	Biomedical Engin	eering	
BMEN 5000 Biomedical Instrumentation	Earned Doctorate degree in Biomedical Engineering in the teaching discipline or a closely related discipline.	Bioengineering, Biotechnology	Acceptable alterna substantial academ biomedical instrum physiological signal theory, electrodes, acquisition, and ele along with proven such as Biopac for (e.g., EEG, ECG, EM LabVIEW for develo interpretation appl reviewed publicatio contributions, or si achievements in bi related areas will a
BMEN 5010 Introduction to Biomedical Engineering	Earned Doctorate degree in Biomedical Engineering in the teaching discipline or a closely related discipline.	Bioengineering, Biotechnology	Acceptable alterna substantial academ biomedical enginee perspective on the anatomy, physiolog and expertise in bio instrumentation, an Additionally, profic skeletal muscle and biomaterials, tissue rehabilitation engir therapies is highly v reviewed publicatio contributions, or si achievements in th also be considered.

native qualifications include

active quantications include emic or professional experience in mentation and the analysis of eals. Expertise in measurement s, sensors, transducers, data electrical safety is highly valued, n proficiency in using systems r physiological measurements MG) and tools like Matlab and eloping analysis and data plications. Individuals with peertions, recognized scholarly significant professional biomedical instrumentation or also be considered.

ative qualifications include mic or professional experience in eering encompassing a historical e field; a strong foundation in ogy, and bio-electric phenomena; iomedical sensors, bioand bio-signal processing. iciency in physiological modeling, nd cardiovascular mechanics, ue engineering, radiation imaging, ineering, and technology-assisted valued. Individuals with peerions, recognized scholarly significant professional these interdisciplinary areas will ed.

Course Name	Faculty Qualifications Needed	Related Disciplines	Acceptable Alterna
	Civil Engineeri	ng	
	Civil Engineeri	ng	relevant experience professional work i biomechanics, prin separation, and pro and/or LabVIEW to data interpretation peer-reviewed pub contributions, or si achievements in bi also be considered
			mechanics as appli fundamentals of flu fluid mechanics. Ex transfer, and the m of physiological sys experience with bio with biomechanica
BMEN 5040 Biomechanics	Earned Doctorate degree in Biomedical Engineering in the teaching discipline or a closely related discipline.	Bioengineering, Biotechnology	Acceptable alterna substantial academ biomechanics, inclu
Processing	teaching discipline or a closely related discipline.		substantial academ the methods for re coding, transmittin images using digita sampling theorems image enhancemer within both freque valued. In addition, transmission, segm description—applie MRI, CAT, and Ultra Individuals with pe recognized scholar professional achiev and signal processi
BMEN 5030 Medical Imaging and Signal	Earned Doctorate degree in Biomedical Engineering in the	Bioengineering, Biotechnology	Acceptable alterna

native qualifications include emic or professional experience in representing, storing, processing, sing, and analyzing biomedical tal computers. Expertise in ms, image transforms, as well as ent and restoration techniques uency and spatial domains is highly on, experience with image coding, gmentation, and

blied to imaging modalities such as trasound—will also be considered. beer-reviewed publications, arly contributions, or significant evements in biomedical imaging ssing are encouraged to apply.

native qualifications include mic or professional experience in cluding the study of solid plied to biological tissues, fluid mechanics, and physiological Expertise in mass transfer, bioheat modeling approach to the study ystems is highly valued, as is piomaterials and their interaction cal environments. Additional nce includes research or in locomotion and muscle inciples of electrophoretic proficiency in using MATLAB tools for developing analysis and on applications. Individuals with ublications, recognized scholarly significant professional biomechanics or related fields will ed.

native 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 alterna substantial profess publications, award computational eng licensure/certificat such as published a presentations in civ
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 alterna substantial profess publications, award mechanical engine licensure/certificat such as published a presentations in civ
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 alterna substantial profess publications, award transportation eng licensure/certificat such as published a presentations in civ
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 alterna substantial profess publications, award transportation eng licensure/certificat such as published a presentations in civ
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 alterna substantial profess publications, award transportation eng licensure/certificat such as published a presentations in civ

native qualifications include ssional experience (e.g., ards) in civil engineering or neering, relevant professional ations, and notable scholarly work d articles or conference civil engineering related fields. native qualifications include ssional experience (e.g., ards) in civil engineering or ngineering, relevant professional ations, and notable scholarly work d articles or conference civil engineering related fields.

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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 alterna substantial profess publications, award transportation eng licensure/certificat such as published a presentations in civ
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 alterna substantial profess publications, award transportation eng licensure/certificat such as published a presentations in civ
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 alterna substantial profess publications, award transportation eng licensure/certificat such as published a presentations in civ
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 alternation substantial profess publications, award resources engineer licensure/certificat such as published a presentations in civ
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 alterna substantial profess publications, award environmental eng licensure/certificat such as published a presentations in civ

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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 alterna substantial profess publications, award environmental eng licensure/certificat such as published a presentations in civ
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 alternat substantial profess publications, award environmental eng licensure/certificat such as published a presentations in civ
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 alternations substantial profess publications, award environmental eng licensure/certificat such as published a presentations in civ
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 alterna substantial profess publications, award environmental eng licensure/certificat such as published a presentations in civ
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 alterna substantial profess publications, award industrial engineer licensure/certificat such as published a presentations in civ

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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 alternation substantial profess publications, award environmental eng licensure/certificat such as published a presentations in civ
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 alterna substantial profess publications, award chemical engineeri licensure/certificat such as published a presentations in civ
CVEN 5370 Environmental Chemistry	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Chemical Engineering, Environmental Engineering	Acceptable alterna substantial profess publications, award chemical engineeri licensure/certificat such as published a presentations in civ
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 alterna substantial profess publications, award environmental eng licensure/certificat such as published a presentations in civ
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 alterna substantial profess publications, award geotechnical engin licensure/certificat such as published a presentations in civ
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 alternation substantial profess publications, award geotechnical engin licensure/certificat such as published a presentations in civ

