

MASTER OF SCIENCE IN ENGINEERING AND MANAGEMENT

Engineering Electives

Civil and Environmental Engineering

1.001	Engineering Computation and Data Science	12
1.125	Architecting and Engineering Software Systems	12
1.208	Resilient Networks	12
1.261[J]	Case Studies in Logistics and Supply Chain Management	6
1.263[J]	Urban Last-Mile Logistics	6
1.275[J]	Business and Operations Analytics	6
1.286[J]	Urban Energy Systems and Policy	12
1.472[J]	Innovative Project Delivery in the Public and Private Sectors	6
1.541	Mechanics and Design of Concrete Structures	12
1.573[J]	Structural Mechanics	12
1.818[J]	Sustainable Energy	12
Mechanical Engineering		
2.096[J]	Introduction to Modeling and Simulation	12
2.111[J]	Quantum Computation	12
2.120	Introduction to Robotics	12
2.131	Advanced Instrumentation and Measurement	12
2.140	Analysis and Design of Feedback Control Systems	12
2.151	Advanced System Dynamics and Control	12
2.154	Maneuvering and Control of Surface and Underwater Vehicles	12
2.156	Artificial Intelligence and Machine Learning for Engineering Design	12
2.160	Identification, Estimation, and Learning	12
2.165[J]	Robotics	12
2.183[J]	Biomechanics and Neural Control of Movement	12
2.22	Design Principles for Ocean Vehicles	12
2.42	General Thermodynamics	12
2.55	Advanced Heat and Mass Transfer	12
2.62[J]	Fundamentals of Advanced Energy Conversion	12
2.680	Unmanned Marine Vehicle Autonomy, Sensing, and Communication	12

2.720	Elements of Mechanical Design	12
2.737	Mechatronics	12
2.740	Bio-inspired Robotics	12
2.75[J]	Medical Device Design	12
2.76	Global Engineering	12
2.782[J]	Design of Medical Devices and Implants	12
2.788	Mechanical Engineering and Design of Living Systems	12
2.798[J]	Molecular, Cellular, and Tissue Biomechanics	12
2.810	Manufacturing Processes and Systems	12
2.821[J]	Structural Materials	12
2.83	Energy, Materials and Manufacturing	12
2.888	Professional Seminar in Global Manufacturing Innovation and Entrepreneurship	3
2.98	Sports Technology: Engineering & Innovation	6

Materials Science and Engineering

3.207	Innovation and Commercialization	12
3.22	Structure and Mechanics of Materials	12
3.371[J]	Structural Materials	12
3.560	Industrial Ecology of Materials	12
3.70	Materials Science and Engineering of Clean Energy	12
3.963[J]	Biomaterials Science and Engineering	12

Electrical Engineering and Computer Science

6.3102	Dynamical System Modeling and Control Design	12
6.3702	Introduction to Probability	12
6.3952	AI, Decision Making, and Society	12
6.4132[J]	Principles of Autonomy and Decision Making	12
6.4822[J]	Quantitative Physiology: Organ Transport Systems	12
6.4832[J]	Fields, Forces, and Flows in Biological Systems	12
6.4861[J]	Medical Device Design	12
6.5080	Multicore Programming	12
6.5160[J]	Classical Mechanics: A Computational Approach	12
6.5400[J]	Theory of Computation	12
6.5610	Applied Cryptography and Security	12
6.5660	Computer Systems Security	12
6.5810	Operating System Engineering	12

6.5820	Computer Networks	12	16.32	Principles of Optimal Control and Estimation	12
6.5830	Database Systems	12			
6.5940	TinyML and Efficient Deep Learning Computing	12	16.363	Communication Systems and Networks	12
6.6010	Analysis and Design of Digital Integrated Circuits	12	16.422	Human Supervisory Control of Automated Systems	12
6.6020	High-Frequency Integrated Circuits	12	16.423[J]	Aerospace Biomedical and Life Support Engineering	12
6.6300	Electromagnetics	12	16.511	Aircraft Engines and Gas Turbines	12
6.6330	Fundamentals of Photonics	12	16.512	Rocket Propulsion	12
6.6400	Applied Quantum and Statistical Physics	12	16.522	Space Propulsion	12
6.6500[J]	Integrated Microelectronic Devices	12	16.851	Introduction to Satellite Engineering	6
6.7300[J]	Introduction to Modeling and Simulation	12	16.885	Aircraft Systems Engineering	12
6.7410	Principles of Digital Communication	12	16.89[J]	Space Systems Engineering	12
6.7810	Algorithms for Inference	12	16.895[J]	Engineering Apollo: The Moon Project as a Complex System	12
6.7910[J]	Statistical Learning Theory and Applications	12	<i>Biological Engineering</i>		
6.8110[J]	Cognitive Robotics	12	20.201	Fundamentals of Drug Development	12
6.7900	Machine Learning	12	20.203[J]	Neurotechnology in Action	12
6.7910[J]	Statistical Learning Theory and Applications	12	20.405[J]	Principles of Synthetic Biology	12
6.7930[J]	Machine Learning for Healthcare	12	20.410[J]	Molecular, Cellular, and Tissue Biomechanics	12
6.8210	Underactuated Robotics	12	20.420[J]	Principles of Molecular Bioengineering	12
6.8110[J]	Cognitive Robotics	12	20.445[J]	Methods and Problems in Microbiology	12
6.8210	Underactuated Robotics	12	20.463[J]	Biomaterials Science and Engineering	12
6.8300	Advances in Computer Vision	12	20.554[J]	Advances in Chemical Biology	12
6.8420	Computational Design and Fabrication	12	<i>Nuclear Science and Engineering</i>		
6.8510	Intelligent Multimodal User Interfaces	12	22.13	Nuclear Energy Systems	6
6.8610	Quantitative Methods for Natural Language Processing	12	22.55[J]	Radiation Biophysics	12
6.8620[J]	Spoken Language Processing	12	22.611[J]	Introduction to Plasma Physics I	12
6.8800[J]	Biomedical Signal and Image Processing	12	22.811[J]	Sustainable Energy	12
<i>Chemical Engineering</i>			<i>Institute for Data, Systems and Society</i>		
10.392[J]	Fundamentals of Advanced Energy Conversion	12	IDS.131[J]	Statistics, Computation and Applications	12
10.524	Pharmaceutical Engineering	9	IDS.521[J]	Energy Systems for Climate Change Mitigation	12
10.53[J]	Advances in Biomanufacturing	3	IDS.522	Mapping and Evaluating New Energy Technologies	12
10.551	Systems Engineering	9			
10.552	Modern Control Design	9			
10.595	Molecular Design and Bioprocess Development of Immunotherapies	9			
10.626	Electrochemical Energy Systems	12			
<i>Aeronautics and Astronautics</i>					
16.31	Feedback Control Systems	12			