

# Manufacturing Engineering Technology

- Bachelor of Science (B.S.)
- Program Curriculum



## Mathematics/Science coursework **12 cr.**

CHEM 1020 - Chemical Technology <b>or</b>	4 cr.
CHEM 1110 - General Chemistry	
• course also satisfies UNIFI Scientific Reasoning requirement.	
MATH 1150 - Calculus for Technology <b>or</b>	4 cr.
MATH 1420 - Calculus I	
PHYSICS 1511 - General Physics I	4 cr.
• course also satisfies UNIFI Scientific Reasoning requirement.	

## Technical Core **57 cr.**

TECH 1008 - Basic Manufacturing Processes	3 cr.
TECH 1010 - Metal Removal Processes	3 cr.
TECH 1024 - Technical Drawing & Design I	3 cr.
TECH 2024 - Technical Drawing & Design II	3 cr.
TECH 2060 - Fundamentals of Automated Manufacturing	3 cr.
TECH 2072 - Engineering Materials	3 cr.
TECH 2080 - Statics & Strengths of Materials	3 cr.
TECH 3113 - Manufacturing Tooling	3 cr.
TECH 3127 - Transport Phenomena for Technologists	3 cr.
TECH 3142 - Statistical Quality Control	3 cr.
TECH 3143 - Managing Operations & Manuf. Systems <b>or</b>	3 cr.
TECH 3180 - Lean & Sustainable Operations	
TECH 4110 - Manufacturing Process Planning	3 cr.
TECH 4162 - Automation - Pneumatics & Hydraulics	3 cr.
TECH 4187 - Applied Industrial Supervision & Management	3 cr.
TECH 4210 - Manufacturing Senior Projects	3 cr.
ENGLISH 3772 - Technical Writing for Eng. Technologists	3 cr.
Emphasis Area (select one group of courses below)	9 cr.

## Advanced Manufacturing emphasis

TECH 3024 - Solid Modeling & Additive Manuf. for Design	3 cr.
TECH 3147 - Computer-Aided Manufacturing	3 cr.
TECH 3177 - Advanced Manufacturing Processes	3 cr.

## Design emphasis

TECH 3024 - Solid Modeling & Additive Manuf. for Design	3 cr.
TECH 3135 - Product Design	3 cr.
TECH 3148 - Machine Design	3 cr.

## Metal Casting emphasis

TECH 3134 - Molding Practices in Metal Casting	3 cr.
TECH 4136 - Melting Metallurgy & Practices	3 cr.
TECH 4137 - Tooling Practices in Metal Casting	3 cr.

## UNI Foundational Inquiry **37 cr.**

Written Communications	3 cr.
Oral Communications	3 cr.
Quantitative Reasoning	3 cr.
Human Condition (Domestic)	3 cr.
Human Condition (Global)	3 cr.
Scientific Reasoning	4 cr.
• requirement completed with PHYSICS 1511.	
Human Expression	3 cr.
Responsibility	3 cr.
UNIFI Elective	3 cr.
• requirement completed with CHEM 1020.	
UNIFI Elective	3 cr.
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Inspired by the University of Northern Iowa mission to engage students in high-quality and high-impact learning experiences within a challenging and supportive environment, UNI's new general education requirements are designed to ensure that students' foundational learning experiences lead to a lifetime full of potential. For more information, visit [unifi.uni.edu](http://unifi.uni.edu).

## Credit Totals

Math/Science coursework	12 cr.
Technical Core coursework	57 cr.
UNI Foundational Inquiry (UNIFI)	37 cr.
Credits counted twice (major & UNIFI)	-7 cr.
<b>Total</b>	<b>99 cr.</b>
University Electives needed	21 cr.
<b>Grand Total</b>	<b>120 cr.</b>

## Department of Applied Engineering & Technical Management

University of Northern Iowa  
 25 Industrial Technology Center  
 Cedar Falls, IA 50614-0178  
 Phone: (319) 273-2561 | E-mail: [appliedengineering@uni.edu](mailto:appliedengineering@uni.edu)

## Important ALEKS Test Information

The ALEKS test is a math placement test that all UNI students must complete prior to enrolling in certain math & science courses. Below are the scores required for the math & science requirements in this program:

- PHYSICS 1511: 45
- STAT 1772: 50
- MATH 1150: 61

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## Example course sequence for *first-year, freshmen* students