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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 alternat substantial profess publications, award geotechnical engine licensure/certificat such as published a presentations in civ
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 alternat substantial professi publications, awarc geotechnical engine licensure/certificati such as published a presentations in civ
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 alternat substantial profess publications, award geotechnical engine licensure/certificat such as published a presentations in civ
CVEN 5460 Nuclear Chemistry	Earned Doctorate degree in Civil Engineering in the teaching discipline or a closely related discipline.	Chemical Engineering	Acceptable alterna substantial profess publications, award chemical engineeri licensure/certificat such as published a presentations in civ
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 alternation substantial profess publications, award transportation eng licensure/certificat such as published a presentations in civ
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 alternat substantial profess publications, award transportation engi licensure/certificat such as published a presentations in civ

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- articles or conference
- 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 alterna substantial profess publications, award transportation eng licensure/certificat such as published a presentations in civ
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 alterna substantial profess publications, award transportation eng licensure/certificat such as published a presentations in civ
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 alterna substantial profess publications, award transportation eng licensure/certificat such as published a presentations in civ
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 alterna substantial profess publications, award transportation eng licensure/certificat such as published a presentations in civ
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 alterna substantial profess publications, award transportation eng licensure/certificat such as published a presentations in civ

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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 alternat substantial profess publications, award structural engineer licensure/certificat such as published a presentations in civ
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 alternat substantial profess publications, award structural engineer licensure/certificat such as published a presentations in civ
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 alternat substantial profess publications, awarc structural engineer licensure/certificat such as published a presentations in civ
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 alternat substantial professi publications, awarc structural engineer licensure/certificati such as published a presentations in civ
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 alternat substantial professi publications, awarc mechanical enginee licensure/certificati such as published a presentations in civ
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 alternat substantial professi publications, award structural engineer licensure/certificati such as published a presentations in civ

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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 alternation substantial profession publications, award structural engineer licensure/certification such as published a presentations in civ
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 alternat substantial profess publications, award structural engineer licensure/certificat such as published a presentations in civ
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 alterna substantial profess publications, award computational eng licensure/certificat such as published a presentations in civ
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 alternation substantial profess publications, award structural engineer licensure/certificat such as published a presentations in civ
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 alternat substantial profess publications, award structural engineer licensure/certificat such as published a presentations in civ
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 alternat substantial profess publications, award structural engineer licensure/certificati such as published a presentations in civ

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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 alternat substantial professi publications, awarc environmental engi licensure/certificati such as published a presentations in civ
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 alternat substantial profess publications, award geotechnical engine licensure/certificat such as published a presentations in civ
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 alternat substantial professi publications, award geotechnical engine licensure/certificati such as published a presentations in civ
	Computer and Information Sys	stem Engineering	
Course Name	Faculty Qualifications Needed	Related Disciplines	Acceptable Alterna
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 alternat substantial academ operational amplifi- and sequential logic architectures, mach set architectures, a and input/output sy hardware description Verilog. Individuals publications, paten contributions in cor instructional mater real-world impleme considered.

native qualifications include ssional experience (e.g., ards) in civil engineering or ineering, relevant professional ations, and notable scholarly work d articles or conference civil engineering related fields. native qualifications include ssional experience (e.g., ards) in civil engineering or ineering, relevant professional ations, and notable scholarly work d articles or conference civil engineering related fields.

native Qualifications

native qualifications include emic or professional experience in lifier circuit design, combinational ogic, RISC/CISC processor achine language and instruction , arithmetic unit design, memory t systems, and experience with otion languages such as VHDL or als with peer-reviewed ents, or recognized scholarly computer hardware systems, terials development, or significant mentation projects will also be

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 alterna substantial acaden linear systems ana Laplace, Z-transfor variables, modulat methods, digital co protocols. Individu publications, pater experience, schola instructional mater information systen computer network
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 alterna substantial acaden discrete mathemat counting, probabili structures (arrays, search trees), algo and-conquer, dyna algorithms), compl searching algorithm key operating syste threads, scheduling management, virtu peer-reviewed pub contributions, inst significant industry and software areas
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 alterna substantial academ designing and impl hashing, indexing), database systems, algorithm design an sorting methods, p computational solu problems. Individu publications, recog instructional conte professional experi algorithms, databa will also be conside

native qualifications include emic or professional experience in halysis, transforms (Fourier, form), probability theory, random ation techniques, multiplexing communications, and network luals possessing peer-reviewed ents, significant industry larly contributions, or cerials development related to ems, communication theory, or rks will also be considered.

native qualifications include emic or professional experience in atics (logic, sets, functions, ility, graph theory), data s, lists, stacks, queues, binary orithm design techniques (dividenamic programming, greedy plexity analysis, sorting and hms, networked computing, and stems concepts (processes, ng, deadlock, memory tual memory). Individuals with ublications, recognized scholarly structional content creation, or ry experience in these computing as will also be considered.

native qualifications include emic or professional experience in oplementing data structures (lists, g), relational database models, SQL as, database management systems, a and analysis, searching and , pattern matching algorithms, and olutions to mathematical duals with peer-reviewed ognized scholarly work, atent development, or significant erience related to data structures, bases, and computational methods idered.

