BS DEGREE - CODE #0235

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As a mechanical engineering technology program graduate, you will be well prepared to be a mechanical engineer for the industry in engineering-related areas, including automotive component design; heating, ventilation, and air conditioning (HVAC); process and component design; mechanical systems design; energy systems; product development; and technical support and sales. You will be able to design, specify, test, analyze, and install mechanical systems. This broad content exposure occurs through the development of analytical skills and theory in the classroom and experience working with engines, complete energy systems, compressors, fans, pumps, controls, instrumentation, engineering graphics, and material testing.

ADVANTAGES

- The BS program is accredited by the Engineering Technology Accreditation Commission(s) of ABET, http://www.abet.org, under the General Criteria and the Mechanical Engineering Technology and Similarly Named Program Criteria.
- The Bachelor of Science in mechanical engineering technology is recognized as a “professional degree” that qualifies for experience/ education credit toward Professional Engineering (PE) licensure.

Program Student Learning Outcomes (PSLOs) - BS Degree

- An ability to apply knowledge, techniques, skills, and modern tools of mathematics, science, engineering, and technology to solve well-defined engineering problems appropriate to the discipline;
- An ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve broadly-defined engineering problems appropriate to the discipline;
- An ability to design solutions for well-defined technical problems and assist with the engineering design of systems, components, or processes appropriate to the discipline;
- An ability to design systems, components, or processes meeting specified needs for broadly-defined engineering problems appropriate to the discipline;
- An ability to apply written, oral, and graphical communication in well-defined technical and non-technical environments; and an ability to identify and use appropriate technical literature;
- An ability to apply written, oral, and graphical communication in broadly-defined technical and non-technical environments; and an ability to identify and use appropriate technical literature;
- An ability to conduct standard tests and measurements, and experiments and to analyze and interpret the results;
- An ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes;
- An ability to function effectively as a member of a technical team; and
- An ability to function effectively as a member as well as a leader on technical teams.

OCCUPATIONAL OPPORTUNITIES

Automotive industry	Sales and applications
HVAC & R industry	Manufacturing
Design	Engineering aide
Field service	Test technicians
Installation supervision	Process equipment
Aerospace industry	MEMS and Microfabrication
Utility companies	
Defense Industry	

EMPLOYMENT STATISTICS

Employment and continuing education rate:

Mechanical Engineering Technology (BS degree): 97 percent – 97 percent are employed.

RELATED PROGRAMS

Mechatronics Technology

ENROLLMENT AND GRADUATION DATA

BS Degree	Enrollment (based on Fall census)
2023	125
2022	112
2021	129
	Degrees Awarded
2022-2023	32
2021-2022	30
2020-2021	32

CERTIFICATION OR LICENSURE

Graduates from Alfred State’s program are allowed six years of the required 12 years of education/experience credit and are eligible to take the Fundamentals of Engineering (FE), formerly called Engineer-in-Training (EIT), examination upon graduation.

Be advised that a prior felony conviction may impede a student's ability to receive licensure.

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.

Courses that repeat or significantly overlap those taken in the student’s associate degree program cannot be taken for upper-level credit. If the associate degree covered the subject matter in one of the required baccalaureate courses, a different course must be substituted and approved by the faculty adviser.

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 mechanical engineering technology program. Laptop specifications are available at www.alfredstate.edu/required-laptops.

OFFICE OF ACCESSIBILITY SERVICES

Students who believe they need a reasonable accommodation to properly participate in this program may contact 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.

GENERAL NOTES:

Math through Technical Calculus II must be completed. Students who start at a higher level in math must meet all SUNY general education and campus liberal arts and sciences course credit requirements for graduation.

MECHANICAL ENGINEERING TECHNOLOGY - BS DEGREE

TYPICAL EIGHT-SEMESTER PROGRAM

First

MECH	1003	Intro to Mechanical Eng Tech	3
MECH	1663	Manufacturing Processes	3
COMP	1503	Writing Studies	3
MATH	1033	College Algebra	3
GLST	2113	Global & Diverse Perspectives	3
			15

Second

MECH	1203	Materials Science	3
MECH	4003	Solid Modeling	3
MECH	4523	Control System Fundamentals	3
MATH	2043	College Trigonometry	3
PHYS	1024	General Physics I	4
			16

Third

MECH	3334	Statics	4
MECH	3223	Mechanical Design Principles	3
MATH	1063	Technical Calculus I	3
PHYS	2023	General Physics II	3
SPCH	1083	Public Speaking	3
	OR		
SPCH	xxxx	Approved Gen Ed Equivalent	3
			16

Fourth

MECH	4024	Dynamics	4
MATH	2074	Technical Calculus II	4
MECH	xxx4	Tech. Elective	4
MECH	xxx4	Tech. Elective	4
			16

Fifth

MECH	7114	Applied Thermodynamics	4
MECH	5334	Mechanics of Materials	4
MECH	6334	Fluid Mechanics	4
LITR	xxx3	Literature Elective	3
CHEM	5013	Applied Chemical Principles	3
			18

Sixth

MATH	6114	Differential Equations	4
COMP	5703	Technical Writing II	3
MATH	7123	Statistics for Engr Tech & Sci	3
XXXX	xxx3	Gen Ed Elective (Per Advisement)	3
MECH	xxx3	Major Elective - Upper	3
			16

Seventh

BSET	7001	Senior Seminar & Project Des	1
MECH	7603	Heat Transfer	3
MATH	7113	Economic Analy for Engr Tech	3
MECH	xxx3	Major Elective	3
XXXX	xxx3	Gen Ed Elective	3
XXXX	xxx4	Major Elective - Upper	4
			17

Eighth

BSET	8003	Senior Technical Project	3
MECH	xxx3	Major Elective - Upper	3
XXXX	xxx3	Liberal Arts/Science Elective	3
XXXX	xxx3	Liberal Arts/Science Elective	3
			12

If not required to take MATH 1033 and MATH 2043, take LAS elective(s) to complete degree requirements.

Typical Liberal Arts/Science Electives:

HIST	1113	Hist of West Civil Since 1648	3
HIST	1143	Surv of American History I	3
HIST	2153	Surv of American History II	3
PLSC	1053	International Relations	3
PSYC	1013	General Psychology	3
FNAT	1023	Introduction to Theatre	3
FNAT	1313	Art History	3
SOCI	1163	General Sociology	3
MECH	4134	Intro. to Renewable Energy	4
MECH	3124	HVAC Systems	4
MECH	4554	Computer Aided Mfg Fundamntals	4
MECH	7223	Energy Systems	3
MECH	7153	Fluid Power Systems Design	3

BS DEGREE GRADUATION REQUIREMENTS

- Completion of above courses
- 126 credit hours
- 45 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