Department of Technology

(College of Humanities, Arts and Sciences)

www.uni.edu/indtech

The Department of Technology offers the following undergraduate and graduate programs and program certificates. Specific requirements for these programs are listed within this Department of Technology section in the following order:

Undergraduate Majors (B.S.)
- Construction Management
- Electrical Engineering Technology (EET)
- Manufacturing Engineering Technology
- Technology and Engineering Education--Teaching

Undergraduate Majors (B.A.)
- Graphic Technologies
- Technology Management
- Combined B.A./M.S. or B.S./M.S. - Technology

Undergraduate Major (B.A.S.)
- Technology

Minors
- Electrical and Electronics Technology (EET)
- Graphic Technologies
- Manufacturing Technology Design
- Technology Education - Teaching
- Technology Management

Graduate Major (M.S.)
- Technology

Graduate Major (D.I.T.)
- Doctor of Industrial Technology

Program Certificates
- Technology Management

Bachelor of Science Degree Programs

Construction Management Major (Extended Program)
The B.S. Construction Management major requires a minimum of 126 total hours to graduate. This total includes Liberal Arts Core requirements and the following specified major requirements, plus electives to complete the minimum of 126 hours.

Student must earn a minimum UNI GPA of 2.20 to register for upper division (100/3000/4000-level) Construction Management courses.

Required core:

<table>
<thead>
<tr>
<th>Construction science/construction:</th>
<th>51</th>
</tr>
</thead>
<tbody>
<tr>
<td>TECH 1018 (330:018)</td>
<td>Construction Resources</td>
</tr>
<tr>
<td>TECH 1025 (330:025)</td>
<td>Construction Graphics</td>
</tr>
<tr>
<td>TECH 2045 (330:045)</td>
<td>Construction Law and Documentation</td>
</tr>
<tr>
<td>TECH 2080 (330:080)</td>
<td>Statics and Strength of Materials</td>
</tr>
<tr>
<td>TECH 2096 (330:096)</td>
<td>Construction Safety</td>
</tr>
<tr>
<td>TECH 3125/5125 (330:125g)</td>
<td>Commercial and Heavy/Highway Construction</td>
</tr>
<tr>
<td>TECH 3126/5126 (330:126g)</td>
<td>Land, Route, and Construction Surveying</td>
</tr>
<tr>
<td>TECH 3128 (330:128)</td>
<td>Electrical Construction Materials and Methods</td>
</tr>
<tr>
<td>TECH 3149 (330:149)</td>
<td>Construction Estimating</td>
</tr>
<tr>
<td>TECH 4100 (330:100)</td>
<td>Undergraduate Research in Construction Management</td>
</tr>
<tr>
<td>TECH 4124/5124 (330:124g)</td>
<td>Mechanical Systems in Construction</td>
</tr>
<tr>
<td>TECH 4153/5153 (330:153g)</td>
<td>Construction Project Planning, Scheduling and Controlling</td>
</tr>
<tr>
<td>TECH 4154/5154 (330:154g)</td>
<td>Computerized Construction Estimating</td>
</tr>
<tr>
<td>TECH 4173/5173 (330:173g)</td>
<td>Construction Management</td>
</tr>
<tr>
<td>TECH 4175/5175 (330:175g)</td>
<td>Structural Analysis in Construction</td>
</tr>
<tr>
<td>TECH 4185/5185 (330:185g)</td>
<td>Methods Improvement and Construction Innovations</td>
</tr>
</tbody>
</table>

Required:

Business and Management: 18

Accounting:
- ACCT 2120 (120:030) Principles of Financial Accounting

Management:
- MGMT 2080 (150:080) Introduction to Information Systems
- MGMT 3101 (150:101) Business Law
- MGMT 3145 (150:145) Information Systems Applications

Economics
ECON 1021 (920:020) Decision Analytics *

ECON 1031 (920:024) Introduction to Economics

Mathematics and Science: 15

Mathematics:
MATH 1420 (800:060) Calculus I
STAT 1772 (800:072) Introduction to Statistical Methods

Chemistry and Biochemistry:
CHEM 1110 (860:044) General Chemistry I

Physics:
PHYSICS 1511 (880:054) General Physics I

Total Hours 84

* ECON 1021 (920:020) Decision Analytics has a prerequisite of STAT 1772 (800:072) Introduction to Statistical Methods or equivalent. STAT 1772 (800:072) Introduction to Statistical Methods may be used to satisfy Category 1C of the Liberal Arts Core.

Electrical Engineering Technology (EET) Major

The B.S. Electrical Engineering Technology (EET) major requires a minimum of 126 total hours to graduate. This total includes Liberal Arts Core requirements and the following specified major requirements, plus electives to complete the minimum of 126 hours.