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 alterna substantial academ various computers to supercomputers to system design, reso distributed process programming, and implementation. In publications, schol content developme experience related operating systems
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 alterna substantial academ software life-cycle methodologies, sof modeling, reliabilit software tools and design validation n and architectural d computer-aided so Individuals with pe scholarly contribut significant professi systems design and 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 alterna substantial academ systems design and methodologies, eco techniques, queuin process control, op factors integration engineering system reviewed publication instructional conte professional experi and related interdi considered.

native qualifications include emic or professional experience in r architectures (ranging from to workstations), operating esource management, parallel and essing, real-time systems ad inquire-response system Individuals with peer-reviewed olarly contributions, instructional ment, or significant professional ed to computer architecture and as will also be considered.

native qualifications include emic or professional experience in e management, software design oftware development metrics and lity and reusability practices, nd environments, analysis and methods, software specifications design, and the application of software engineering (CASE). Deer-reviewed publications, utions, instructional materials, or ssional experience in software nd engineering will also be

native qualifications include emic or professional experience in and analysis, decision-making economic evaluation, optimization ing theory, statistical methods, operational feasibility, human on, logistics, and management of ems. Individuals with peertions, notable scholarly work, tent creation, or significant erience in systems engineering disciplinary areas will also be

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 alterna substantial academ discrete mathemat mathematical dedu theorem proving, s relations, and func structures and mor machines and simu Kleene theorem. In publications, recog instructional conte professional experi 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 alterna substantial acaden error detection and algebra over finite analysis of coding l perfect and quasi-p probability of error application of Ham and non-linear cod Consideration will reviewed publication contributions, or d developing instruct and error control n
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 alterna substantial academ artificial intelligenc including neural ne algorithms, fuzzy lo systems, genetic al as well as probabili functions. Individus publications, recog significant professi engineering contex

native qualifications include emic or professional experience in atics, formal systems, duction, logical reasoning, , set theory including sets, nctions, graph theory, algebraic orphisms, semigroups, finite state nulation, and applications of Individuals with peer-reviewed ognized scholarly contributions, tent development, or significant erience in these areas will also be

native qualifications include emic or professional experience in nd correction coding, linear se fields, and the development and g bounds. Expertise in designing i-perfect codes, conducting or analysis, and practical mming, BCH, MDS, Reed-Solomon, odes is also highly valued. Il be given to individuals with peertions, recognized scholarly demonstrated success in actional content in coding theory methodologies.

native qualifications include emic or professional experience in nce concepts and techniques, network topologies, training logic and decision-making algorithms and search algorithms, pilistic reasoning and belief luals with peer-reviewed ognized scholarly contributions, or ssional experience in applying AI in exts 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 alterna substantial academ probability theory a the study of randor continuous probab techniques, statisti testing. Expertise in modeling, Bayesian identification, anal- computer, informa projects is also high reviewed publicatio contributions, instr or significant indus will also be conside
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 alterna substantial academ advanced compute tools for evaluating performance. Expe of computer aided as well as hands-or design of such tools Individuals with pe recognized scholar content developme experience in comp also be considered.

native qualifications include emic or professional experience in y and statistical analysis, including lom variables, discrete and ability distributions, sampling stical inference, and hypothesis e in uncertainty measurement and an methods, and risk alysis, and management in nation, and systems engineering ighly valued. Individuals with peertions, recognized scholarly structional content development, ustry experience in these areas dered.

native qualifications include emic or professional experience in ter-aided analysis and design ng system properties and pertise in the theory and structure ed design software and hardware, on experience with the small scale ols, will also be highly valued. peer-reviewed publications, arly contributions, instructional ment, or significant professional mputer aided systems design will ed.

CISE 5250 Introduction to System Modeling	Earned Doctorate degree in Computer Information Systems	Software Engineering, Computer	Acceptable alternat
and Simulation	in the teaching discipline or a closely related discipline.	Science, Computer Engineering	substantial academ
			system modeling ar
			formulation of mod
			building, and data a
			alternative designs
			in decision analysis
			Carlo simulation, sy
			concept graphs, Ba
			models, Petri nets,
			and parallel and dis
			also highly valued.
			individuals with pee
			recognized scholarl
			content developme
			experience in syste
CISE 5230 Computer Communication and	Earned Doctorate degree in Computer Information Systems	Software Engineering, Computer	Acceptable alternat
Network	in the teaching discipline or a closely related discipline.	Science, Computer Engineering	substantial academ
			the theory and prac
			communication and
			design and operation
			the ISO reference n
			over various comm
			implementation of
			networks. Expertise
			switching, routing s
			management, as we
			broadband ISDN, ar
			theory and switchir
			valued. Individuals
			publications, recog
			significant profession
			communication and
			be considered.

native qualifications include emic or professional experience in and simulation, including the odeling problems, effective modela analysis for evaluating ns in complex systems. Expertise sis techniques such as Monte system dynamics modeling, Bayesian networks, Markov s, Bond graphs, cellular automata, distributed simulation systems is d. Consideration will be given to peer-reviewed publications, arly contributions, instructional ment, or significant professional tem modeling and simulation.

native qualifications include emic or professional experience in ractice of computer and networking, including the tion of open systems based on e model, reliable data transmission munication media, and the of switched communication ise in network topology, packet g strategies, network well as narrowband and and the application of traffic hing fundamentals is highly Is with peer-reviewed ognized scholarly contributions, or sional experience in computer nd network technologies will also

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 alterna substantial academ current methods for modern informatio organizational syst comprehensive und economic, and regu information indust reviewed publicatio contributions, or si experience in mana business or organiz 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 alterna substantial academ the fundamental th capacity wireless co including expertise cellular concepts an radio propagation, phenomena, and a Additional valued e diversity methods, techniques, and wi with peer-reviewed scholarly contribut achievements in wi 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 alternat substantial academ two-dimensional au transformation tec kinematics and dyn and control, path p generation, and tas programming. Indiv integration and sim with peer-reviewed scholarly contribut achievements in ro systems, will also b

native qualifications include emic or professional experience in for designing and implementing tion technology solutions within stems, coupled with a inderstanding of the legal, egulatory environment of the stry. Individuals with peertions, recognized scholarly significant professional naging and integrating IT in nizational settings will also be

native qualifications include emic or professional experience in theory and design of high communications systems, se in modern wireless standards, and implementations, mobile n, fading and multipath advanced modulation techniques. d experience includes equalization, s, channel coding, multiple access wireless networking. Individuals red publications, recognized utions, or significant professional wireless communications will also

native qualifications include emic or professional experience in and three-dimensional echniques, manipulator ynamics, robot differential motion a planning and trajectory cask execution along with robot dividuals with expertise in robot imulation tools, as well as those red publications, recognized utions, or significant professional robotics, automation, or control b 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 alternation substantial academ advanced and eme and Information Sy to the course focus publications, recog significant profession research areas of C
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 alterna substantial academ the application of s principles, includin requirements, eval alternatives, and in down and bottom- Expertise in addres planning system m complex projects, i peer-reviewed pub contributions, or si achievements in sy computer, informa contexts will also b
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 alterna substantial academ supervising the des integrated systems software, and syste should encompass identifying operation requirements, esta for design evaluations solutions. Expertises management plans maintenance conce optimal systems is with peer-reviewed scholarly contribut achievements in the considered.

