Integrated Innovation Institute

Master of Science in Technology Ventures
Applied Engineering Courses – 2018-19

For students enrolled in the MSTV-Dual degree program, 36 units of pre-approved Applied Engineering & Technology coursework must be completed during the home engineering degree requirements. These units will double count within the MSTV degree and MS in Engineering degree.

Biomedical Engineering

42-447 Rehabilitation Engineering (9-units)
42-630 Introduction to Neuroscience for Engineers
42-632 Neural Signal Processing (crosslisted with 18-698)
42-642 Biological Fluid Mechanics
42-643 Microfluids
42-670 Biomaterial Host Interactions in Regenerative Medicine
42-671 Precision Medicine for Biomedical Engineers (9-units)
42-678 Medical Device Innovation (6-units)
42-679 Medical Device Realization (6-units)
42-341 Introduction to Biomechanics (9-units)
42-611 Engineering Biomaterials
42-612 Tissue Engineering
42-613 Polymeric Biomaterials (9-units)
42-648 Cardiovascular Mechanics
42-661 Surgery for Engineers (9-units)
42-672 Fundamentals of Biomedical Imaging and Image Analysis
42-674 Engineering for Survival: ICU Medicine (9-units)
42-673 Stem Cell Engineering (9-units)
42-675 Fundamentals of Computational Biomedical Engineering
42-735 Medical Images Analysis

42-737 Biomedical Optical Imaging
42-744 Medical Devices
42-772 Special Topics: Applied Nanoscience and Nanotechnology (crosslisted with 27-765)

Chemical Engineering
06-620 Global Atmospheric Chemistry: Fundamentals and Data Analysis
06-663 Analysis and Modeling of Transport Phenomena
06-665 Process System Modeling
06-702 Advanced Reaction to Kinetics (PhD Core)
06-704 Advanced Heat and Mass Transfer (PhD Core)
06-720 Advanced Process Systems Engineering (PhD Core)

Civil and Environmental Engineering
12-711 BIM for Engineering, Construction and Facility Management
12-718 Environmental Engineering Sustainability and Science Project
12-724 Biological Wastewater Treatment
12-728 Remediation Engineering
12-735 Special Topics: Urban Systems Modeling
12-740 Data Acquisition (6-units)
12-741 Data Management (6-units)
12-745 Advanced Infrastructure Systems Project
12-748 Mechanical and Electrical System Design for Buildings (6-units)
12-750 Infrastructure Management
12-752 Special Topics: Data-Driven Building E
nergy Management (6-units)
12-761 Special Topics: Sensing and Data Mining for Smart Structures and Systems

Electrical and Computer Engineering
18-482, Telecommunications Technology & Policy for the Internet Age (cross-listed with 19-402 & 19-722)
18-600, Foundations of Computer Systems
18-612 Neural Technology: Sensing and Stimulation

18-613 Nano-Bio-Photonics
18-631 Introduction to Information Security
18-639 Policies of the Internet (crosslisted with 19-639)
18-645 How to Write Fast Code
18-650 Policies of a Wireless System
18-651 Networked Cyber-Physical Systems
18-697 Statistical Discovery and Learning
18-698 Neural Signal Processing (crosslisted with 42-632)
18-734 Foundations of Privacy
18-739F Special Topics in Security: Security of Fairness and Deep Learning
18745 Rapid Prototyping of Computing Systems

Materials Science and Engineering
27-700 Special Topics: Energy Storage Materials and Systems
27-702 Metal-Environment Reactions
27-705 Nanostructured Materials
27-709 Engineering Biomaterials
27-715 Applied Magnetism and Magnetic Materials
27-721 Processing Design
27-724 Materials for Energy Storage
27-725 Materials in Nuclear Energy Systems
27-728 Materials for Future Energy Systems
27-729 Solid State Devices for Energy Conversion
27-731 Special Topics: Hard and Superhard Materials
27-733 Principles of Growth and Processing of Semiconductors
27-742 Processing and Properties of Thin Films
27-752 Foundations of Semiconductor Nanostructures
27-765 Special Topics: Engineering Optical and Thermal Energy Transport: Energy Efficiency Applications
27-765 Additive Manufacturing and Materials
27-765 Additive Manufacturing Laboratory (crosslisted with 39-603)
27-765 Special Topics: Applied Nanoscience and Nanotechnology (crosslisted with 47-772)
27-792 Solidification Processing

Mechanical Engineering

24-613 Special Topics: Particle Technology
24-629 Direct Solar and Thermal Energy Conversion
24-632 Special Topics: Additive Manufacturing Processing and Product Development (crosslisted with 39-601 & 24-632)
24-642 Fuel Cell Systems
24-645 Special Topics: Air Pollutant Sensor Design and Application
24-651 Materials Selection for Mechanical Engineers
24-658 Computational Bio-Modeling and Visualization (crosslisted with 42-640)
24-662 Special Topics: Robotic Systems and Internet of Things
24-683 Design for Manufacture and the Environment
24-671 Special Topics: Electromechanical Systems Design
24-672 Special Topics in DIY Design and Fabrication
24-673 Soft Robots - Mechanics, Design and Modeling
24-689 Special Topics: Modern Manufacturing in Steeltown
24-775 Special Topics: Robot Design and Experimentation
24-778 Mechatronic Design (crosslisted with 16-778, 18-578, & 24-778)
24-787 Artificial Intelligence and Machine Learning for Engineering Design
24-788 Artificial Intelligence and Machine Learning - Project

College of Engineering

39-603 Additive Manufacturing Laboratory (crosslisted with 27-765)

Chemistry

09-860 Special Topics in Computational Chemistry: Machine Learning for Experimentalists (2 6-unit minis)

School of Computer Science

16-865 – Advanced Mobile Robot Development

NOTE: This is a sample list of Applied Engineering & Technology coursework; MSTV students will receive an official list of eligible courses each semester as part of the advising process.

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