

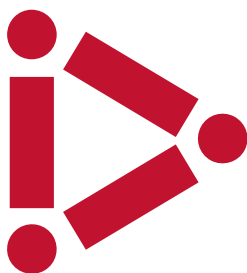
## **Integrated Innovation Institute**

### **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**

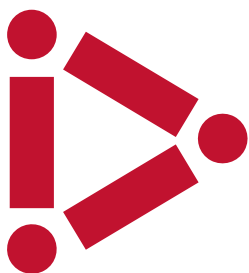
06-620 Global Atmospheric Chemistry: Fundamentals and Data Analysis  
06-663 Analysis and Modeling of Transport Phenomena  
06-665 Process System Modeling  
06-702 Advanced Reaction to Kinetics (PhD Core)  
06-704 Advanced Heat and Mass Transfer (PhD Core)  
06-720 Advanced Process Systems Engineering (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 Energy Management (6-units)  
12-761 Special Topics: Sensing and Data Mining for Smart Structures and Systems

### **Electrical and Computer Engineering**

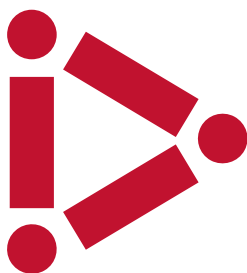
18-482, Telecommunications Technology & Policy for the Internet Age (cross-listed with 19-402 & 19-722)  
18-600, Foundations of Computer Systems  
18-612 Neural Technology: Sensing and Stimulation



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**

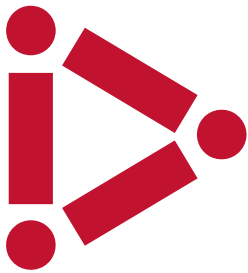
- 39-603 Additive Manufacturing Laboratory (crosslisted with 27-765)

### **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.

Last updated: 3/8/2019