native qualifications include emic or professional experience in nerging topics within Computer Systems Engineering as relevant us. Individuals with peer-reviewed ognized scholarly contributions, or ssional achievements in specialized f CISE will also be considered.

native qualifications include emic or professional experience in f systems engineering design ing the development of system raluation of conceptual and logical integration methods such as topn-up system development. essing life cycle issues, as well as management and support for , is highly valued. Individuals with ublications, recognized scholarly significant professional systems engineering design within nation, and systems engineering be considered.

native qualifications include mic or professional experience in esign and development of ns that combine hardware, stems approaches. This experience ss conducting need analysis, tional and functional tablishing TPMs and benchmarks tion, and selecting appropriate se in developing comprehensive ns with milestones and defining cepts for life cycle evaluation of is also highly valued. Individuals ed publications, recognized utions, or significant professional these areas will also be

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 alternat substantial academ supervising the des integrated systems software, and syste should encompass identifying operatio requirements, esta for design evaluatio solutions. Expertise management plans maintenance conce optimal systems is with peer-reviewed scholarly contributi achievements in th 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 alternat substantial academ database concepts modeling with entit models, proficiency such as SQL, and fa and query processi concurrency contro commercial, expert and distributed dat understanding of d will also be highly v reviewed publication contributions, or sig achievements in th management of dat considered.

native qualifications include emic or professional experience in esign and development of ns that combine hardware, stems approaches. This experience ss conducting need analysis, tional and functional tablishing TPMs and benchmarks tion, and selecting appropriate ise in developing comprehensive ns with milestones and defining cepts for life cycle evaluation of is also highly valued. Individuals ed publications, recognized utions, or significant professional these areas will also be

native qualifications include emic or professional experience in ts and design, including data ntity-relationship and relational ncy in data manipulation languages familiarity with data dictionaries ssing techniques. Expertise in rol, the development of ert, object-oriented, multimedia, atabase systems, as well as a solid ⁴ database systems architecture, valued. Individuals with peertions, recognized scholarly significant professional the development and database systems will also be

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 alternat substantial academ problem solving usi deterministic optim research, and techr Expertise in linear p search and interior duality, sensitivity a optimization, is high experience with sho dynamic programm optimization metho unconstrained nonl considered. Individe publications, recogn significant profession optimization or ope 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 alternat substantial academ parallel computatio artificial neural net the development an for feed forward ne competitive networ Hopfield networks. includes a compreh logic theory, memb relations, fuzzy mea and the design and fuzzy systems, as w algorithms and thei will be given to indi publications, recogn instructional conter professional achiev

native qualifications include mic or professional experience in using mathematical models, mization models in operations hniques for improving search. programming—including simplex or point methods—as well as analysis, and multi-objective ghly valued. In addition, hortest path algorithms, discrete ming, network flows, discrete hods, and constrained or nlinear programming will also be iduals with peer-reviewed gnized scholarly contributions, or sional achievements in perations research will also be

ative qualifications include mic or professional experience in ion techniques based on various etwork architectures, including and application of learning rules networks, associative learning, vorks, Grossberg networks, and s. Additional valuable expertise ehensive understanding of fuzzy bership functions, fuzzy easures, approximate reasoning, nd application of fuzzy and neurowell as experience with genetic eir applications. Consideration dividuals with peer-reviewed gnized scholarly contributions, tent development, or significant evements in these areas.

-	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Statistics, Data Science, Applied Mathematics	Acceptable alternat substantial academ the foundations of systems, including t and random proces and the study of dig their spectra. Exper probability of error measures, source co channels and codes correction is highly traffic theory for te communication. Inc publications, recogn significant profession of information theo will also be conside
	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 alternat substantial academ wide area connectiv autonomous netwo Internet architectur standards. Addition speed networks—in LANs and MANs, an mode (ATM) archite in adaptation layers congestion control reactive), transmiss connectionless serv valued. Individuals publications, recogn significant profession areas will also be con

ative qualifications include mic or professional experience in of modern digital communication the analysis of random variables esses, autocorrelation functions, ligital signaling waveforms and ertise in evaluating the or in digital receivers, information coding, and the development of es for error detection and ly valued, as is familiarity with elecommunications and optical ndividuals with peer-reviewed ognized scholarly contributions, or sional achievements in the areas eory and digital communications lered.

ative qualifications include mic or professional experience in tivity and the interconnection of vorks, as well as expertise in ure and evolving protocol onally, experience with high--including frame relay, high-speed and the asynchronous transfer itecture—along with proficiency ers, switch architectures, ol strategies (both preventive and ission schemes, signaling, and rvices over ATM will be highly s with peer-reviewed gnized scholarly contributions, or sional achievements in these considered.