The Electrical Engineering Technology (EET) major provides theoretical and hands-on experience in the field of electrical circuits, conventional and renewable electrical energy, analog/digital electronics, microprocessors, modern electronic communication systems, digital signal processing, power electronics, control systems, networking, and their applications. The Electrical Engineering Technology Program is accredited by the Engineering Technology Accreditation Commission of ABET, www.abet.org.

Required Mathematics and Science core: 22

Mathematics:
MATH 1140 (800:046) Precalculus
MATH 1150 (800:048) Calculus for Technology
or MATH 1420 (800:060) Calculus I
STAT 1774 (800:064) Introductory Statistics for Life Sciences
or STAT 1772 (800:072) Introduction to Statistical Methods

Computer Science:
CS 1160 (810:036) C/C++ Programming
or CS 1130 (810:030) Visual BASIC Programming

Physics:
PHYSICS 1511 (880:054) General Physics I
PHYSICS 1512 (880:056) General Physics II

Required Technical Core: 52

Technology:
TECH 1037 (330:037) Introduction to Circuits
TECH 1039 (330:039) Circuits and Systems
TECH 2038 (330:038) Introduction to Electrical Power and Machinery
TECH 2041 (330:041) Introduction to Analog Electronics
TECH 2042 (330:042) Introduction to Digital Electronics
TECH 3129/5129 (330:129g) Linear Control Systems
TECH 3152 (330:152) Advanced Analog Electronics
TECH 3156 (330:156) Advanced Digital Electronics
TECH 3157/5157 (330:157g) Microcontroller Applications
TECH 3160/5160 (330:160g) Computer-Aided Instrumentation and Interfacing
TECH 3164/5164 (330:164g) Programmable Logic Controllers (PLCs)
TECH 3166/5166 (330:166g) Advanced Electrical Power Systems
TECH 4103/5103 (330:103g) Electronic Communications
TECH 4104/5104 (330:104g) Applied Digital Signal Processing
TECH 4165/5165 (330:165g) Wireless Communication Networks
TECH 4167/5167 (330:167g) Power Electronics Applications
TECH 4174 (330:174) Senior Design I
TECH 4176 (330:176) Senior Design II

Required Technical Writing: 3

ENGLISH 3772/5772 Technical Writing for Engineering Technologists

Total Hours 77

Additional Program Requirements:

1. All 4000 level technology courses must be taken at UNI, i.e. no transfer is accepted for 4000 level technology courses.

2. All students in the program must have a UNI GPA of 2.00 or higher before they are allowed to take any technology courses they have not already taken.
# Manufacturing Engineering Technology Major

The B.S. Manufacturing Engineering Technology major requires a minimum of 126 total hours to graduate. This total includes Liberal Arts Core requirements (45 hours) and the following specified major requirements (66-69 hours), plus electives (15 hours) to complete the minimum of 126 hours.

## Required Mathematics and Science Core: 12

### Mathematics:
- MATH 1150 (800:048) Calculus for Technology
- or MATH 1420 (800:060) Calculus I

### Chemistry and Biochemistry
- CHEM 1020 (860:020) Chemical Technology
- or CHEM 1110 (860:044) General Chemistry I

### Physics:
- PHYSICS 1511 (880:054) General Physics I
- or PHYSICS 1701 (880:130) Physics I for Science and Engineering

## Required Technical Core: 0-3

### Technology:
- TECH 1017 (330:017) Computer-Aided Design and Drafting (or equivalent *)

### Technology:
- TECH 1008 (330:008) Manufacturing Processes I
- TECH 1010 (330:010) Metal Removal Processes
- TECH 1024 (330:024) Technical Drawing and Design I
- TECH 2024 (330:023) Technical Drawing and Design II
- TECH 2060 (330:060) Fundamentals of Automated Manufacturing
- TECH 2080 (330:080) Statics and Strength of Materials
- TECH 3142 (330:142) Statistical Quality Control
- TECH 3143 (330:180) Managing Operations and Manufacturing Systems
- TECH 3180 (330:180) Lean and Sustainable Operations
- TECH 3196 (330:196) Industrial Safety
- TECH 4112 (330:112) Industrial Projects I

\[ \text{Total Hours: } 66-69 \]

* Equivalency requires approval by department.

