Engineering Technology - Automation Emphasis, B.S.

The Bachelor of Science in Engineering Technology (Emphasis in automation) serves numerous areas of industry including Aerospace, Automotive Tire, Cement, Chemical, Entertainment, Fiber Textiles, Food Beverage, Household Personal Care, Infrastructure, Life Sciences, Marine, Metals, Mining, Oil Gas, Power Generation / Transmission / Distribution, Print Publishing, Pulp Paper, Semiconductor, Packaging Delivery, and Water / Wastewater. Courses offered focus on advanced industrial automation, programmable controllers, motor drives, industrial internet of things (IIOT), industrial networks, modernized smart power systems, power protection systems, automated safety systems, energy storage, renewables, applications of power converters, smart sensors, and industrial cyber security. Graduates of this program can expect to have an exciting career path in an industry area of their choice. They will be in high demand, can expect to receive high potential earners and gain the mobility to move into various career paths within technology and management.

Program Requirements

Code	Title	Credit Hours
Total Credit Hours		**125**
Bachelor of Science Engineering Technology Requirements		**100 Credits**
Complete the Requirements		100
Emphasis Requirements		**25 Credits**
ENGT 3220	Motion Control for Engineering Technologist	3
ENGT 3225	Motion Control for Engineering Technologist Lab	1
ENGT 3250	Automated Safety Systems	2
ENGT 3255	Automated Safety Systems Lab	1
ENGT 4200	Advanced Automated Systems	3
Emphasis Electives:		15
ENGT 490R	Advanced Topics in Engineering Technology (undefined)	
MECH 3500	Industrial Robots (2)	
MECH 3505	Industrial Robots Laboratory (1)	

Core Requirements

Code	Title	Credit Hours
Total Credit Hours		**100**
General Education Requirements		**36 Credits**
ENGL 1010	Introduction to Academic Writing CC	3
or ENGH 1005	Literacies and Composition Across Contexts CC	
ENGL 2010	Intermediate Academic Writing CC	3
MATH 1050	College Algebra QL	4
PHYS 1010	Elementary Physics PP	3
Complete one of the following:		
HLTH 1100	Personal Health and Wellness TE	2
or EXSC 1097	Fitness for Life TE	
American Institution Distribution		3
Biology Distribution		3
Physical Science or Biology Distribution		3
TECH 200G	Technology and Human Life SS GI	3
Humanities Distribution		3
Fine Arts Distribution		3
PHIL 2050	Ethics and Values IH	3

Discipline Core Requirements		64 Credits
AET 1050	Electrical Math I	3
AET 1060	Electrical Math II	3
AET 1130	Introduction to Automation	2
AET 1135	Introduction to Automation Lab	1
AET 1140	Applied AC Theory	1
AET 1145	Applied AC Lab	2
AET 1150	Industrial Logic	1
AET 1155	Industrial Logic Lab	1
AET 1250	Industrial Electrical Code	2
AET 1280	Electric Motor Control	4
AET 1285	Electric Motor Control Lab	4
AET 2110	Industrial Electronics I	4
AET 2115	Industrial Electronics I Lab	2
AET 2250	Industrial Programmable Logic Controllers--PLCs	4
AET 2255	Industrial Programmable Logic Controllers--PLCs Lab	2
AET 2160	Introduction to Industrial Internet of Things	2
AET 2165	Introduction to Industrial Internet of Things Lab	1
AET 2270	Industrial Programmable Automation Controllers--PACs	2
AET 2275	Industrial Programmable Automation Controllers--PACs Lab	1
Lower Division Electives (Choose 6 Credits):		6
AET 2010	Manufacturing Technology (1)	
AET 2015	Manufacturing Technology Lab (2)	
AET 2150	Introduction to Fluid Power Systems (2)	
AET 2155	Introduction to Fluid Power Systems Lab (1)	
AET 2280	Process Control Instrumentation (2)	
AET 2285	Process Control Instrumentation Lab (1)	
AET 281R	Cooperative Work Experience (undefined)	
AET 2900	Capstone Project (3)	
AET 291R	Special Topics in Industrial Systems (3)	
AET 285R	Cooperative Correlated Class (variable)	
MECH 2300	Microcontroller Architecture and Programming (3)	
MECH 2305	Microcontroller Architecture and Programming Lab (2)	
ENGT 3100	Power Systems and Automation	3
ENGT 3010	Applied Mathematics I for Engineering Technologists	2
ENGT 3020	Applied Mathematics II for Engineering Technologists	2
ENGT 3050	Programming and Applied Analytics	3
ENGT 3130	Electrical Safety Standards	1
ENGT 3600	Capstone I Design WE	2
ENGT 4600	Capstone II WE	3

Graduation Requirements

1. Completion of a minimum of 125-semester credits, with a minimum of 40 upper-division credits.

2. Overall grade point average of 2.0 (C) or above.

3. No grade lower than a C- in any AET, ENGT core or elective course.

4. Residency hours--minimum of 30 credit hours through course attendance at UVU, with at least 10 hours earned in the last 45 hours.