	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 alternat substantial academ the fundamental ar distributed systems distributed comput and concurrency co file systems, resour performance comp valued. Individuals publications, recog significant professio distributed comput 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 alterna substantial academ robotic automation specifications, dire workspace analysis planning, manipula integration of robo processes, machine robot programming utilization in manuf considered. Individ publications, recog significant professio and manufacturing 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 alternat substantial academ numerical visualizat dimensional render viewing transforma modeling. Experien for visualizing scala dimensions and app techniques to solve scientific problems with peer-reviewed scholarly contributi achievements in co visualization, or con considered.

native qualifications include emic or professional experience in and systems design aspects of ms, including paradigms for outing, client-server computing, control. Expertise in distributed ource management, and highnputing aspects is also highly ls with peer-reviewed ognized scholarly contributions, or ssional achievements in outing and related areas will also

native qualifications include emic or professional experience in on, robot classifications, robot rect and inverse kinematics, and sis. Expertise in trajectory llator dynamics, robot control, bot interfaces with manufacturing ne interfaces, end-of-arm tooling, ing, and sensor integration and nufacturing will also be riduals with peer-reviewed ognized scholarly contributions, or ssional achievements in robotics ng automation are encouraged to

native qualifications include emic or professional experience in zation, with expertise in threedering and modeling techniques, mations, illumination, and surface ence in designing methodologies alar and vector fields in three applying these visualization ve complex engineering or ns is also highly valued. Individuals red publications, recognized utions, or significant professional computer graphics, numerical computational science will also be

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 alternat substantial academ digital image proce fundamentals, inclu transforms, image r enhancement, image description, and im interpretation. Expe tools such as the M CVIPtools, and Laby processing, and visu Individuals with pee recognized scholarl professional achiev related areas will al
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 alternat substantial academ TCP/IP and UDP pro concepts, and both sockets programmi hands-on experience server implementat options, advanced I name and address of advanced I/O funct non-blocking I/O, ro multicasting, thread Individuals with pee recognized scholarl professional achiev programming or rel considered.

native qualifications include emic or professional experience in cessing and computer vision cluding image analysis, image e restoration, image nage compression, image nage representation and image recognition and pertise in the use of software Matlab toolbox, Khoros, bVIEW for image acquisition, visualization is highly valued. peer-reviewed publications, arly contributions, or significant evements in computer vision or also be considered.

native qualifications include emic or professional experience in protocols, transport layer th elementary and advanced ming techniques. This includes ence with TCP sockets and clienttations, I/O multiplexing, socket d UDP socket configurations, ss conversions, daemon processes, ctions, Unix Domain protocols, routing sockets, broadcasting, eading, and stream management. peer-reviewed publications, arly contributions, or significant evements in network related areas will also be

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 alterna substantial academ software developm models, measurem metrics. Expertise i basic quality tools i removal strategies, through models suc reliability growth m Additional areas of quality managemen and models, measu needs, and AS/400 Individuals with pe recognized scholar professional achiev engineering will als
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 alterna substantial academ the design and ana fixed-connection n models. Expertise i sorting, routing, an parallel machine mo characteristics, wil with peer-reviewed scholarly contribut achievements in hi parallel algorithm o

native qualifications include emic or professional experience in oment and quality, process ment theory, and software quality in applying Ishikawa's seven s in software development, defect es, and evaluating effectiveness such as the Rayleigh model and models is highly valued. of significant experience include ent models, complexity metrics suring and analyzing customer 00 software quality management. peer-reviewed publications, arly contributions, or significant evements in software quality also be considered.

native qualifications include emic or professional experience in halysis of parallel algorithms using network models and PRAM e in numerical computations, and comparisons of various models, as well as the ability to hodels to architectural vill be highly valued. Individuals red publications, recognized utions, or significant professional high performance computing and n 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	Acceptable alternat
		Engineering	network security fu protocol architectu cryptographic tech access control mea and integrity. Exper techniques, electro comprehensive net implementation of highly valued. Indiv publications, recog significant profession security and risk an
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 alterna substantial academ optical communica
			expertise in optical photodetection sta and the analysis of
			evaluating commun space channels and
			communication and highly valued. Indiv publications, recog
			significant profession communications or 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 alternat substantial academ mobile robotics pla unmanned ground vehicles—with a pr integration. Experti technologies in rob behaviors, advance methodologies, visi techniques is highly reviewed publication contributions, or sig achievements in ad interdisciplinary fie

hative qualifications include emic or professional experience in fundamentals, security in layered stures, and the application of chniques, authentication, and easures to ensure confidentiality pertise in standard security fronic mail and EDI security, network security practices, and the of security evaluation measures is dividuals with peer-reviewed ognized scholarly contributions, or ssional achievements in network analysis will also be considered.

native qualifications include emic or professional experience in cation systems, including cal wave propagation, statistics, heterodyne receivers, of noise sources. Experience in nunication performance for freend an introduction to fiber optic and fiber optic networks is also dividuals with peer-reviewed ognized scholarly contributions, or ssional achievements in optical or related fields will also be

hative qualifications include emic or professional experience in platforms—encompassing ind vehicles and aerial proven record in robot system rtise in applying intelligent obotics to develop adaptive robot ced sensing and control rision systems, and sensor fusion hly valued. Individuals with peertions, recognized scholarly significant professional advanced robotics and related 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 alternation substantial academ the design, fabrication mechanical system transducers, active measurement devise Additionally, experise adaptive controller interfacing, and convalued. Individuals publications, recog significant profession mechatronics and in will also be consider
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 alterna substantial academ the theory and pro- intelligent robotics Expertise in intellig such as hierarchica with practical expe perception, progra navigation, is highly reviewed publication contributions, or si achievements in Al 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 alternat substantial academ the specific area of special topics cours through peer-revie scholarly contributi achievements in th also be considered. extensive experience relevant to emergin within Computer an Engineering are end

native qualifications include emic or professional experience in cation, and integration of electroms, including expertise in ve and passive sensors, vices, and actuation systems. erience with open, closed, and ers, microprocessors, electronic communication systems is highly ls with peer-reviewed ognized scholarly contributions, or ssional achievements in d integrated systems engineering dered.

native qualifications include emic or professional experience in rogramming of artificially cs for real-world applications. ligence organization architectures, cal and reactive paradigms, along perience in mobile robot sensing, ramming techniques, and hly valued. Individuals with peertions, recognized scholarly significant professional AI robotics or related fields will ed.