## Advanced Manufacturing:
- TECH 3113 (330:113) Manufacturing Tooling
- TECH 3147 (330:147) Computer Aided Manufacturing
- TECH 3177/5177 (330:177g) Advanced Manufacturing Processes
- TECH 4162 Automation - Pneumatics and Hydraulics

## Manufacturing Design:
- TECH 3024/5024 (330:122g) Advanced CAD and Modeling
- TECH 3113 (330:113) Manufacturing Tooling
- TECH 3135/5135 (330:135g) Product Design
- TECH 3148 (330:148) Machine Design

## Metal Casting:
- TECH 3127 (330:127) Transport Phenomena for Technologists
- TECH 3134 (330:134) Molding Practices in Metal Casting
- TECH 4136 (330:136) Melting Metallurgy and Practices
- TECH 4137 (330:137) Tooling Practices in Metal Casting

## Recommended elective hours from the following:

### Technology:
- TECH 1037 (330:037) Introduction to Circuits
- TECH 2036 (330:036) Power Technology
- TECH 2038 (330:038) Introduction to Electrical Power and Machinery
- TECH 3113 (330:113) Manufacturing Tooling
- TECH 3115 (330:115) Fundamentals of Electrical and Electronic Technology
- TECH 3119 (330:119) Computer Applications in Technology
- TECH 3127 (330:127) Transport Phenomena for Technologists
- TECH 3131/5131 (330:131g) Technical Project Management
### Technology and Engineering Education-Teaching Major

The B.S. Technology and Engineering Education-Teaching major requires a minimum of 126 total hours to graduate. This total includes Liberal Arts Core requirements, the Professional Education Requirements, and the following specified major requirements, plus electives to complete the minimum of 126 hours.

#### Technology and Engineering Core

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 1020 (860:020)</td>
<td>Chemical Technology</td>
<td>4</td>
</tr>
<tr>
<td>PHYSICS 1400 (880:011)</td>
<td>Conceptual Physics</td>
<td>4</td>
</tr>
<tr>
<td>or PHYSICS 1511 (880:054)</td>
<td>General Physics I</td>
<td></td>
</tr>
<tr>
<td>MATH 1140 (800:046)</td>
<td>Precalculus</td>
<td>4</td>
</tr>
<tr>
<td>TECH 1008 (330:008)</td>
<td>Manufacturing Processes I</td>
<td>3</td>
</tr>
<tr>
<td>TECH 1010 (330:010)</td>
<td>Metal Removal Processes</td>
<td>3</td>
</tr>
<tr>
<td>TECH 1018 (330:018)</td>
<td>Construction Resources</td>
<td>3</td>
</tr>
<tr>
<td>TECH 1006</td>
<td>Project Lead The Way: Introduction to Engineering Design</td>
<td>3</td>
</tr>
<tr>
<td>or PHYSICS 4290/5290</td>
<td>Project Lead The Way: Digital Electronics</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Management:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGMT 3113 (150:113)</td>
<td>Business Communication</td>
<td></td>
</tr>
</tbody>
</table>

#### Communication:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 3155 (48C:173)</td>
<td>Business and Professional Oral Communication</td>
<td></td>
</tr>
<tr>
<td>COMM 4355/5355 (48C:141g)</td>
<td>Listening</td>
<td></td>
</tr>
</tbody>
</table>

#### Philosophy:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 2500</td>
<td>Ethics</td>
<td></td>
</tr>
</tbody>
</table>

#### Sociology:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOC 3090 (980:102)</td>
<td>Conflict Resolution</td>
<td></td>
</tr>
</tbody>
</table>

### Technology and Engineering Education Electives: (choose from communication, construction, manufacturing, power and energy, and transportation and should have at least six hours in any three of these areas.

#### Technology and Engineering Education Core:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>TECH 1019 (330:019)</td>
<td>Introduction to Technology and Engineering Education</td>
<td></td>
</tr>
<tr>
<td>TECH 3120 (330:120)</td>
<td>Technology and Engineering Education Curriculum Planning</td>
<td></td>
</tr>
<tr>
<td>TECH 3190/5190 (330:190g)</td>
<td>Technology and Engineering Education Teaching Methods (Includes level 3 field experience: prerequisite or co-requisite: EDPSYCH 3128 level 2 field experience.)</td>
<td></td>
</tr>
<tr>
<td>TECH 4195/5195 (330:195g)</td>
<td>Technology and Engineering Education Laboratory Management</td>
<td></td>
</tr>
</tbody>
</table>

**Total Hours**: 60

Note: Students in Technology and Engineering Education--Teaching Major will be waived from INSTTECH 1020 (240:020) Secondary Educational Technology and Design of the Professional Education Requirements. A student changing majors to a different teaching major would be required to complete INSTTECH 1020 (240:020) Secondary Educational Technology and Design.

### Bachelor of Arts Degree Programs

#### Graphic Technologies Major

The Graphic Technologies major requires a minimum of 120 total hours to graduate. This total includes Liberal Arts Core requirements (45 hours) and the following specified major requirements (61 hours), plus university electives (14 hours) to complete the minimum of 120 hours.

