### Major 75 Semester Hours (SH)

#### Mathematics-Science Core
- 800:048 Calculus for Technology .................. 4
- OR 800:060 Calculus I (4) .................. 4
- 800:072 Introduction to Statistical Methods ........ 3
- 860:020 Chemical Technology .................. 4
- OR 860:044 General Chemistry I (4) .................. 4
- 880:054 General Physics I .................. 4
- OR 880:130 Physics I for Science & Engineering (4) .................. 4

#### Technical Core
- 330:024 Technical Drawing & Design .................. 4
- 330:060 Fundamentals of Automated Mfg .................. 3
- 330:112 Industrial Projects I .................. 1
- 330:132 Applied Metallurgy .................. 3
- 330:142 Statistical Quality Control .................. 3
- 330:143 Managing Manufacturing Systems .................. 3
- 330:170 Statics & Strength of Materials .................. 3
- 330:179 Cooperative Education .................. 1
- 330:180 Introduction to Lean Manufacturing .................. 1
- 330:187 Applied Industrial Supervision & Mgmt .................. 3
- 330:196 Industrial Safety .................. 3
- 330:197 Industrial Projects II .................. 2

#### List of Electives
Any 100-level course in the Industrial Technology Dept. OR:
- 150:113 Business Communications II .................. 3
- 150:119 Leadership & Human Relations .................. 3
- 48C:141 Listening .................. 2
- 48C:173 Business & Professional Oral Comm .................. 3
- 620:106 Scientific and Technical Writing .................. 3
- 650:142 Ethics .................. 3
- 980:102 Conflict Resolution .................. 3

#### Advanced Manufacturing
- 330:113 Manufacturing Tooling .................. 3
- 330:123 Machining Principles .................. 3
- 330:145 Work Measurement & Improvement .................. 3
- 330:147 Computer-Aided Manufacturing .................. 3
- 330:177 Advanced Manufacturing Processes .................. 3
- Electives (from list ***) .................. 6

#### Design Option
- 330:106 Geometric Dimensioning & Tolerancing .................. 2
- 330:113 Manufacturing Tooling .................. 3
- 330:122 Advanced CAD & Modeling .................. 3
- 330:135 Design for Manufacturing .................. 3
- 330:148 Product Design .................. 3
- 330:155 Finite Element Analysis ................. 3
- Electives (from list ***) .................. 4

#### Metal Casting Option
- 330:127 Transport Phenomena for Technologists .................. 3
- 330:134 Molding Practices in Metal Casting .................. 3
- 330:136 Melting Practices in Metal Casting .................. 3
- 330:137 Tooling Practices in Metal Casting .................. 3
- Electives (from list ***) .................. 9

### Liberal Arts Core 45 Semester Hours (SH)

#### Category 1. Core Competencies
- A. Reading and Writing
- B. Speaking and Listening
- C. Quantitative Techniques & Understanding
- D. Personal Wellness

#### Category 2. Civilizations & Cultures
- A. Humanities
- B. Non-Western Cultures

#### Category 3. Fine Arts, Literature, Philosophy and Religion
- A. Fine Arts
- B. Literature, Philosophy, or Religion

#### Category 4. Natural Science and Technology
- A. Life Sciences
- B. Physical Sciences

#### Category 5. Social Science
- A. Sociocultural & Historical Perspectives
- B. Individual & Institutional Perspectives
- C. Topical Perspectives

#### Category 6. Capstone Experience
- A. Technical Core
- B. Liberal Arts Core/Electives

### Advanced Manufacturing Sequence

**Freshman - 30 hrs.**
- 800:048 Calculus for Technology .................. 4
- OR 800:060 Calculus I (4) .................. 4
- 800:072 Intro to Statistical Methods .................. 3
- 860:044 General Chemistry I (4) .................. 4
- OR 860:020 Chemical Technology (4) .................. 4

**Sophomore - 32 hrs.**
- 330:024 Technical Drawing & Design I .................. 4
- 330:060 Fundamentals of Automated Mfg .................. 3
- 330:132 Machining Principles .................. 3
- 880:054 General Physics I .................. 4
- OR 880:130 Physics I for Science & Engineering (4) .................. 4

**Junior - 30 hrs.**
- 330:113 Manufacturing Tooling .................. 3
- 330:132 Applied Metallurgy .................. 3
- 330:142 Statistical Quality Control .................. 3
- 330:143 Managing Manufacturing Systems .................. 3
- 330:179 Cooperative Education .................. 1
- 330:180 Introduction to Lean Manufacturing .................. 1
- 330:187 Applied Industrial Supervision & Mgmt .................. 3
- 330:196 Industrial Safety .................. 3
- 330:197 Industrial Projects II .................. 2

**Senior - 35 hrs.**
- 330:113 Manufacturing Tooling .................. 3
- 330:123 Machining Principles .................. 3
- 330:145 Work Measurement & Improvement .................. 3
- 330:147 Computer-Aided Manufacturing .................. 3
- 330:179 Cooperative Education .................. 1

**Minimum Hours Required**
- 126 SH

**Cooperative Education** is required for at least 1 SH for students receiving the BS degree in Manufacturing Technology. The candidate must have declared a major in the Department of Industrial Technology, be of junior status with a minimum GPA of 2.5, and have at least one semester completed at UNI.
Program Highlights

The manufacturing technology program curriculum provides practical, hands-on experiences many employers look for when hiring new graduates.

