Automation Engineering Technology

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

University of Northern Iowa

Mathematics/Science coursework — 15 cr.

CS 1160 - C/C++ Programming	4 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 — 45 cr.

TECH 1010 - Metal Removal Processes	3 cr.
TECH 1024 - Technical Drawing & Design I	3 cr.
TECH 1037 - Introduction to Circuits	3 cr.
TECH 1039 - Circuits & Systems	3 cr.
TECH 2038 - Introduction to Electrical Power & Machinery	3 cr.
TECH 2042 - Introduction to Digital Electronics	3 cr.
TECH 2060 - Fundamentals of Automated Manufacturing	3 cr.
TECH 2080 - Statics & Strengths of Materials	3 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	3 cr.
TECH 4162 - Automation-Hydraulics & Pneumatics	3 cr.
TECH 4210 - Manufacturing Senior Projects ***or*** TECH 4220 - Senior Design	3 cr.
ENGLISH 3772 - Tech. Writing for Engineering Technologists	3 cr.

Technical Electives (students must choose 15 credits)

TECH 1008 - Basic Manufacturing Processes	3 cr.
TECH 2024 - Technical Drawing & Design II	3 cr.
TECH 2119 - Computer Applications in Technology	3 cr.
TECH 2041 - Intro to Analog Electronics	3 cr.
TECH 2072 - Engineering Materials	3 cr.
TECH 3113 - Manufacturing Tooling	3 cr.
TECH 3129 - Linear Control Systems	3 cr.
TECH 3142 - Statistical Quality Control	3 cr.
TECH 3143 - Managing Operations & Manuf. Systems	3 cr.
TECH 3152 - Advanced Analog Electronics	3 cr.
TECH 3156 - Advanced Digital Electronics	3 cr.
TECH 3157 - Microcontroller Applications	3 cr.
TECH 3166 - Advanced Electrical Power Systems	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.**
UNIFI Elective	**3 cr.**
UNIFI Elective	**3 cr.**
UNIFI Elective	**3 cr.**
UNIFI Elective	**3 cr.**

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**.

Credit Totals

Math/Science coursework	15 cr.
Technical Core coursework	45 cr.
Technical electives	15 cr.
UNI Foundational Inquiry (UNIFI)	37 cr.
Credits counted twice (major & UNIFI)	-7 cr.
Total	**105 cr.**
University Electives needed	15 cr.
Grand Total	**120 cr.**

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

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

Automation Engineering Technology

- Bachelor of Science (B.S.)
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University of Northern Iowa

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

Fall 1		**Spring 1**	
UNIFI Written Communication course	3 cr.	UNIFI Oral Communication course	3 cr.
UNIFI elective course	3 cr.	UNIFI elective course	3 cr.
PHYSICS 1511 - General Physics I	4 cr.	MATH 1150 - Calculus for Technology[SO]	4 cr.
TECH 1024 - Technical Drawing & Design I[FO]	3 cr.	TECH 1010 - Metal Removal Processes[SO]	3 cr.
University elective course	3 cr.	University elective course	1 cr.
	Total: 16 cr.		***Total: 14 cr.***
Fall 2		**Spring 2**	
UNIFI Human Condition (Domestic) course	3 cr.	UNIFI Human Expression course	3 cr.
CS 1160 - C/C+ Programming	3 cr.	STAT 1772 - Introduction to Statistical Methods	3 cr.
TECH 1037 - Introduction to Circuits[FO]	3 cr.	TECH 1039 - Circuits & Systems^[SO]	3 cr.
TECH 2060 - Fundamentals of Automated Manufacturing[FO]	3 cr.	TECH 2080 - Statics & Strengths of Materials^	3 cr.
University elective course	3 cr.	University elective course	3 cr.
	Total: 15 cr.		***Total: 15 cr.***
Fall 3		**Spring 3**	
UNIFI Human Condition (Global) course	3 cr.	UNIFI Responsibility course	3 cr.
TECH 2038 - Introduction to Electrical Power & Machinery^[FO]	3 cr.	TECH 3147 - Computer-Aided Manufacturing^[SO]	3 cr.
TECH 2042 - Introduction to Digital Electronics^[FO]	3 cr.	TECH 3160 - Computer-Aided Instrumentation & Interfacing^[SO]	3 cr.
TECH 3148 - Machine Design^[FO]	3 cr.	TECH 3164 - Programmable Logic Controllers[SO]	3 cr.
ENGLISH 3772 - Technical Writing for Engineering Technologists^	3 cr.	Technical elective course	3 cr.
	Total: 15 cr.		***Total: 15 cr.***
Fall 4		**Spring 4**	
UNIFI elective course	3 cr.	UNIFI elective course	3 cr.
TECH 4162 - Automation-Pneumatics & Hydraulics^[FO]	3 cr.	TECH 4220 - Senior Design^	3 cr.
Technical elective course	3 cr.	Technical elective course	3 cr.
Technical elective course	3 cr.	Technical elective course	3 cr.
University elective course	3 cr.	University elective course	3 cr.
	Total: 15 cr.		***Total: 15 cr.***

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

Fall 1		**Spring 1**	
PHYSICS 1511 - General Physics I	4 cr.	MATH 1150 - Calculus for Technology[SO]	4 cr.
TECH 1024 - Technical Drawing & Design I[FO]	3 cr.	TECH 1010 - Metal Removal Processes[SO]	3 cr.
TECH 1037 - Introduction to Circuits[FO]	3 cr.	TECH 1039 - Circuits & Systems^[SO]	3 cr.
TECH 2060 - Fundamentals of Automated Manufacturing[FO]	3 cr.	ENGLISH 3772 - Technical Writing for Engineering Technologists^	3 cr.
Technical elective course	3 cr.	Technical elective course	3 cr.
	Total: 16 cr.		***Total: 16 cr.***
Fall 2		**Spring 2**	
CS 1160 - C/C+ Programming	3 cr.	STAT 1772 - Introduction to Statistical Methods	3 cr.
TECH 2038 - Introduction to Electrical Power & Machinery^[FO]	3 cr.	TECH 3147 - Computer-Aided Manufacturing^[SO]	3 cr.
TECH 2041 - Introduction to Analog Electronics^[FO]	3 cr.	TECH 3160 - Computer-Aided Instrumentation & Interfacing^[SO]	3 cr.
TECH 2080 - Statics & Strengths of Materials^	3 cr.	TECH 3164 - Programmable Logic Controllers[SO]	3 cr.
Technical elective course	3 cr.	Technical elective course	3 cr.
	Total: 15 cr.		***Total: 12 cr.***
Fall 3			
TECH 3148 - Machine Design^[FO]	3 cr.		
TECH 4162 - Automation-Pneumatics & Hydraulics^[FO]	3 cr.		
TECH 4220 - Senior Design^	3 cr.		
Technical elective course	3 cr.		
	Total: 12 cr.		

Legend
^ - course requires a prerequisite.
% - course requires a co-requisite.
[FO] - course is only offered in the fall.
[SO] - course is only offered in the spring.

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