#### Required:

**Mathematics-Science Core:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 1100 (800:023)</td>
<td>Mathematics in Decision Making</td>
<td></td>
</tr>
<tr>
<td>STAT 1772 (800:072)</td>
<td>Introduction to Statistical Methods</td>
<td></td>
</tr>
</tbody>
</table>

**Chemistry and Biochemistry (select one of the following):**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 1010 (860:010)</td>
<td>Principles of Chemistry</td>
<td></td>
</tr>
<tr>
<td>CHEM 1020 (860:020)</td>
<td>Chemical Technology</td>
<td></td>
</tr>
<tr>
<td>CHEM 1110 (860:044)</td>
<td>General Chemistry I</td>
<td></td>
</tr>
</tbody>
</table>

**Computer Science:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 1000 (810:021)</td>
<td>Computing Skills and Concepts</td>
<td></td>
</tr>
</tbody>
</table>

**Business and Management:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>TECH 3179 Cooperative Education</td>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>
### Technology Management Major

The Technology Management major requires a minimum of 120 total hours to graduate. This total includes Liberal Arts Core requirements and the following specified major requirements, plus electives to complete the minimum of 120 hours.

**Mathematics and Science Core:** (one hour lab required)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 1772</td>
<td>Introduction to Statistical Methods</td>
</tr>
<tr>
<td>CHEM 1010</td>
<td>Principles of Chemistry</td>
</tr>
</tbody>
</table>

### Management:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>TECH 1065</td>
<td>Technology in Society and Organizations</td>
</tr>
<tr>
<td>TECH 3131/3131</td>
<td>Technical Project Management</td>
</tr>
<tr>
<td>TECH 3142</td>
<td>Statistical Quality Control</td>
</tr>
<tr>
<td>TECH 3143</td>
<td>Managing Operations and Manufacturing Systems</td>
</tr>
<tr>
<td>TECH 3168/3168</td>
<td>Technology Training Strategies</td>
</tr>
<tr>
<td>TECH 3180</td>
<td>Lean and Sustainable Operations</td>
</tr>
<tr>
<td>TECH 4187/5187</td>
<td>Applied Industrial Supervision and Management</td>
</tr>
</tbody>
</table>

### Technical Electives:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>TECH 1008</td>
<td>Manufacturing Processes I</td>
</tr>
<tr>
<td>TECH 1010</td>
<td>Metal Removal Processes</td>
</tr>
<tr>
<td>TECH 1011</td>
<td>Introduction to Graphic Programs</td>
</tr>
<tr>
<td>TECH 1017</td>
<td>Computer-Aided Design and Drafting</td>
</tr>
<tr>
<td>TECH 1018</td>
<td>Construction Resources</td>
</tr>
<tr>
<td>TECH 1022</td>
<td>Communication Technology</td>
</tr>
<tr>
<td>TECH 1024</td>
<td>Technical Drawing and Design I</td>
</tr>
<tr>
<td>TECH 1055</td>
<td>Graphic Communications Foundations</td>
</tr>
<tr>
<td>TECH 2036</td>
<td>Power Technology</td>
</tr>
<tr>
<td>TECH 2060</td>
<td>Fundamentals of Automated Manufacturing</td>
</tr>
<tr>
<td>TECH 3102</td>
<td>Living in Our Techno-Social World</td>
</tr>
<tr>
<td>TECH 3114</td>
<td>Product Development and Enterprise</td>
</tr>
<tr>
<td>TECH 3115</td>
<td>Fundamentals of Electrical and Electronic Technology</td>
</tr>
<tr>
<td>TECH 3119</td>
<td>Computer Applications in Technology</td>
</tr>
<tr>
<td>TECH 3169</td>
<td>Digital Imaging I</td>
</tr>
</tbody>
</table>

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* TECH 4187/5187 (330:187g) has a prerequisite of TECH 3131; TECH 3143; or consent of instructor; junior standing.

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**Technology Management Major**

The Technology Management major requires a minimum of 120 total hours to graduate. This total includes Liberal Arts Core requirements and the following specified major requirements, plus electives to complete the minimum of 120 hours.

**Mathematics and Science Core:** (one hour lab required)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 1772</td>
<td>Introduction to Statistical Methods</td>
</tr>
<tr>
<td>CHEM 1010</td>
<td>Principles of Chemistry</td>
</tr>
</tbody>
</table>

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* TECH 4187/5187 (330:187g) has a prerequisite of TECH 3131; TECH 3143; or consent of instructor; junior standing.
**Department of Technology**

**TECH 3179 Cooperative Education**

**TECH 3196**  
Industrial Safety  
(330:196)

**TECH 4000/5000**  
Wind Energy Engineering

**TECH 4158/5158**  
Graphic Communications  
(330:158g)

**TECH 4178/5178**  
Contemporary Instruction in Technology Education  
(330:178g)

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**Total Hours**  
73

* Equivalency requires approval by department.

