



BS DEGREE - CODE #2882

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Mechatronics interweaves electrical, mechanical, and computer engineering technology with applications in automated industrial processes and robotics. Mechatronics professionals are the technicians and engineers who design and maintain automated equipment. Technicians and engineers conduct their work in laboratories, offices or on-site at manufacturing plants. These professionals work toward the same goal of producing safe and efficient automated equipment. While technicians primarily maintain machinery, engineers are more concerned with the design and development of components and products. A mechatronics technology graduate will design, adapt, and troubleshoot electro-mechanical systems that are controlled by programmable digital devices.

ADVANTAGES

- Combines strength in electrical and mechanical engineering technology.
- Broad background to fit many possibilities and small employers.
- Learn in laboratories outfitted with excellent electronic test equipment.
- Hands-on metal and circuit board fabrication facilities.
- Program different devices to perform electromechanical tasks.

OCCUPATIONAL OPPORTUNITIES

- Robotics Testing Technician
- Mechatronics Technician
- Industrial Robotics Mechanic
- Programmable Logic Controller Assembler
- Electromechanical Technician

Employment and continuing education rate of 100 percent:

Mechatronics technology (BS degree): 100 percent – 97 percent are employed; 3 percent continued their education.

RELATED PROGRAMS

- [Computer Engineering Technology](#)
- [Electrical Engineering Technology](#)
- [Mechanical Engineering Technology](#)

ENROLLMENT AND GRADUATION DATA

BS Degree	Enrollment (based on Fall census)
2023	13
2022	7
2021	11
	Degrees Awarded
2022-2023	1
2021-2022	2

ENTRANCE REQUIREMENTS/RECOMMENDATIONS (BS)

Required: Algebra, Geometry, Algebra 2.
Recommended: Physics

REQUIRED COURSE PREREQUISITES

If students do not place into MATH 1033 College Algebra, MATH 1084 Calculus I, MATH 1323 Quantitative Reasoning, 1034 College Algebra of Functions, 1054 Precalculus, or 2124 Statistical Methods & Analysis, then

MATH 1014 Algebra Concepts is a required prerequisite for completion of the major.

If students do not place into PHYS 1024 General Physics I or PHYS 1044 College Physics I, then PHYS 1014 Introductory Physics is a required prerequisite for completion of this major.

TECHNICAL STANDARDS

It is essential that students are able to fully participate, with or without a reasonable accommodation, in engineering technology lab and test procedures. Engineering technology students should be able to:

- Maintain ethical standards as defined by professional societies such as ASME and IEEE (non-exhaustive list)
- Appropriately use hand and power tools.
- Appropriately use test, analysis, and measurement equipment
- Maintain professional integrity in the classroom and laboratory setting
- Communicate effectively, orally and written
- Perform experiments safely in a laboratory environment
- Visually decipher lab equipment digital or analogue displays
- Understand and retain information found in equipment manuals, data sheets, and lab instructions
- Comprehend written and oral directions; act on those directions safely
- Visually identify and select hardware components
- Visually distinguish computer software user interface elements
- Interpret software outputs to analyze data
- Have sufficient dexterity to finely adjust equipment settings
- Interpret complex data tables and graphs

REQUIRED EQUIPMENT

A tier 3 laptop computer is required for students entering the mechatronics technology program. Laptop specifications are available at www.alfredstate.edu/required-laptops. Some courses may require specialized tools and/or electronic components.

OFFICE OF ACCESSIBILITY SERVICES

Students who believe they need a reasonable accommodation to properly participate in this program may contact Melanie Ryan in the Office of Accessibility Services. This office may be contacted by email at oas@alfredstate.edu or by phone at 607-587-4506. Please keep in mind that some accommodations may take time to implement, so students seeking accommodations are encouraged to contact OAS as early as possible.

Mechatronics Technology - BS Degree

TYPICAL EIGHT-SEMESTER PROGRAM

First

ELET	1133	Digital Logic	3
ELET	1111	Digital Logic Laboratory	1
COMP	1503	Writing Studies	3
MATH	1033	College Algebra	3
GLST	2113	Global & Diverse Perspectives	3
ELET	1202	Intro to Electrical Eng Tech	2
ELET	1001	Seminar	1
			16

Second

ELET	1142	Electronic Fabrication	2
MATH	2043	College Trigonometry	3
PHYS	1024	General Physics I	4
MCET	2423	Circuits Fundamentals	3
MCET	2461	Circuits Fundamentals Lab	1
MECH	4003	Solid Modeling	3
			16

Third

ELET	2103	Electronics Theory I	3
ELET	2151	Electronics Laboratory I	1
MECH	3334	Statics	4
ELET	2143	Embedded Controller Fundmntls	3
MATH	1063	Technical Calculus I	3
XXXX	xxx3	Technical Elective	3
			17

Fourth

PHYS	2023	General Physics II	3
MATH	2074	Technical Calculus II	4
XXXX	xxx3	Technical Elective	3
LITR	xxx3	Literature Elective	3
SPCH	1083	Public Speaking	3
		OR	
SPCH	xxx3	Approved Gen Ed Equivalent	3
			16

Fifth

CHEM	5013	Applied Chemical Principles	3
MECH	5334	Mechanics of Materials	4
XXXX	xxx3	Technical Elective - Upper	3
		Technical Elective - Upper	3
XXXX	xxx3	Technical Elective - Upper	3
			16

Sixth

ELET	6143	Electrical Machine and Control	3
MATH	6114	Differential Equations	4
MATH	7113	Economic Analy for Engr Tech	3
COMP	5703	Technical Writing II	3
			13

Seventh

BSET	7001	Senior Seminar & Project Des	1
MECH	7123		
PHYS	8013	Modern Physics	3
XXXX	xxx3	Technical Elective	3
XXXX	xxx3	Gen Ed/LAS Elective	3
MCET	7143	Process Controls	3
			16

Eighth

BSET	8003	Senior Technical Project	3
XXXX	xxx3	Gen Ed/LAS Elective	3
XXXX	xxx3	Gen Ed/LAS Elective	3
XXXX	xxx3	Technical Elective - Upper	3
XXXX	xxx3	Technical Elective - Upper	3
			15

If not required to take math due to placement scores, take LAS electives to complete degree requirements of LAS credits.

BS DEGREE GRADUATION REQUIREMENTS

- Completion of above courses
- 125 credit hours
- 52 upper-division credit hours
- 60 credit hours of liberal arts and sciences
- 2.0 grade point average in major courses
- 2.0 cumulative grade point average
- Approval of department faculty
- Seven of 10 General Education areas