineering, Electrical Engineering	Acceptable alternative qualifications include substantial academic or professional experience in HVAC system modeling, control theory application, control loop design, controller tuning methods, and performance simulation/evaluation using MATLAB/Simulink. Demonstrated work with building automation systems, sensor/actuator integration, and energy-efficient control strategies, as well as peer-reviewed publications, significant project deliverables, or instructional materials in HVAC controls and dynamic system modeling, will also be considered.

ENGR 5110 Energy Efficient Building Design	Earned Doctorate degree in Architectural Engineering or Energy Systems Engineering in the teaching discipline or a closely related discipline.	HVAC Engineering, Environmental Engineering, Mechanical Engineering	Acceptable alternative qualifications include substantial academic or professional experience in energy-efficient building design, including building envelope analysis, mechanical/HVAC system optimization, and integration of renewable energy technologies in buildings. Expertise with computer-based energy simulation and compliance with building energy standards (e.g., EnergyPlus, eQUEST, ASHRAE/IECC codes), as well as demonstrated project work, peer-reviewed publications, or instructional materials in sustainable building performance and energy-efficient HVAC operation, will also be considered.