** A minimum of 42 hours of supporting technical courses to be taken from the following or any other courses in the department of technology approved by the students advisor.

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**Combined B.A./M.S. or B.S./M.S. - Technology**

Students with majors in a Department of Technology program, interested in the combined program should declare their intent by the end of the junior year (or have completed at least 90 semester hours). They should complete an Application for Admission to Graduate Study and the departmental application, as well as two professional references and have them submitted to the Graduate Coordinator before attempting to register. Application for graduate admission can be found at [www.grad.uni.edu/admission](http://www.grad.uni.edu/admission).

Upon admittance to the combined B.A./M.S. or B.S./M.S. program, undergraduate students during their senior year may register for a maximum of 12 hours of graduate credit as a senior, with the approval of the student’s advisor, the instructor of the course(s), and the head(s) of the department(s) offering the course(s). The admitted student may enroll and self-identify themselves with every instructor in the first two weeks of the semester in these 9 hours during the senior year, but before the baccalaureate degree is awarded. To be eligible for this exception to the undergraduate registration policies, the student must have earned at least 90 hours with a cumulative GPA of 3.00 or higher at the time of registration. When registering for the graduate courses, approvals must be obtained on the same student request, with the IT Graduate Coordinator serving as the advisor. (See policies and procedures for Graduate Credit for Undergraduate Students.)

Graduate work completed on the early admission basis will be counted as graduate credit only after the baccalaureate degree has been awarded and enrolled for graduate course work within one year of the awarding of the baccalaureate degree. Actual admission to graduate study and classification as a graduate student commences the term after the student has completed the baccalaureate degree.

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**Bachelor of Applied Science Degree Program**

The purpose of the Bachelor of Applied Science (B.A.S.) degree is to offer educational opportunities to those students who have completed an A.A.S. degree and are now seeking to complete a four-year degree. These students are often place-bound and need to take online classes while remaining a full-time employee.

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**Admission to the Program**

Each student entering the program must have earned:

1. an Associate of Applied Science (A.A.S.) degree from an accredited institution; and

2. a minimum 2.00 grade point average.

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**Total Credit Requirements**

A total of at least 120 semester hours of credit, including applicable transferable credit earned, is required for graduation. The total must fulfill the following specifications:

1. 23-24 hours of Liberal Arts Core classes, as outlined below (of which 9 hours can be transferred in as LAC 1A, 1B, and 1C);

2. 6 hours of Professional Communication, as outlined below;

3. 21-30 hours of Major coursework, from one of the majors listed below;

4. 0-19 hours of elective credit, for a total of 60 semester hours of credit taken at the University of Northern Iowa.

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**Liberal Arts Core Requirements for B.A.S. Degree**:

Students must meet the following undergraduate Liberal Arts Core requirements as specified below.

**Summary:**

1. Category 1: Core Competencies in Categories 1A (writing), 1B (speaking), and 1C (math) or transfer equivalencies*  
9

*BAS students are permitted to transfer in courses equivalent to Categories 1A, 1B, & 1C. No other classes can be applied to fulfill the LAC portion of the BAS degree.

2. Category 2: Civilizations & Cultures (1 course from Category 2A or 2B)  
3

3. Category 3: Fine Arts, Literature, Philosophy & Religion (1 course from Category 3A or 3B)  
3

4. Category 4: Natural Science & Technology (1 course from Category 4A or 4B)  
3

5. Category 5: Social Science (1 course from Category 5A, 5B, or 5C)  
3

6. Category 6: Capstone Experience (1 course)  
2-3  
(2-3hours or 1 additional course from BAS LAC Category 2, 3, 4, or 5)

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**Total Hours**  
23-24

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**Professional Communication Required Courses for B.A.S. Degree**

Required:

**COMM 3155**  
Business and Professional Oral Communication  
(48C:173)  
3

**ENGLISH 3770**  
Technical Writing in Applied Sciences  
3

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**Total Hours**  
6
# Technology

## Mathematics and Science Core:
- **CHEM 1020 (860:020)** Chemical Technology (either of these courses will satisfy LAC Category 4B) **4**
- or **PHYSICS 1511 (880:054)** General Physics I
- **STAT 1772 (800:072)** Introduction to Statistical Methods (will satisfy LAC Category 1C) **3**

## BAS Technology Core
- **TECH 3119 (330:119)** Computer Applications in Technology **3**
- **TECH 3196 (330:196)** Industrial Safety **3**
- **TECH 3131/5131 (330:131g)** Technical Project Management **3**
- **TECH 3102 (330:102)** Living in Our Techno-Social World (will satisfy LAC Category 6) **3**
- Elective approved by the department (must be 3000-level or above) **3**