native qualifications include emic or professional experience in of interest designated for the urse. Expertise demonstrated viewed publications, recognized utions, or significant professional the designated research area will ed. Faculty candidates with ence in innovative research topics ging trends or specialized subjects and Information Systems 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 alterna substantial academ the specific area of special topics cours through peer-revie scholarly contribut achievements in th also be considered extensive experient relevant to emergin within Computer an Engineering are end
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 alterna substantial academ the specific area of special topics cours through peer-revie scholarly contribut achievements in th also be considered extensive experien relevant to emergin within Computer a Engineering are en
CISE 7600 Seminar	Earned Doctorate degree in Computer Information Systems in the teaching discipline or a closely related discipline.	Computer Science, Computer Engineering	Acceptable alterna substantial academ the specific area of special topics cours through peer-revie scholarly contribut achievements in th also be considered extensive experien relevant to emergin within Computer an Engineering are en

native qualifications include emic or professional experience in of interest designated for the urse. Expertise demonstrated viewed publications, recognized utions, or significant professional the designated research area will ed. Faculty candidates with ence in innovative research topics ging trends or specialized subjects and Information Systems encouraged to apply.

native qualifications include emic or professional experience in of interest designated for the urse. Expertise demonstrated viewed publications, recognized utions, or significant professional the designated research area will ed. Faculty candidates with ence in innovative research topics ging trends or specialized subjects and Information Systems encouraged to apply.

native qualifications include emic or professional experience in of interest designated for the urse. Expertise demonstrated viewed publications, recognized utions, or significant professional the designated research area will ed. Faculty candidates with ence in innovative research topics ging trends or specialized subjects and Information Systems 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 alternat substantial academ advanced research candidate's area of demonstrated thro recognized scholarl professional achiev research will be hig with extensive expe research and innov Computer and Info
	Computer Scier	nce	
COMP 5100 Software Engineering	Faculty Qualifications Needed Earned Doctorate degree in Computer Science in the teaching discipline or a closely related discipline.	Related Disciplines Software Engineering, Computer Engineering	Accetable Alternation Acceptable alternation substantial profess developer, network support specialist, n engineer, tech const administration, relevant licensure/certificat such as published a presentations in Co
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 alternat substantial profess developer, network support specialist, r engineer, tech cons administration, rele licensure/certificat such as published a presentations in Co
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 alternat substantial profess developer, network support specialist, i engineer, tech cons administration, rele licensure/certificat such as published a presentations in Co

hative qualifications include smic or professional experience in th and scholarly work in the of specialization. Expertise rough peer-reviewed publications, arly contributions, and significant evements in conducting original highly valued. Faculty candidates perience in supervising doctoral ovative research leadership in formation Systems Engineering o apply.

tive Qualifications

hative qualifications include ssional experience (e.g. software ork engineer, game developer, IT t, robotics engineer, algorithm nsultant) in business or business elevant professional ations, and notable scholarly work I articles or conference Computer Science related fields.

ative qualifications include ssional experience (e.g. software rk engineer, game developer, IT , robotics engineer, algorithm nsultant) in business or business elevant professional ations, and notable scholarly work articles or conference 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 alternat substantial professi developer, network support specialist, r engineer, tech cons administration, rele licensure/certificati such as published a presentations in Co
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 alternation substantial profess developer, network support specialist, is engineer, tech const administration, relevant licensure/certificat such as published at presentations in Co
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 alternat substantial profess developer, network support specialist, i engineer, tech cons administration, rele licensure/certificat such as published a presentations in Co
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 alternat substantial profess developer, network support specialist, r engineer, tech cons administration, rele licensure/certificat such as published a presentations in Co

Computer Science related fields.

native qualifications include ssional experience (e.g. software ork engineer, game developer, IT t, robotics engineer, algorithm onsultant) in business or business elevant professional ations, and notable scholarly work d articles or conference Computer Science related fields.

native qualifications include ssional experience (e.g. software ork engineer, game developer, IT t, robotics engineer, algorithm onsultant) in business or business elevant professional ations, and notable scholarly work d articles or conference 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 alternat substantial professi developer, network support specialist, r engineer, tech cons administration, rele licensure/certificati such as published a presentations in Co
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 alternat substantial profess developer, network support specialist, i engineer, tech cons administration, rele licensure/certificat such as published a presentations in Co
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 alternat substantial profess developer, network support specialist, i engineer, tech cons administration, rele licensure/certificat such as published a presentations in Co
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 alternat substantial profess developer, network support specialist, engineer, tech cons administration, rele licensure/certificat such as published a presentations in Co

Computer Science related fields.

native qualifications include ssional experience (e.g. software ork engineer, game developer, IT t, robotics engineer, algorithm onsultant) in business or business elevant professional ations, and notable scholarly work d articles or conference Computer Science related fields.

native qualifications include ssional experience (e.g. software ork engineer, game developer, IT t, robotics engineer, algorithm onsultant) in business or business elevant professional ations, and notable scholarly work d articles or conference 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 alternat substantial profess developer, network support specialist, i engineer, tech cons administration, rele licensure/certificat such as published a presentations in Co
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 alternat substantial profess developer, network support specialist, i engineer, tech cons administration, rele licensure/certificat such as published a presentations in Co
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 alternat substantial profess developer, network support specialist, i engineer, tech cons administration, rele licensure/certificat such as published a presentations in Co
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 alternat substantial profess developer, network support specialist, r engineer, tech cons administration, rele licensure/certificat such as published a presentations in Co

Computer Science related fields.

native qualifications include ssional experience (e.g. software ork engineer, game developer, IT t, robotics engineer, algorithm onsultant) in business or business elevant professional ations, and notable scholarly work d articles or conference Computer Science related fields.

native qualifications include ssional experience (e.g. software ork engineer, game developer, IT t, robotics engineer, algorithm onsultant) in business or business elevant professional ations, and notable scholarly work d articles or conference 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 alternat substantial professi developer, network support specialist, r engineer, tech cons administration, rele licensure/certificati such as published a presentations in Co
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 alternat substantial professi developer, network support specialist, i engineer, tech cons administration, rele licensure/certificati such as published a presentations in Co
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 alternat substantial professi developer, network support specialist, i engineer, tech cons administration, rele licensure/certificati such as published a presentations in Co
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 alternat substantial profess developer, network support specialist, i engineer, tech cons administration, rele licensure/certificat such as published a presentations in Co

Computer Science related fields.