5. Completion of general education (GE) and specified departmental requirements.

6. Successful completion of at least one Global/Intercultural course.

7. Successful completion of at least two Writing Enriched (WE) courses.

Graduation Plan

This graduation plan is a sample plan and is intended to be a guide. Your specific plan may differ based on your Math and English placement and/or transfer credits applied. You are encouraged to meet with an advisor and set up an individualized graduation plan in Wolverine Track (http://www.uvu.edu/wolverinetrack/).

First Year

Semester 1

		Credit Hours
AET 1050	Electrical Math I	3
AET 1130	Introduction to Automation	2
AET 1135	Introduction to Automation Lab	1
AET 1140	Applied AC Theory	1
AET 1145	Applied AC Lab	2
AET 1150	Industrial Logic	1
AET 1155	Industrial Logic Lab	1
Fine Arts Distribution		3
Complete one of the following:		2
HLTH 1100	Personal Health and Wellness TE	
or EXSC 1097	or Fitness for Life TE	
	Credit Hours	**16**

Semester 2

AET 1060	Electrical Math II	3
AET 1280	Electric Motor Control	4
AET 1285	Electric Motor Control Lab	4
AET 1250	Industrial Electrical Code	2
ENGL 1010	Introduction to Academic Writing CC	3
	Credit Hours	**16**

Second Year

Semester 3

AET 2250	Industrial Programmable Logic Controllers--PLCs	4
AET 2255	Industrial Programmable Logic Controllers--PLCs Lab	2
AET 2110	Industrial Electronics I	4
AET 2115	Industrial Electronics I Lab	2
PHYS 1010	Elementary Physics PP	3
	Credit Hours	**15**

Semester 4

AET 2160	Introduction to Industrial Internet of Things	2
AET 2165	Introduction to Industrial Internet of Things Lab	1
AET 2270	Industrial Programmable Automation Controllers--PACs	2
AET 2275	Industrial Programmable Automation Controllers--PACs Lab	1
Choose 6 Credits from the Following Options:		6
AET 2010	Manufacturing Technology	
AET 2015	Manufacturing Technology Lab	
AET 2280	Process Control Instrumentation	
AET 2285	Process Control Instrumentation Lab	
AET 281R	Cooperative Work Experience	
AET 2900	Capstone Project	
AET 291R	Special Topics in Industrial Systems	
AET 2150	Introduction to Fluid Power Systems	
AET 2155	Introduction to Fluid Power Systems Lab	
AET 285R	Cooperative Correlated Class	
MECH 2300	Microcontroller Architecture and Programming	
MECH 2305	Microcontroller Architecture and Programming Lab	
MATH 1050	College Algebra QL	4
	Credit Hours	**16**

Third Year

Semester 5

ENGT 3100	Power Systems and Automation	3
ENGT 3010	Applied Mathematics I for Engineering Technologists	2
ENGT 3050	Programming and Applied Analytics	3
ENGT 3130	Electrical Safety Standards	1
ENGT 4200	Advanced Automated Systems	3

Physical Science or Biology Distribution		3
	Credit Hours	**15**
Semester 6		
ENGT 3020	Applied Mathematics II for Engineering Technologists	2
ENGT 3250	Automated Safety Systems	2
ENGT 3255	Automated Safety Systems Lab	1
ENGT Upper Division Elective		3
ENGT Upper Division Elective		3
TECH 200G	Technology and Human Life SS GI	3
	Credit Hours	**14**
Fourth Year		
Semester 7		
ENGT 3600	Capstone I Design WE	2
ENGT 3220	Motion Control for Engineering Technologist	3
ENGT 3225	Motion Control for Engineering Technologist Lab	1
ENGT Upper Division Elective		3
ENGT Upper Division Elective		3
ENGT Upper Division Elective		3
ENGL 2010	Intermediate Academic Writing CC	3
	Credit Hours	**18**
Semester 8		
ENGT 4600	Capstone II WE	3
American Institution Distribution		3
Biology Distribution		3
Humanities Distribution		3
PHIL 2050	Ethics and Values IH	3
	Credit Hours	**15**
	Total Credit Hours	**125**

Program Learning Outcomes

1. Solve broadly-defined problems related to automation systems using modern tools of mathematics, science, engineering, and technology.
2. Design systems, components, or processes to meet specified needs of broadly-defined engineering problems related to automation systems.
3. Troubleshoot automation systems, improve processes, enhance safety of machines, and integrate various systems.
4. Analyze and interpret the results of standard tests, measurements, and experiments to improve processes.