## BAS Technology Upper Division Courses
- **TECH 3121/5121 (330:121g)** Applied Technology Systems **3**
- **TECH 3142 (330:142)** Statistical Quality Control **3**
- or **TECH 3180 (330:180)** Lean and Sustainable Operations **3**
- **TECH 3143** Managing Operations and Manufacturing Systems **3**
- **TECH 3168/5168 (330:168g)** Technology Training Strategies **3**
- **TECH 4187/5187 (330:187g)** Applied Industrial Supervision and Management **3**

Elective approved by the department (must be 3000-level or above) **3**

Total Hours: 37*  
*10 hours may be counted toward LAC and Major

## Minors

### Electrical and Electronics Technology Minor (EET)
The EET minor provides basic theory and hands-on experience in the field of electrical circuits, electrical power and machinery, analog/digital electronics, PLCs and their applications.

Required:
- **Technology:**
  - **TECH 1037 (330:037)** Introduction to Circuits **18**
  - **TECH 1039 (330:039)** Circuits and Systems
  - **TECH 2038 (330:038)** Introduction to Electrical Power and Machinery
  - **TECH 2041 (330:041)** Electronics
  - **TECH 2042 (330:042)** Introduction to Digital Electronics
  - **TECH 3164/5164 (330:164g)** Programmable Logic Controllers (PLCs) **4**
  - **MATH 1150 (800:048)** Calculus for Technology or **MATH 1420 (800:060)** Calculus I
  - **PHYSICS 1511 (880:054)** General Physics I or **PHYSICS 1701 (880:130)** Physics I for Science and Engineering

Total Hours: 29

### Manufacturing Technology Design Minor
Available to all UNI majors except Manufacturing Technology majors.

Required:
- **Technology:**
  - **TECH 1017 (330:017)** Computer-Aided Design and Drafting **15**
  - **TECH 1024 (330:024)** Technical Drawing and Design I
  - **TECH 2024 (330:023)** Technical Drawing and Design II

Total Hours: 21
Department of Technology

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TECH 3024/5024</td>
<td>Advanced CAD and Modeling</td>
<td>(330:122g)</td>
</tr>
<tr>
<td>TECH 3135/5135</td>
<td>Product Design</td>
<td>(330:135g)</td>
</tr>
<tr>
<td>MATH 1150</td>
<td>Calculus for Technology (800:048)</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 1420</td>
<td>Calculus I (800:060)</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 1020</td>
<td>Chemical Technology (860:020)</td>
<td>4</td>
</tr>
<tr>
<td>or CHEM 1110</td>
<td>General Chemistry I (860:044)</td>
<td>4</td>
</tr>
<tr>
<td>PHYSICS 1511</td>
<td>General Physics I (880:054)</td>
<td>4</td>
</tr>
<tr>
<td>or PHYSICS 1701</td>
<td>Physics I for Science and Engineering (880:130)</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Hours: 27

Technology Education Minor-Teaching

Required:

Technology: 0-3
- TECH 1017 (330:017) Computer-Aided Design and Drafting (or equivalent*)
- TECH 1008 (330:008) Manufacturing Processes I
- TECH 1010 (330:010) Metal Removal Processes
- TECH 1018 (330:018) Construction Resources
- TECH 1019 (330:019) Introduction to Technology and Engineering Education
- TECH 1022 (330:022) Communication Technology
- TECH 1024 (330:024) Technical Drawing and Design I
- TECH 2036 (330:036) Power Technology
- TECH 3190/5190 (330:190g) Technology and Engineering Education Teaching Methods
- TECH 4195/5195 (330:195g) Technology and Engineering Education Laboratory Management

Electives in Technology: (choose from construction or energy and power) 3

Total Hours: 27

* Equivalency requires approval by department.

Technology Management Minor

Required Courses:

Maths:
- STAT 1772 (800:072) Introduction to Statistical Methods 3

Technology:
- TECH 3119 (330:119) Computer Applications in Technology 3
- TECH 3131/5131 (330:131g) Technical Project Management or TECH 3143 Managing Operations and Manufacturing Systems 3
- TECH 3142 (330:142) Statistical Quality Control 3
- TECH 3196 (330:196) Industrial Safety 3
- TECH 4187/5187 (330:187g) Applied Industrial Supervision and Management 3

Technical Electives: 6

Total Hours: 24

Master of Science Degree Program
Major in Technology

Students interested in this program must submit a completed Application for Admission to Graduate Study and should refer to their MyUNIverse Student Center To-Do list or contact the Department of Technology for other application requirements. Graduate information and application for graduate admission can be found at www.grad.uni.edu/admission.

