

# Automation Engineering Technology

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



## Mathematics/Science coursework **14 cr.**

CS 1160 - C/C++ Programming	3 cr.
MATH 1150 - Calculus for Technology	4 cr.
PHYSICS 1511 - General Physics I	4 cr.
• course also satisfies UNIFI Scientific Reasoning requirement.	
STAT 1772 - Introduction to Statistical Methods	3 cr.
• course also satisfies UNIFI Quantitative Reasoning requirement.	

## Technical Core **54 cr.**

ENGR 1000 - Intro. to Engineering & Professional Practices	3 cr.
PHIL 1560 - Science, Technology & Ethics	3 cr.
• course also satisfies UNIFI Responsibility requirement.	
TECH 1010 - Fundamentals of Metal Removal	3 cr.
TECH 1024 - Engineering Design with CAD	3 cr.
TECH 1037 - Introduction to Circuits	3 cr.
TECH 1039 - Circuits & Systems	3 cr.
TECH 2053 - Digital Electronics	4 cr.
TECH 2055 - Electrical Power Systems & Machinery	4 cr.
TECH 2065 - Industrial Robotics	3 cr.
ENGR 2080 - Statics	2 cr.
ENGR 2180 - Strengths of Materials	2 cr.
TECH 3147 - Computer-Aided Manufacturing	3 cr.
TECH 3148 - Machine Design	3 cr.
TECH 3160 - Computer-Aided Instrumentation & Interfacing	3 cr.
TECH 3164 - Programmable Logic Controllers (PLCs)	3 cr.
TECH 4162 - Hydraulics & Pneumatics	3 cr.
ENGR 4500 - Senior Design	3 cr.
ENGLISH 3772 - Tech. Writing for Eng. Technologists	3 cr.

## Technical Electives (students must choose 9-10 credits)

TECH 1008 - Basic Manufacturing Processes	3 cr.
TECH 2024 - Technical Drawing with GD&T	3 cr.
TECH 2051 - Analog Electronics	4 cr.
TECH 2072 - Engineering Materials	3 cr.
TECH 2114 - Making Cool Stuff	3 cr.
TECH 2119 - Computer Applications in Technology	3 cr.
TECH 3113 - Manufacturing Tooling	3 cr.
TECH 3129 - Linear Control Systems	3 cr.
TECH 3131 - Technical Project Management	3 cr.
TECH 3142 - Statistical Quality Control	3 cr.
TECH 3143 - Managing Operations & Manuf. Systems	3 cr.
TECH 3157 - Microcontroller Applications	3 cr.
TECH 3179 - Cooperative Education	3 cr.
TECH 3196 - Industrial Safety	3 cr.
TECH 4103 - Electronic Communications	3 cr.
TECH 4104 - Applied Digital Signal Processing	3 cr.
TECH 4165 - Wireless Communication Networks	3 cr.
TECH 4167 - Power Electronics Applications	3 cr.

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

Written Communications	3 cr.
Oral Communications	3 cr.
Quantitative Reasoning	3 cr.
• requirement completed with STAT 1772.	
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.
• requirement completed with PHIL 1560.	
UNIFI Elective	3 cr.
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	14 cr.
Technical Core coursework	54 cr.
Technical electives	9 cr.
UNI Foundational Inquiry (UNIFI)	37 cr.
<u>Credits counted twice (major &amp; UNIFI)</u>	<u>-10 cr.</u>
<b>Total</b>	<b>104 cr.</b>
University Electives needed	16 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