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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 alternat substantial professi developer, network support specialist, r engineer, tech cons administration, rele licensure/certificati such as published a presentations in Co
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 alternat substantial professi developer, network support specialist, i engineer, tech cons administration, rele licensure/certificati such as published a presentations in Co
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 alternat substantial profess developer, network support specialist, i engineer, tech cons administration, rele licensure/certificat such as published a presentations in Co
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 alternat substantial profess developer, network support specialist, i engineer, tech cons administration, rele licensure/certificat such as published a presentations in Co

Computer Science related fields.

native qualifications include ssional experience (e.g. software ork engineer, game developer, IT t, robotics engineer, algorithm onsultant) in business or business elevant professional ations, and notable scholarly work d articles or conference Computer Science related fields.

native qualifications include ssional experience (e.g. software ork engineer, game developer, IT t, robotics engineer, algorithm onsultant) in business or business elevant professional ations, and notable scholarly work d articles or conference 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 alternat substantial professi developer, network support specialist, r engineer, tech cons administration, rele licensure/certificati such as published a presentations in Co
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 alternat substantial profess developer, network support specialist, i engineer, tech cons administration, rele licensure/certificat such as published a presentations in Co
	Electrical Enginee	ering	
Course Name	Faculty Qualifications Needed	Related Disciplines	Accetable Alternat
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 alternat Engineering include experience as a AI r engineer, automati systems developer, quantitative analys technician, or rela licensure or certific work such as publis presentations in Ele
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 alterna Engineering include experience as a Al r engineer, automati systems developer, quantitative analys technician, or rela licensure or certific

native qualifications include ssional experience (e.g. software ork engineer, game developer, IT t, robotics engineer, algorithm onsultant) in business or business elevant professional

- ations, and notable scholarly work articles or conference
- Computer Science related fields.

native qualifications include ssional experience (e.g. software ork engineer, game developer, IT t, robotics engineer, algorithm onsultant) in business or business elevant professional ations, and notable scholarly work

- articles or conference
- Computer Science related fields.

ative Qualifications

hative qualifications in Electrical ade substantial professional Al research scientist, aerospace ation engineer, embedded er, software developer, yst, hardware engineer, electrical elated field. Relevant professional fications, and notable scholarly olished articles or conference Electrical Engineering

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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 alterna Engineering include experience as a Alterna engineer, automati systems developer quantitative analys technician, or rela licensure or certific work such as publis presentations in Ele
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 alterna Engineering include experience as a Al engineer, automati systems developer quantitative analys technician, or rela licensure or certific work such as publis presentations in El
EECE 5100 Computer Structures	Earned Doctorate degree in Electrical Engineering in the teaching discipline or a closely related discipline.	Computer Engineering, Computer Science	Acceptable alterna Engineering include experience as a Al engineer, automat systems developer quantitative analys technician, or rela licensure or certific work such as publis presentations in El
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 alterna Engineering include experience as a Al engineer, automat systems developer quantitative analys technician, or rela licensure or certific work such as publis presentations in El

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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 alternat Engineering include experience as a Alternation engineer, automati systems developer, quantitative analys technician, or relaternician licensure or certific work such as publist presentations in Ele
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 alterna Engineering include experience as a Al i engineer, automati systems developer, quantitative analys technician, or rela licensure or certific work such as publis presentations in Ele
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 alterna Engineering include experience as a Al i engineer, automati systems developer, quantitative analys technician, or rela licensure or certific work such as publis presentations in Ele
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 alterna Engineering include experience as a Al i engineer, automati systems developer, quantitative analys technician, or rela licensure or certific work such as publis presentations in Ele

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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 alternat Engineering include experience as a Alternation engineer, automati systems developer, quantitative analys technician, or rela licensure or certific work such as publis presentations in Ele
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 alterna Engineering include experience as a Al engineer, automati systems developer quantitative analys technician, or rela licensure or certific work such as publis presentations in El
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 alterna Engineering include experience as a Al i engineer, automati systems developer, quantitative analys technician, or rela licensure or certific work such as publis presentations in Ele
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 alterna Engineering include experience as a Al engineer, automati systems developer quantitative analys technician, or rela licensure or certific work such as publis presentations in El

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	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 alterna Engineering include experience as a Al engineer, automati systems developer, quantitative analys technician, or rela licensure or certific work such as publis presentations in Ele
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 alternat Engineering include experience as a Alternation engineer, automation systems developer, quantitative analys technician, or relat licensure or certific work such as publist presentations in Ele
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 alterna Engineering include experience as a Al i engineer, automati systems developer, quantitative analys technician, or rela licensure or certific work such as publis presentations in Ele
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 alterna Engineering include experience as a Al i engineer, automati systems developer, quantitative analys technician, or rela licensure or certific work such as publis presentations in Ele

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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 alternat Engineering include experience as a Al r engineer, automati systems developer, quantitative analys technician, or rela licensure or certific work such as publis presentations in Ele
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 alterna Engineering include experience as a Al i engineer, automati systems developer, quantitative analys technician, or rela licensure or certific work such as publis presentations in Ele
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 alterna Engineering include experience as a Al n engineer, automati systems developer, quantitative analys technician, or rela licensure or certific work such as publis presentations in Ele
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 alterna Engineering include experience as a Al engineer, automati systems developer, quantitative analys technician, or rela licensure or certific work such as publis presentations in Ele

