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	21 cr.
Grand Total	**126 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.)
- Program Curriculum

University of Northern Iowa

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

Students **MUST** complete the **ALEKS test** before proceeding with Math/Science coursework

Fall 1 (16 cred.)	UNIFI Written Communications	UNIFI Elective	TECH 1024: Technical Drawing & Design I	PHYSICS 1511: General Physics I	University elective
Spring 1 (16 cred.)	UNIFI Oral Communications	UNIFI Elective	TECH 1010: Metal Removal Processes *offered SPRING only*	MATH 1150: Calculus for Technology *offered SPRING only*	University elective
Fall 2 (16 cred.)	UNIFI Human Condition (Domestic)	TECH 1037: Intro to Circuits *offered FALL only*	TECH 2060: Fundamentals of Automated Manufacturing *offered FALL only*	CS 1160: C/C++ Programming	University elective
Spring 2 (18 cred.)	UNIFI Human Expression	TECH 1039: Circuits & Systems *offered SPRING only*	STAT 1772: Intro to Statistical Methods	TECH 2080: Statics & Strengths of Materials	University elective (x2)
Fall 3 (15 cred.)	UNIFI Human Condition (Global)	TECH 2038: Intro to Electrical Power & Machinery *offered FALL only*	TECH 2042: Intro to Digital Electronics *offered FALL only*	TECH 3148: Machine Design *offered FALL only*	ENGLISH 3772: Technical Writing for Engineering Technologists
Spring 3 (15 cred.)	UNIFI Responsibility	TECH 3147: Computer-Aided Manufacturing *offered SPRING only*	TECH 3160: Computer-Aided Instrumentation & Interfacing *offered SPRING only*	TECH 3164: Programmable Logic Controllers *offered SPRING only*	Technical elective
Fall 4 (15 cred.)	UNIFI Elective	TECH 4162: Automation - Hydraulics & Pnuematics *offered FALL only*	Technical elective	Technical elective	University elective
Spring 4 (15 cred.)	UNIFI Elective	TECH 4220: Senior Design *offered SPRING only*	Technical elective	Technical elective	University elective

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

Students **MUST** complete the **ALEKS test** before proceeding with Math/Science coursework

Fall 1 (16 cred.)	TECH 1024: Technical Drawing & Design I	TECH 1037: Intro to Circuits *offered FALL only*	TECH 2060: Fundamentals of Automated Manufacturing *offered FALL only*	PHYSICS 1511: General Physics I	Technical elective
Spring 1 (16 cred.)	TECH 1010: Metal Removal Processes *offered SPRING only*	TECH 1039: Circuits & Systems *offered SPRING only*	MATH 1150: Calculus for Technology *offered SPRING only*	ENGLISH 3772: Technical Writing for Engineering Technologists	Technical elective
Fall 2 (16 cred.)	TECH 2038: Intro to Electrical Power & Machinery *offered FALL only*	TECH 2042: Intro to Digital Electronics *offered FALL only*	Technical elective	TECH 2080: Statics & Strengths of Materials	CS 1160: C/C++ Programming
Spring 2 (15 cred.)	TECH 3147: Computer-Aided Manufacturing *offered SPRING only*	TECH 3160: Computer-Aided Instrumentation & Interfacing *offered SPRING only*	TECH 4220: Senior Design *offered SPRING only*	TECH 3164: Programmable Logic Controllers *offered SPRING only*	STAT 1772: Intro to Statistical Methods
Fall 3 (12 cred.)	Technical elective	TECH 3148: Machine Design *offered FALL only*	Technical elective	TECH 4162: Automation - Hydraulics & Pnuematics *offered FALL only*	

Legend:
- UNI Foundational Inquiry
- Math/Science Coursework
- Technical Core
- Technical Electives
- University Electives
- Prerequisite
- Pre or Co-requisite

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