The advanced manufacturing program provides graduates and professional students with the interdisciplinary skills needed to apply cutting-edge manufacturing techniques within a wide range of industries. Throughout the program, students work with state-of-the-art industrial equipment and open-platform fabrication systems with a focus on additive manufacturing.

The advanced manufacturing teaching lab is dedicated to the program allowing students to explore various equipment and systems. Within this lab, students have the option to work with polymers, metals, ceramics and biological materials, while optimizing structural design and capturing and interpreting important process data. Additionally, students will have the opportunity to work on industry relevant projects through internships and independent studies.

**PROGRAM STRUCTURE**

- **Master of Science (non-thesis):** 30 credit hours, comprised of 3 core courses (2 selected by the student), program-approved electives and an option to replace 6 credit hours with project-based work via internship.

- **Certificate (in advanced manufacturing or smart manufacturing):** 12 credit hours comprised of 3 core courses and 1 program-approved elective.
FOCUS AREAS

Mechanical Engineering
- Automation
- Modeling and Characterization

Metallurgical and Materials Engineering
- Metals and Ceramics
- Process-Structure-Property Relationships

Applied Mathematics and Statistics
- Statistics
- Statistical Process Modeling

Physics
- Functional Materials Manufacturing
- Optics for Manufacturing

Computer Science
- Machine Learning
- Big Data

Electrical Engineering
- Data Compression
- Sensing and Signal Processing

CORE COURSES

The advanced manufacturing program highlights design, materials and data aspects of advanced manufacturing with an emphasis on additive manufacturing of structural materials.

- Additive Manufacturing
- Data-Driven Advanced Manufacturing
- Design for Additive Manufacturing
- Materials for Additive Manufacturing

PROGRAM ADMISSION REQUIREMENTS

It is required that candidates have completed a bachelor’s degree in a relevant field from an accredited institution. A minimum grade-point average of 3.0 on a 4.0 scale is required.

ACCEPTING APPLICATIONS

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