Automation Engineering Technology

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

UNI University of Northern Iowa

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 Practice	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 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**.

Credit Totals

Math/Science coursework	14 cr.
Technical Core coursework	54 cr.
Technical electives	9 cr.
UNI Foundational Inquiry (UNIFI)	37 cr.
Credits counted twice (major & UNIFI)	-10 cr.
Total	**104 cr.**
University Electives needed	16 cr.
Grand Total	**120 cr.**

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

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

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