

# BACHELOR OF SCIENCE IN APPLIED SCIENCE IN MECHANICAL ENGINEERING TECHNOLOGY

Students who have earned the associate degree may elect to complete the bachelor's degree on either a full- or part-time basis. Courses in the bachelor's degree program further develop technical, communication, and managerial skills. Upon successful completion of the coursework, graduates are awarded the Bachelor of Science in Applied Science degree and are prepared for greater levels of responsibility and greater career advancement.

Graduates of the BSAS degree program obtain employment as engineers or engineering designers for government agencies, consulting engineers and architects, industry and manufacturing, and contractors. Because their education is more extensive, they are prepared for more responsibility and more-rapid advancement. BSAS engineers and designers plan, design, and inspect production and maintenance activities.

Based on an evaluation of their work, transfer students who have a related associate degree from a regionally accredited institution may be admitted to the bachelor's degree program at the junior level.

## program Educational Objectives

Educational objectives for the mechanical engineering technology programs have been developed by faculty and the program industrial advisory committee to support the university, the college, and the School of Engineering Technology missions. Graduates of the MET associate degree program function as assistants in the design, drafting and testing of mechanical products, equipment and processes. Bachelor's degree graduates assume greater responsibility in the design and testing of mechanical products, processes, and equipment.

During their first few years after completion of the mechanical engineering technology program at YSU, graduates will have demonstrated the ability to:

- Work competently in technical and professional careers related to the field of mechanical engineering technology, with a path to the BSAS degree.
- Communicate effectively in a professional environment.
- Continue growth in professional knowledge and skills.
- Achieve recognition and/or compensation consistent with their educational achievements.

## Accreditation and Registration

The mechanical engineering technology bachelor program is accredited by the ETAC Accreditation Commission of ABET, <http://www.abet.org>. In most states, including Ohio, West Virginia and Pennsylvania, bachelor's degree graduates are qualified to take the Fundamentals of Engineering (FE) exam, and, with sufficient work experience, the Professional Engineers (PE) exam. Graduates are also qualified to apply to the National Institute for Certification in Engineering Technologies (NICET) for certification procedures in various specialty areas, depending on academic major and employment area.

Date of last campus visit: October, 2017

Accredited through: 2024

Next campus visit: 2023

Link to accrediting body: ABET (<http://www.abet.org/>)

COURSE	TITLE	S.H.
<b>FIRST YEAR REQUIREMENT - STUDENT SUCCESS</b>		
YSU 1500	Success Seminar	1-2
or SS 1500	Strong Start Success Seminar	
or HONR 1500	Intro to Honors	
<b>General Education Courses:</b>		
ENGL 1550	Writing 1	3-4
or ENGL 1549	Writing 1 with Support	
ENGL 1551	Writing 2	3
CMST 1545	Communication Foundations	3
MATH 1513	Algebra and Transcendental Function	5
CHEM 1515 & 1515L	General Chemistry 1 and General Chemistry 1 Laboratory	4
	Lecture is 4 sh lab is 0 sh	
PHYS 1501	Fundamentals of Physics 1	4
GER Social Science		3
GER Social Science		3
GER Arts and Humanities		3
GER Arts and Humanities		3
GER SPA		3
GER SPA		3
<b>Courses in the Major:</b>		
ENTC 1501	Introduction to Engineering Technology	2
MATH 1570	Applied Calculus 1	4
MATH 2670	Applied Calculus 2	5
ENTC 1505	Engineering Technology Concepts	4
CCET 1503	CAD Technology	2
CCET 1504	Drafting and Plan Reading	2
CCET 2604	Properties and Strength of Materials	3
CCET 2614L	Materials Laboratory 1	2
MET 1515	Mechanics 1	3
MET 2606	Solid Modeling	4
MET 2616	Mechanics 2	3
MET 2630 & 2630L	Manufacturing Techniques and Manufacturing Techniques Laboratory	4
	Lecture is 3 sh lab is 1 sh	
MET 3706	Machine Design 1	4
MET 3714 & 3714L	Fluid Mechanics and Fluid Mechanics Laboratory	5
	Lecture is 4 sh lab is 1 sh	
MET 3720	Mechanisms	3
MET 3707	Machine Design 2	3
EET 3725 & 3725L	Electromechanical Systems and Electromechanical Systems Lab	4
	Lecture is 3 sh lab is 1 sh	
MET 3705	Thermodynamics	4
CCET 3705	Computing for Technologists	3
MET 3711	Heat and Power Cycles	4
MET 4860 & 4860L	Robotics Technology and Robotics Technology Laboratory	3
	Lecture is 2 sh, lab is 1 sh	
MET 4810	Manufacturing Systems Analysis	3
MET 4820	Machine Systems	3
MET 4870	Applied Finite Element Method	3
MET Elective: Select 6 hours from list below		6
MET 3710	Tool Design	
MET 4812 & 4812L	Numerical Control and Numerical Control Lab	
	Lecture is 3 sh lab is 1 sh	
MET 4890	Special Topics in Mechanical Engineering Technology	