The Graduate Record Examination (General Test) is not required for admission to the program.

This degree offers a thesis and non-thesis option. The program promotes a greater depth of understanding of applied technology and management. It provides opportunities to develop special research and application skills directly related to individual competencies, needs, and objectives.

This major requires as a prerequisite a bachelor's degree with a major in engineering or technology field. Degree admission to the Master of Science in Technology requires an applicant to have:

1. Earned a minimum of 6 semester hours of college mathematics and 6 semester hours of college physics and/or chemistry and biochemistry or other science related to the major area (this may be either graduate or undergraduate credit)
2. Earned a minimum of 15 semester hours in a major technical field and 8 semester hours in supporting technical subjects;
3. Department application;
4. Online Application for Graduate Study;
5. TOEFL score of 550 (paper-based) or 79 iBT;
6. Three professional references; and
7. A minimum cumulative undergraduate grade point average of 3.00.

Only graduate courses (course numbers 5000 or above) will apply to a graduate program, even if the undergraduate course number (4999 or less) is listed. No exceptions will be made.

For both the thesis and non-thesis options, the Master of Science Technology degree program requires a minimum of 33 semester hours. A minimum of 15 hours of 200/600-level course work is required for this degree program. For the thesis option, students must defend and present their research thesis to their committee members and the public.
The Doctor of Industrial Technology (D.I.T.) degree program is intended to prepare graduates for one or more of the following professional careers:

1. Faculty, supervisors, and consultants of applied engineering or technology, trade and industrial education, technical institute education and technology education in secondary schools, colleges and universities.

2. Researchers and project coordinators, technology transfer specialists, technology forecasters and assessors of technology for industrial policy planning and decision making.

3. Academic leaders (e.g., deans, department heads, or directors) of technology-oriented programs at postsecondary institutions.

4. Researchers and research coordinators for education and industry in specific content fields of technology.

5. Designers, coordinators and directors of applied/engineering and/ or industrial training or human resource programs, and related industrial applications.

The Doctor of Industrial Technology degree program requires a **minimum of 60 semester hours of credit completed beyond the master's degree**, including a **minimum of 38 hours in 200/6000-level or 300/7000-level course work**. Courses taken for the Master's degree cannot be repeated for the doctoral degree unless the course description allows it.

It is the student's responsibility to be familiar with all degree program requirements and take the initiative in meeting established guidelines. This information may be obtained from the Graduate Programs Coordinator in the Department of Technology.

Students interested in this program must submit a completed Application for Admission to Graduate Study and should refer to their MyUNIverse Student Center To-Do list or contact the Department of Technology for other application requirements. Graduate information and application for graduate admission can be found at [www.grad.uni.edu/admission](http://www.grad.uni.edu/admission). For requirements concerning admission, candidacy, scholarship, residence, examinations, dissertation, and graduation for the Doctor of Industrial Technology refer to [www.uni.edu/tech/DIT](http://www.uni.edu/tech/DIT) and the Graduate Information section of this catalog.

The Graduate Record Examination (General Test) is required for admission to the program. The minimum GRE scores for a full admission status must rank as the 30th percentile in verbal, the 30th percentile in analytical writing, and the 50th percentile in quantitative sections.

**Required core: 18**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>TECH 6282</td>
<td>Technology Seminar (Three 1 credit hour course)</td>
<td>3</td>
</tr>
<tr>
<td>TECH 6296</td>
<td>Research Design in Technology</td>
<td>3</td>
</tr>
<tr>
<td>TECH 7375</td>
<td>Historical and Contemporary Issues in Technology</td>
<td>3</td>
</tr>
<tr>
<td>TECH 7377</td>
<td>Technology and Societal Trends: Case Studies</td>
<td>3</td>
</tr>
<tr>
<td>TECH 7378</td>
<td>Technology, Ethics and Leadership</td>
<td>3</td>
</tr>
<tr>
<td>PSYCH 6001</td>
<td>Advanced Statistics</td>
<td>3</td>
</tr>
</tbody>
</table>

The D.I.T. program emphasizes the development of a thorough knowledge of:

1. Industrial technology as an intellectual discipline,
2. The technological systems used in industry and their effect on people and the environment, and
3. The potential and limitations of future developments in technological systems and their utilization in industry
4. the intellectual tools necessary to pursue scholarly research and applied practices in the field of industrial technology and applied engineering.