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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 alternat Engineering include experience as a Alternation engineer, automation systems developer, quantitative analys technician, or rela licensure or certific work such as publis presentations in Ele
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 alterna Engineering include experience as a Alterna engineer, automati systems developer, quantitative analys technician, or rela licensure or certific work such as publis presentations in Ele
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 alternat Engineering include experience as a Al r engineer, automati systems developer, quantitative analys technician, or rela licensure or certific work such as publis presentations in Ele
	Engineering & Computati		
Course Name	Faculty Qualifications Needed	Related Disciplines	Accetable Alternat
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 alternation substantial profess publications, award Computational Scie- licensure/certificat such as published a presentations in En Science related fiel

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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 alternat substantial professi publications, award Computational Scie licensure/certificati such as published a presentations in En Science related field
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 alternat substantial professi publications, awarc Computational Scie licensure/certificati such as published a presentations in En Science related field
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 alternat substantial professi publications, award Computational Scie licensure/certificati such as published a presentations in En Science related fiel
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 alternat substantial professi publications, awarc Computational Scie licensure/certificati such as published a presentations in En Science related field
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 alternat substantial professi publications, awarc Computational Scie licensure/certificati such as published a presentations in En Science related field

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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 alternat substantial professi publications, award Computational Scie licensure/certificati such as published a presentations in En Science related field
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 alternat substantial professi publications, award Computational Scie licensure/certificati such as published a presentations in En Science related field
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 alternat substantial professi publications, award Computational Scie licensure/certificati such as published a presentations in En Science related field
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 alternat substantial professi publications, award Computational Scie licensure/certificati such as published a presentations in En Science related field
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 alternat substantial professi publications, award Computational Scie licensure/certificati such as published a presentations in En Science related field

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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 alternat substantial professi publications, award Computational Scie licensure/certificati such as published a presentations in En Science related field
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 alternat substantial professi publications, award Computational Scie licensure/certificati such as published a presentations in En Science related field
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 alternat substantial professi publications, award Computational Scie licensure/certificati such as published a presentations in En Science related field
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 alternat substantial professi publications, awarc Computational Scie licensure/certificati such as published a presentations in En Science related fiel
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 alternat substantial professi publications, awarc Computational Scie licensure/certificati such as published a presentations in En Science related field

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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 alternat substantial professi publications, award Computational Scie licensure/certificati such as published a presentations in En Science related field
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 alternat substantial professi publications, award Computational Scie licensure/certificati such as published a presentations in En Science related fiel
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 alternation substantial profess publications, award Computational Scie licensure/certificat such as published a presentations in En Science related fiel
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 alternat substantial profess publications, award Computational Scie licensure/certificat such as published a presentations in En Science related fiel
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 alternat substantial professi publications, award Computational Scie licensure/certificati such as published a presentations in En Science related field

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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 alternat substantial professi publications, award Computational Scie licensure/certificati such as published a presentations in En Science related field
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 alternat substantial profess publications, award Computational Scie licensure/certificat such as published a presentations in En Science related fiel
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 alternat substantial profess publications, award Computational Scie licensure/certificat such as published a presentations in En Science related fiel
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 alternat substantial professi publications, award Computational Scie licensure/certificati such as published a presentations in En Science related field
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 alternat substantial professi publications, award Computational Scie licensure/certificati such as published a presentations in En Science related field

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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 alternat substantial professi publications, awarc Computational Scie licensure/certificati such as published a presentations in En Science related field
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 alternat substantial profess publications, award Computational Scie licensure/certificat such as published a presentations in En Science related fiel
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 alternat substantial profess publications, award Computational Scie licensure/certificat such as published a presentations in En Science related fiel
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 alternat substantial professi publications, awarc Computational Scie licensure/certificati such as published a presentations in En Science related field
Course Nome	Mechanical Engine		
Course Name MEEN 5010 Introduction to Manufacturing	Faculty Qualifications Needed Earned Doctorate degree in Mechanical Engineering in the teaching discipline or a closely related discipline.	Related Disciplines Automotive Engineering, Manufacturing Engineering, Industrial Engineering, Mechatronics	Acceptable Alterna Acceptable alternat substantial professi publications, award relevant profession notable scholarly w conference present Engineering related

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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 alterna substantial profess publications, award relevant profession notable scholarly w conference present Engineering related
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 alternat substantial profess publications, award relevant profession notable scholarly w conference present Engineering related
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 alterna substantial profess publications, award relevant profession notable scholarly w conference presen Engineering related
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 alterna substantial profess publications, award relevant profession notable scholarly w conference presen Engineering related
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 alternat substantial profess publications, award relevant profession notable scholarly w conference present Engineering related

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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 alternation substantial profess publications, award relevant profession notable scholarly w conference present Engineering related
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 alternat substantial profess publications, award relevant profession notable scholarly w conference present Engineering related
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 alterna substantial profess publications, award relevant profession notable scholarly w conference presen Engineering related
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 alternat substantial profess publications, award relevant profession notable scholarly w conference present Engineering related
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 alterna substantial profess publications, award relevant profession notable scholarly w conference presen Engineering related

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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 alterna substantial profess publications, award relevant profession notable scholarly w conference present Engineering related
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 alternation substantial profess publications, award relevant profession notable scholarly w conference present Engineering related
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 alterna substantial profess publications, award relevant profession notable scholarly w conference present Engineering related
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 alternation substantial profess publications, award relevant profession notable scholarly w conference present Engineering related
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 alterna substantial profess publications, award relevant profession notable scholarly w conference present Engineering related

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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 alternat substantial professi publications, award relevant profession notable scholarly w conference present Engineering related
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 alternat substantial profess publications, award relevant profession notable scholarly w conference present Engineering related
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 alternation substantial profess publications, award relevant profession notable scholarly w conference present Engineering related
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 alternat substantial professi publications, award relevant profession notable scholarly w conference present Engineering related
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 alternat substantial profess publications, award relevant profession notable scholarly w conference present Engineering related

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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 alternat substantial professi publications, awarc relevant profession notable scholarly w conference present Engineering related
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 alternat substantial professi publications, award relevant profession notable scholarly w conference present Engineering related
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 alternat substantial professi publications, awarc relevant profession notable scholarly w conference present Engineering related

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