# ADDITIVE MANUFACTURING (CERTIFICATE)

## Description

Additive manufacturing (AM) is rapidly changing the face of manufacturing, especially in the U.S. Metal AM is the future due to the use of metals and alloys in a wide variety of industries. Notably, defense, aerospace, and biomedical industries will be transformed by metal AM. Also, AM is quickly expanding into new areas, including electronics and tissue engineering where printing of biological soft matter will lead to unforeseen innovations. As a result, the AM certificate program provides students with the vital knowledge and fundamental skills to enable them to compete in this fast-changing field.

The certificate program equips students with core competency and technical skills across the breadth of AM, including:

- Manufacturing process fundamentals;
- Materials and materials testing;
- Modeling and simulation of process phenomena;
- Quality and measurement;
- Design for AM

These aspects are covered within a series of courses that provide both fundamental understanding of AM and hands-on opportunities—theory and practice—and provide a competitive advantage to students. The courses offer broad appeal for various engineering majors and areas of practice.

## Program-Related Information

**Graduate Chair**

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**Support Staff**

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## Program Website

https://engineering.unl.edu/mme/graduate-programs/

## Applying for Admission

### Standard requirements for all graduate programs

- Application for Admission with $50 non-refundable application fee (https://graduate.unl.edu/admissions/requirements/#appfee).
- Transcripts (https://graduate.unl.edu/admissions/requirements/#transcripts) (unofficial): Uploaded as part of application form.

  If International: Uploads must include all college- or university-level transcripts or mark sheets (records of courses and marks earned), with certificates, diplomas, and degrees plus certified English translations.

  After admission: Official documents are required from all students who are admitted and enroll. Photocopies of certified records are not acceptable. International students enrolled in other U.S. institutions may have certified copies of all foreign records sent directly to the Office of Graduate Studies by their current school's registrar office.
- If applicant's native language is not English, verification of English proficiency (https://graduate.unl.edu/admissions/english-proficiency/) is required.

  When sending TOEFL scores, our institution code is 6877 and a department code is not needed.
- If applicant is not a US citizen and expects an F or J visa: financial information (https://graduate.unl.edu/prospective/international/financial/).
- Applicants must also fulfill any additional requirements the department specifies at the time of application.

### Additional requirements specific to this program

- GRE: The GRE requirement is waived for those who have a degree from a US institution that is ABET-accredited.
- Resume/CV
- Personal Statement
- Research:  Review current faculty and their research areas.

*Certificate programs are not considered degree programs, so international students should be aware that admission to this program is ineligible for immigration forms for an F-1 student visa.*

## Requirements

Complete 12 credit hours as described below with a grade of B or better.

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|---|---|---|
| **Required Courses** (3 credits) | | **3** |
| MECH 872 | Additive Manufacturing | 3 |
| **Electives** (9 credits) | | **9** |
| MECH 822 | Industrial Quality Control | 3 |
| MECH 820 | Heat Transfer | 3 |
| MECH 851 | Introduction to Finite Element Analysis | 3 |
| MATL 860 | Mechanical Aspects of Materials | 3 |
| MATL 865 | Applied Physical Metallurgy and Design | 3 |