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### Required core courses:

**Technology Management**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>TECH 6100</td>
<td>Engineering Cost Analysis</td>
<td>3</td>
</tr>
<tr>
<td>TECH 6225 (330:225)</td>
<td>Integrated Logistics and Production Operations</td>
<td>3</td>
</tr>
<tr>
<td>TECH 6250 (330:250)</td>
<td>Technology of Productivity Improvement</td>
<td>3</td>
</tr>
<tr>
<td>TECH 6258 (330:258)</td>
<td>Total Quality Management</td>
<td>3</td>
</tr>
<tr>
<td>TECH 6275 (330:275)</td>
<td>Advanced Lean Manufacturing</td>
<td>3</td>
</tr>
<tr>
<td>TECH 6295 (330:295)</td>
<td>Advanced Management and Supervision Technology</td>
<td>3</td>
</tr>
<tr>
<td>TECH 6300</td>
<td>Advanced Technical Project Management for Engineering and Technology</td>
<td>3</td>
</tr>
</tbody>
</table>

**Choose from one of following options:**

**A. Non-Thesis Option**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>TECH 6288 (330:288)</td>
<td>Master Internship/Project</td>
<td>3</td>
</tr>
</tbody>
</table>

Supporting approved graduate elective course in Technology. A minimum of 9 graduate credit hours from 5000 or 6000 level courses should be taken in the department of Technology.

**B. Thesis Option**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>TECH 6292 (330:292)</td>
<td>Research Methods in Technology</td>
<td>3</td>
</tr>
<tr>
<td>TECH 6299 (330:299)</td>
<td>Research (Master's Thesis)</td>
<td>6</td>
</tr>
<tr>
<td>PSYCH 6001 (400:239)</td>
<td>Advanced Statistics (Or any 5000/6000 statistics course )</td>
<td>3</td>
</tr>
</tbody>
</table>

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**Doctor of Industrial Technology Degree Program**

The Doctor of Industrial Technology (D.I.T.) degree is designed to develop scholars in the fields of education and industry. The University of Northern Iowa offers the D.I.T. degree to meet the increasing need for advanced degree work in the field of Technology, which includes, but is not limited to, technology, applied engineering, trade and industrial education, technical institute education, industrial training, and technology transfer. This research-oriented terminal degree program also includes the study of the technological systems used in industry and their effect on society and culture.

The D.I.T. program emphasizes the development of a thorough knowledge of:

1. Industrial technology as an intellectual discipline,
2. The technological systems used in industry and their effect on people and the environment, and
3. The potential and limitations of future developments in technological systems and their utilization in industry
4. the intellectual tools necessary to pursue scholarly research and applied practices in the field of industrial technology and applied engineering.
Department of Technology

or STAT 3771/5771 Applied Statistical Methods for Research (800:121g)
or STAT 4777/5777 Statistical Quality Assurance Methods (800:157g)

Required Technical Elective Courses 9
A minimum of 9 credit hours from 6000 or 7000 level courses should be taken in the department of Technology related to the student’s career goals and competencies that are related to the student’s dissertation. Students cannot receive credit for the same courses that they took for the Master's program.

Supporting Course Work 15
The supporting course work can be taken from any discipline at the university (including the technology department) as long as it relates to the career goals and competencies. Students cannot receive credit for the same courses that they took for the Master’s program.

D.T. Internship: 6
TECH 7388 Doctoral Internship (330:388)

D.T. Dissertation: 12
TECH 7399 Research (Doctoral Dissertation) (330:399)

Total Hours 60

Program Certificates
The University of Northern Iowa makes available, in addition to traditional programs, the opportunity for students to earn program certificates. Program certificates provide an alternative to programs leading to a degree, a major, or a minor; they certify that an individual has completed a program approved by the university. For information on the following certificates, contact the Department of Technology or the Office of the Registrar, which serves as the centralized registry.

Technology Management Certificate (undergraduate)
Required:

<table>
<thead>
<tr>
<th>Technology:</th>
<th>18</th>
</tr>
</thead>
<tbody>
<tr>
<td>TECH 1065 (330:065)</td>
<td>Technology in Society and Organizations</td>
</tr>
<tr>
<td>TECH 3131/5131 (330:131g)</td>
<td>Technical Project Management</td>
</tr>
<tr>
<td>TECH 3142 (330:142)</td>
<td>Statistical Quality Control</td>
</tr>
<tr>
<td>TECH 3143</td>
<td>Managing Operations and Manufacturing Systems</td>
</tr>
<tr>
<td>TECH 3196 (330:196)</td>
<td>Industrial Safety</td>
</tr>
<tr>
<td>TECH 4187/5187 (330:187g)</td>
<td>Applied Industrial Supervision and Management</td>
</tr>
</tbody>
</table>

Total Hours 18

* TECH 3142 (330:142) and TECH 3143 have prerequisites of MATH 1140 (800:046) Precalculus or MATH 1150 (800:048) Calculus for Technology or MATH 1420 (800:060) Calculus I or STAT 1772 (800:072) Introduction to Statistical Methods.