ENTC 4895	Independent Engineering Technology Project	
ISEN/MGT Elective: Select 3 hours from list below		3
ISEN 3720	Statistical Quality Control	
MGT 3725	Fundamentals of Management	
MGT 2604	Legal Environment of Business 1	
ENT 3700	Entrepreneurship New Venture Creation	

**Total Semester Hours 130-132**

**Year 1**

Fall		S.H.
YSU 1500	Success Seminar	1
ENTC 1501	Introduction to Engineering Technology	2
ENTC 1505	Engineering Technology Concepts	4
MATH 1513	Algebra and Transcendental Function	5
ENGL 1550	Writing 1	3-4
or ENGL 1549	or Writing 1 with Support	
CCET 1503	CAD Technology	2
CCET 1504	Drafting and Plan Reading	2

**Semester Hours 19-20**

**Spring**

MET 1515	Mechanics 1	3
CCET 2604	Properties and Strength of Materials	3
CCET 2614L	Materials Laboratory 1	2
MATH 1570	Applied Calculus 1	4
MET 2606	Solid Modeling	4

**Semester Hours 16**

**Year 2**

Fall		S.H.
MET 2616	Mechanics 2	3
MET 3714 & 3714L	Fluid Mechanics and Fluid Mechanics Laboratory	5
PHYS 1501	Fundamentals of Physics 1	4
Arts & Humanities GER <sup>3</sup>		3

**Semester Hours 15**

**Spring**

MET 2630 & 2630L	Manufacturing Techniques and Manufacturing Techniques Laboratory	4
MET 3706	Machine Design 1	4
CHEM 1515 & 1515L	General Chemistry 1 and General Chemistry 1 Laboratory	4
ENGL 1551	Writing 2	3
Social Science GER <sup>3</sup>		3

**Semester Hours 18**

**Year 3**

Fall		S.H.
MET 3720	Mechanisms	3
MET 3707	Machine Design 2	3
EET 3725 & 3725L	Electromechanical Systems and Electromechanical Systems Lab	4
MATH 2670	Applied Calculus 2	5

**Semester Hours 15**

**Spring**

MET 3705	Thermodynamics	4
CCET 3705	Computing for Technologists	3
MET 4860 & 4860L	Robotics Technology and Robotics Technology Laboratory	3
CMST 1545	Communication Foundations	3

MET Elective<sup>1</sup> 3

**Semester Hours 16**

**Year 4**

**Fall**

MET 3711	Heat and Power Cycles	4
MET 4810	Manufacturing Systems Analysis	3
MET Elective <sup>1</sup>		3
Social Science GER <sup>3</sup>		3
Arts and Humanities GER <sup>3</sup>		3

**Semester Hours 16**

**Spring**

MET 4820	Machine Systems (Capstone)	3
MET 4870	Applied Finite Element Method	3
Social & Personal Awareness GER <sup>3</sup>		3
Social & Personal Awareness GER <sup>3</sup>		3
ISEN/MGT Elective <sup>2</sup>		3

**Semester Hours 15**

**Total Semester Hours 130-131**

<sup>1</sup> Choose two of MET 3710 Tool Design, MET 4812 Numerical Control/MET 4812L Numerical Control Lab, MET 4890 Special Topics in Mechanical Engineering Technology, EET 4880 Electrical and Mechanical Facilities Design, ENTC 4895 Independent Engineering Technology Project

<sup>2</sup> Choose one ISEN 3720 Statistical Quality Control, ISEN 3724 Engineering Economy, MGT 3725 Fundamentals of Management, or MGT 2604 Legal Environment of Business 1

<sup>3</sup> General Education Requirement: see "Schedule of Classes" for details  
 SPA = Social & Personal Awareness (2 required for BSAS)  
 SS = Social Sciences (2 required for BSAS)  
 AH = Arts & Humanities (2 required for BSAS)

## Electives

COURSE	TITLE	S.H.
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**MET Electives**

Select two of the following:	2-8
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MET 3710	Tool Design	
MET 4812 & 4812L	Numerical Control and Numerical Control Lab	
MET 4890	Special Topics in Mechanical Engineering Technology	
EET 4880	Electrical and Mechanical Facilities Design	
ENTC 4895	Independent Engineering Technology Project	

**ISEN/MGT Electives**

Select one of the following:	3
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ISEN 3720	Statistical Quality Control	
ISEN 3724	Engineering Economy	
MGT 3725	Fundamentals of Management	
MGT 2604	Legal Environment of Business 1	

**Total Semester Hours 5-11**

## PROGRAM OUTCOMES

### BACHELOR OF SCIENCE IN APPLIED SCIENCE IN MECHANICAL ENGINEERING TECHNOLOGY

Graduates of the Bachelor's Degree in Mechanical Engineering Technology will possess the following competencies upon graduation:

- mastery of knowledge, skills, and tools of the discipline
- ability to apply knowledge to solve engineering problems
- ability to conduct, analyze, and interpret experiments
- ability to be creative in design

- ability to work effectively in teams
- ability to identify, analyze, and solve technical problems
- ability to communicate effectively
- recognition of the need to engage in lifelong learning
- ability to understand professional, ethical, and social responsibilities
- respect for diversity, professional, societal, and global issues
- commitment to quality, timeliness, and continuous improvement