This program provides students with the opportunity to learn about basic and advanced manufacturing technologies, industrial automation, and management techniques for improving the way manufacturing companies operate.

- All faculty have industrial experience and research interests in fields related to manufacturing issues.
- Math and science courses have been selected to provide a solid foundation for technical and managerial applications in industry.
- Technical applications courses are designed to provide you with the skills needed to be successful in your career after graduation.
- Manufacturing management courses complement technical courses to enable you to compete successfully in the business environment.

Community college transfers

Students can transfer in up to 65 hours of community college credit toward a Manufacturing Technology degree. See your faculty advisor for specific details about transferability of courses.

Employment Opportunities

Positions held by graduates

Animator
CAD Specialist
Casting Supervisor
CNC Programmer
Manufacturing Engineer
Mechanical Engineer
Production Analyst
Quality Auditor
Regional Service Rep
Technical Sales Director

Employers hiring past graduates

Automated Concepts, Inc.
CASE IH Corporation
Clow Valve
Engineering Animation, Inc.
Fairmount Minerals
General Motors
Jeld-Wen
John Deere Waterloo Works
MGS Manufacturing
Rockwell Collins

For additional information

Department of Industrial Technology
University of Northern Iowa
Cedar Falls, IA 50614-0178
Phone: (319) 273-2561
Fax: (319) 273-5818

This program is accredited by the National Association of Industrial Technology (NAIT).
### Design Sequence

**Freshman - 29 hrs.**
- 330:008 Mfg Materials & Processes.................4
- 800:048 Calculus for Technology..................4
  OR 800:060 Calculus I (4)
- 800:072 Intro to Statistical Methods...............3
  Liberal Arts Core/Electives......................18

**Sophomore - 33 hrs.**
- 330:024 Technical Drawing & Design..............4
- 860:044 General Chemistry I....................4
  OR 860:020 Chemical Technology (4)
- 880:054 General Physics I........................4
  OR 880:130 Physics I for Science & Eng (4)
  Liberal Arts Core/Electives....................19

**Junior - 33 hrs.**
- 330:106 Geometric Dimensioning & Tolerancing...2
- 330:113 Manufacturing Tooling....................3
- 330:122 Advanced CAD & Modeling.................3
- 330:142 Statistical Quality Control..............3
- 330:143 Managing Manufacturing Systems.........3
- 330:170 Statics & Strength of Materials.........3
- 330:196 Industrial Safety........................3
  Liberal Arts Core/Electives....................9
- 330:179 Cooperative Education**................1+

**Senior - 34 hrs.**
- 330:112 Industrial Projects I....................1
- 330:135 Design for Manufacturing.................3
- 330:146 Product Design..........................3
- 330:155 Finite Element Analysis................3
- 330:180 Introduction to Lean Mfg...............3
- 330:187 Applied Ind. Supervision & Mgmt.........3
- 330:197 Industrial Projects II...................2
  Electives......................................16

**Minimum Hours Required.........................126 SH**

**Cooperative Education** is required for at least 1 SH for students receiving the BS degree in Manufacturing Technology. The candidate must have a declared major in the Department of Industrial Technology, be of junior status with a minimum GPA of 2.5, and have at least one semester completed at UNI.

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### Metal Casting Sequence

**Freshman - 29 hrs.**
- 330:008 Mfg Materials & Processes.................4
- 800:048 Calculus for Technology..................4
  OR 800:060 Calculus I (4)
- 800:072 Intro to Statistical Methods...............3
  Liberal Arts Core/Electives......................18

**Sophomore - 31 hrs.**
- 330:024 Technical Drawing & Design..............4
- 860:044 General Chemistry I....................4
  OR 860:020 Chemical Technology (4)
- 880:054 General Physics I........................4
  OR 880:130 Physics I for Science & Eng (4)
  Liberal Arts Core/Electives....................17

**Junior - 32 hrs.**
- 330:127 Transport Phenomena for Technologists...3
- 330:132 Applied Metallurgy.........................3
- 330:134 Molding Practices in Metal Casting......3
- 330:142 Statistical Quality Control..............3
- 330:143 Managing Manufacturing Systems.........3
  Liberal Arts Core/Electives....................10
- 330:179 Cooperative Education**................1+

**Senior - 30 hrs.**
- 330:112 Industrial Projects I....................1
- 330:136 Melting Practices in Metal Casting......3
- 330:137 Tooling Practices in Metal Casting......3
- 330:170 Statics & Strength of Materials.........3
- 330:187 Applied Industrial Supervision & Mgmt...3
- 330:197 Industrial Projects II...................2
  Liberal Arts Core/Electives....................15

**Minimum Hours Required.........................126 SH**

**Cooperative Education** is required for at least 1 SH for students receiving the BS degree in Manufacturing Technology. The candidate must have a declared major in the Department of Industrial Technology, be of junior status with a minimum GPA of 2.5, and have at least one semester completed at UNI.