<b>Fall 1</b> UNIFI Written Communication course 3 cr. UNIFI elective course 3 cr. ENGR 1000 - Intro. to Engineering & Professional Practices <sup>FO</sup> 3 cr. PHYSICS 1511 - General Physics I 4 cr. TECH 1024 - Engineering Design with CAD <sup>FO</sup> 3 cr. <b>Total: 16 cr.</b>	<b>Spring 1</b> UNIFI Oral Communication course 3 cr. CS 1160 - C/C+ Programming 3 cr. PHIL 1560 - Science, Technology & Ethics 3 cr. MATH 1150 - Calculus for Technology <sup>SO</sup> 4 cr. TECH 1010 - Fundamentals of Metal Removal <sup>SO</sup> 3 cr. <b>Total: 16 cr.</b>
<b>Fall 2</b> UNIFI Human Condition (Domestic) course 3 cr. UNIFI elective course 3 cr. TECH 1037 - Introduction to Circuits <sup>FO</sup> 3 cr. TECH 2065 - Industrial Robotics <sup>FO</sup> 3 cr. ENGR 2080 - Statics <sup>^</sup> 2 cr. <b>Total: 14 cr.</b>	<b>Spring 2</b> UNIFI Human Expression course 3 cr. STAT 1772 - Introduction to Statistical Methods 3 cr. TECH 1039 - Circuits & Systems <sup>SO</sup> 3 cr. ENGR 2180 - Strengths of Materials <sup>^</sup> 2 cr. University elective course 3 cr. <b>Total: 14 cr.</b>
<b>Fall 3</b> UNIFI Human Condition (Global) course 3 cr. TECH 2053 - Digital Electronics <sup>FO</sup> 4 cr. TECH 3148 - Machine Design <sup>FO</sup> 3 cr. ENGLISH 3772 - Technical Writing for Engineering Technologists <sup>^</sup> 3 cr. University elective 3 cr. <b>Total: 16 cr.</b>	<b>Spring 3</b> TECH 2055 - Electrical Power Systems & Machinery <sup>SO</sup> 4 cr. TECH 3147 - Computer-Aided Manufacturing <sup>SO</sup> 3 cr. TECH 3160 - Computer-Aided Instrumentation & Interfacing <sup>SO</sup> 3 cr. TECH 3164 - Programmable Logic Controllers (PLCs) <sup>SO</sup> 3 cr. Technical elective course 3 cr. <b>Total: 16 cr.</b>
<b>Fall 4</b> UNIFI elective course 3 cr. TECH 4162 - Hydraulics & Pneumatics <sup>FO</sup> 3 cr. Technical elective course 3 cr. Technical elective course 3 cr. University elective course 3 cr. <b>Total: 15 cr.</b>	<b>Spring 4</b> UNIFI elective course 3 cr. ENGR 4500 - Senior Design <sup>^</sup> 3 cr. University elective course 3 cr. University elective course 3 cr. University elective course 1 cr. <b>Total: 13 cr.</b>

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

<b>Fall 1</b> ENGR 1000 - Intro. to Engineering & Professional Practices <sup>FO</sup> 3 cr. PHYSICS 1511 - General Physics I 4 cr. TECH 1024 - Engineering Design with CAD <sup>FO</sup> 3 cr. TECH 1037 - Introduction to Circuits <sup>FO</sup> 3 cr. Technical elective course 3 cr. <b>Total: 16 cr.</b>	<b>Spring 1</b> CS 1160 - C/C+ Programming 3 cr. MATH 1150 - Calculus for Technology <sup>SO</sup> 4 cr. PHIL 1560 - Science, Technology & Ethics 3 cr. TECH 1010 - Fundamentals of Metal Removal <sup>SO</sup> 3 cr. TECH 1039 - Circuits & Systems <sup>SO</sup> 3 cr. <b>Total: 16 cr.</b>
<b>Fall 2</b> STAT 1772 - Introduction to Statistical Methods 3 cr. TECH 2053 - Digital Electronics <sup>FO</sup> 4 cr. TECH 2065 - Industrial Robotics <sup>FO</sup> 3 cr. ENGR 2080 - Statics <sup>^</sup> 2 cr. ENGLISH 3772 - Technical Writing for Engineering Technologists <sup>^</sup> 3 cr. <b>Total: 15 cr.</b>	<b>Spring 2</b> TECH 2055 - Electrical Power Systems & Machinery <sup>SO</sup> 4 cr. ENGR 2180 - Strengths of Materials <sup>^</sup> 2 cr. TECH 3147 - Computer-Aided Manufacturing <sup>SO</sup> 3 cr. TECH 3160 - Computer-Aided Instrumentation & Interfacing <sup>SO</sup> 3 cr. TECH 3164 - Programmable Logic Controllers (PLCs) <sup>SO</sup> 3 cr. <b>Total: 15 cr.</b>
<b>Fall 3</b> TECH 3148 - Machine Design <sup>FO</sup> 3 cr. TECH 4162 - Hydraulics & Pneumatics <sup>FO</sup> 3 cr. ENGR 4500 - Senior Design <sup>^</sup> 3 cr. Technical elective course 3 cr. Technical elective course 3 cr. <b>Total: 15 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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