

# ADVANCED MANUFACTURING FOR ENERGY SYSTEMS (MS)

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The Master of Science (M.S.) in Advanced Manufacturing for Energy Systems prepares students in theory, research and applications of advanced manufacturing for energy specific disciplines. It requires students to complete 21 credit hours of coursework, nine credit hours of thesis research, and a M.S. thesis. Students choose from one of three areas of concentration: Advanced Materials, Processing, or Systems and Controls.

## Requirements

### Core Requirements

All students are required to complete a three credit course in engineering analysis, a three credit course in computer aided engineering, and a three credit course in engineering communication, to be determined by the program director. Students are required to choose one of the following concentrations: Advanced Materials, Processing, or Sensing and Controls, and complete two core courses (six credits) corresponding to the chosen area of concentration.

### Advanced Materials Requirements

| Course   | Title                               | Credits |
|----------|-------------------------------------|---------|
| MSE 5001 | Principles of Materials Engineering | 3       |
| MSE 5322 | Materials Characterization          | 3       |

### Processing Requirements

| Course    | Title                           | Credits |
|-----------|---------------------------------|---------|
| ME 5130   | Advanced Heat and Mass Transfer | 3       |
| CHEG 5321 | Reaction Kinetics I             | 3       |

### Sensing and Controls Requirements

A three credit introductory course in energy management in manufacturing and a three credit introductory course in smart and green manufacturing.

### Elective Requirement

A minimum of two elective courses (six credits) from the list of elective courses for each area of concentration.

### Research Requirement

Nine credits of GRAD 5950 Master's Thesis Research, as stipulated in the Graduate Catalog (Plan A).