<p><b>Fall 1</b></p> UNIFI Written Communication course 3 cr. PHYSICS 1511 - General Physics I 4 cr. TECH 1008 - Basic Manufacturing Processes <sup>FO</sup> 3 cr. TECH 1024 - Technical Drawing & Design I <sup>FO</sup> 3 cr. University elective course 3 cr. <b>Total: 16 cr.</b>	<p><b>Spring 1</b></p> UNIFI Oral Communication course 3 cr. MATH 1150 - Calculus for Technology <sup>SO</sup> 4 cr. TECH 1010 - Metal Removal Processes <sup>SO</sup> 3 cr. TECH 2024 - Technical Drawing & Design II <sup>SO</sup> 3 cr. University elective course 3 cr. <b>Total: 16 cr.</b>
<p><b>Fall 2</b></p> UNIFI Human Condition (Domestic) course 3 cr. CHEM 1020 - Chemical Technology 4 cr. TECH 2060 - Fundamentals of Automated Manufacturing <sup>FO</sup> 3 cr. TECH 2080 - Statics & Strengths of Materials <sup>^</sup> 3 cr. University elective course 3 cr. <b>Total: 16 cr.</b>	<p><b>Spring 2</b></p> UNIFI Quantitative Reasoning course 3 cr. UNIFI Human Expression course 3 cr. TECH 2072 - Engineering Materials <sup>SO</sup> 3 cr. University elective course 3 cr. University elective course 3 cr. <b>Total: 15 cr.</b>
<p><b>Fall 3</b></p> UNIFI Human Condition (Global) course 3 cr. TECH 3142 - Statistical Quality Control <sup>^</sup> 3 cr. ENGLISH 3772 - Technical Writing for Engineering Technologists <sup>^</sup> 3 cr. MET emphasis course <sup>^</sup> 3 cr. University elective course 3 cr. <b>Total: 15 cr.</b>	<p><b>Spring 3</b></p> UNIFI Responsibility course 3 cr. TECH 3113 - Manufacturing Tooling <sup>SO</sup> 3 cr. TECH 3127 - Transport Phenomena for Technologists <sup>SO</sup> 3 cr. TECH 3143 - Managing Operations & Manufacturing Systems <sup>^</sup> 3 cr. MET emphasis course <sup>^</sup> 3 cr. <b>Total: 15 cr.</b>
<p><b>Fall 4</b></p> UNIFI elective course 3 cr. UNIFI elective course 3 cr. TECH 4110 - Manufacturing Process Planning <sup>FO</sup> 3 cr. TECH 4162 - Automation-Pneumatics & Hydraulics <sup>FO</sup> 3 cr. University elective course 3 cr. <b>Total: 15 cr.</b>	<p><b>Spring 4</b></p> UNIFI elective course 3 cr. TECH 4187 - Applied Industrial Supervision & Management 3 cr. TECH 4210 - Manufacturing Senior Projects <sup>^</sup> 3 cr. MET emphasis course <sup>^</sup> 3 cr. <b>Total: 12 cr.</b>

## Example course sequence for *transfer students with an A.A. or A.S. degree*

<p><b>Fall 1</b></p> CHEM 1020 - Chemical Technology 4 cr. PHYSICS 1511 - General Physics I 4 cr. TECH 1008 - Basic Manufacturing Processes <sup>FO</sup> 3 cr. TECH 1024 - Technical Drawing & Design I <sup>FO</sup> 3 cr. <b>Total: 14 cr.</b>	<p><b>Spring 1</b></p> MATH 1150 - Calculus for Technology <sup>SO</sup> 4 cr. TECH 1010 - Metal Removal Processes <sup>SO</sup> 3 cr. TECH 2024 - Technical Drawing & Design II <sup>SO</sup> 3 cr. TECH 2072 - Engineering Materials <sup>SO</sup> 3 cr. TECH 4187 - Applied Industrial Supervision & Management 3 cr. <b>Total: 16 cr.</b>
<p><b>Fall 2</b></p> TECH 2060 - Fundamentals of Automated Manufacturing <sup>FO</sup> 3 cr. TECH 3142 - Statistical Quality Control <sup>^</sup> 3 cr. TECH 3143 - Managing Operations & Manufacturing Systems <sup>^</sup> 3 cr. ENGLISH 3772 - Technical Writing for Engineering Technologists <sup>^</sup> 3 cr. MET emphasis course <sup>^</sup> 3 cr. <b>Total: 15 cr.</b>	<p><b>Spring 2</b></p> TECH 2080 - Statics & Strengths of Materials <sup>^</sup> 3 cr. TECH 3113 - Manufacturing Tooling <sup>SO</sup> 3 cr. TECH 3127 - Transport Phenomena for Technologists <sup>SO</sup> 3 cr. MET emphasis course <sup>^</sup> 3 cr. MET emphasis course <sup>^</sup> 3 cr. <b>Total: 15 cr.</b>
<p><b>Fall 3</b></p> TECH 4110 - Manufacturing Process Planning <sup>FO</sup> 3 cr. TECH 4162 - Automation-Pneumatics & Hydraulics <sup>FO</sup> 3 cr. TECH 4210 - Manufacturing Senior Projects <sup>^</sup> 3 cr. MET emphasis course <sup>^</sup> 3 cr. <b>Total: 12 cr.</b>	

### Legend

<sup>^</sup> - course requires a prerequisite.  
<sup>%</sup> - course requires a co-requisite.  
<sup>FO</sup> - course is only offered in the fall.  
<sup>SO</sup> - course is only offered in the spring.

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