

MECHANICAL ENGINEERING TECHNOLOGY - B.S.

College of Aeronautics and Engineering
School of Engineering
www.kent.edu/cae

About This Program

Ready to turn ideas into real-world solutions? The Mechanical Engineering Technology program combines applied design, testing and manufacturing with hands-on experience with systems such as fluid dynamics, materials testing and industrial automation across industries like aerospace, automotive, energy and advanced manufacturing. Read more...

Contact Information

- cae@kent.edu | 330-672-2892
- Speak with an Advisor
- Chat with an Admissions Counselor

Program Delivery

- **Delivery:**
 - In person
- **Location:**
 - Kent Campus

Examples of Possible Careers and Salaries*

Cost estimators

- -1.5% decline
- 214,200 number of jobs
- \$66,610 potential earnings

Drafters, all other

- 0.6% little or no change
- 15,200 number of jobs
- \$54,500 potential earnings

Industrial engineering technologists and technicians

- 1.5% slower than the average
- 68,500 number of jobs
- \$57,320 potential earnings

Industrial production managers

- 0.9% little or no change
- 190,100 number of jobs
- \$108,790 potential earnings

Mechanical engineering technologists and technicians

- 3.1% about as fast as the average
- 43,500 number of jobs
- \$58,230 potential earnings

Mechanical engineers

- 3.9% about as fast as the average
- 316,300 number of jobs
- \$90,160 potential earnings

Additional careers

- Career and technical education teacher

Accreditation

The B.S. degree in Mechanical Engineering Technology is accredited by the Association of Technology, Management and Applied Engineering (ATMAE).

* Source of occupation titles and labor data comes from the U.S. Bureau of Labor Statistics'

Occupational Outlook Handbook. Data comprises projected percent change in employment over the next 10 years; nation-wide employment numbers; and the yearly median wage at which half of the workers in the occupation earned more than that amount and half earned less.

Admission Requirements

The university affirmatively strives to provide educational opportunities and access to students with varied backgrounds, those with special talents and adult students who graduated from high school three or more years ago.

Admission to the Mechanical Engineering Technology major is selective.

New Students: Admission into this major requires a minimum 2.700 unweighted high school GPA. Students who do not meet this requirement will be admitted to the Industrial Engineering Technology major. Students may change their major to Mechanical Engineering Technology after satisfying the below requirements for current students.

Note: Applicants should understand that this is a math-intensive program. Students admitted to the program are expected to demonstrate prerequisite knowledge on a math placement exam (the ALEKS exam) prior to starting their first semester. Students who do not obtain the minimum score required to place into the required math courses are at risk of delaying graduation.

Current Students: Students may change their major to Mechanical Engineering Technology if they meet the following criteria:

- Minimum 2.500 overall Kent State GPA
- Minimum C grade in both ENGR 11001 and ENGR 11002
- Minimum C grade in either MATH 11022 or MATH 12011

Transfer Students: Transfer students must have completed minimum 12 credit hours of college-level coursework with a minimum 2.500 overall GPA for admission to the Mechanical Engineering Technology major. Students with less than 12 credit hours completed will be evaluated based on their high school transcript using the criteria in the above "new student" section.

International Students: All international students must provide proof of proficiency of the English language (unless they meet specific exceptions) through the submission of an English language proficiency test score or by completing English language classes at Kent State's English as a Second Language Center before entering their program. For more information, visit the admissions website for international students.

Program Requirements

Major Requirements

Code	Title	Credit Hours
Major Requirements (courses count in major GPA)		
ENGR 11001	INTRODUCTION TO ENGINEERING	2
ENGR 11002	INTRODUCTION TO ENGINEERING LABORATORY	1
ENGR 13586 & ENGR 13587	COMPUTER AIDED DESIGN I and COMPUTER AIDED DESIGN I LABORATORY ¹	3
or MERT 12001	COMPUTER-AIDED DESIGN	
ENGR 20000	PROFESSIONAL DEVELOPMENT IN ENGINEERING	1
ENGR 20002	MATERIALS AND PROCESSES ¹	3
or MERT 12004	MANUFACTURING PROCESSES	
ENGR 23585	COMPUTER AIDED DESIGN II	3
ENGR 30001	APPLIED THERMODYNAMICS ¹	3
or MERT 42000	THERMODYNAMICS FOR ENGINEERING TECHNOLOGY	
ENGR 31016	MANUFACTURING TECHNOLOGY	3
ENGR 33031	PROGRAMMABLE LOGIC CONTROLLERS	3
ENGR 33033	HYDRAULICS/PNEUMATICS	3
ENGR 33111	STATICS AND STRENGTH OF MATERIALS ¹	3-6
or MERT 22005 & MERT 22007	STATICS and STRENGTH OF MATERIALS	
ENGR 33364	METALLURGY AND MATERIALS SCIENCE	3
ENGR 33700	QUALITY TECHNIQUES	3
ENGR 35550	LAW AND ETHICS FOR ENGINEERS	2
ENGR 43080	INDUSTRIAL AND ENVIRONMENTAL SAFETY	3
ENGR 43550	COMPUTER-AIDED MANUFACTURING	3
ENGR 43580	COMPUTER-AIDED MACHINE DESIGN	3
ENGR 43899	ENGINEERING TECHNOLOGY CAPSTONE (ELR) (WIC) ²	3
ENGR 47200	SYSTEMS ENGINEERING	3
Engineering (ENGR) Electives		6
Electrical Circuits Electives, choose from the following: ¹		4-7
EERT 12000 & EERT 12001	ELECTRIC CIRCUITS I and ELECTRIC CIRCUITS II	
ENGR 21020 & ENGR 21022	SURVEY OF ELECTRICITY AND ELECTRONICS and SURVEY OF ELECTRICITY AND ELECTRONICS LABORATORY	
Programming Elective, choose from the following:		3-4
CS 13001	COMPUTER SCIENCE I: PROGRAMMING AND PROBLEM SOLVING	
CS 13011 & CS 13012	COMPUTER SCIENCE IA: PROCEDURAL PROGRAMMING and COMPUTER SCIENCE IB: OBJECT ORIENTED PROGRAMMING	
ENGR 15300 & ENGR 15301	ENGINEERING COMPUTING AND PROBLEM SOLVING and ENGINEERING COMPUTING AND PROBLEM SOLVING LABORATORY	

ENGR 26220 & ENGR 26222	PROGRAMMING FOR ENGINEERS and PROGRAMMING FOR ENGINEERS LABORATORY	
Additional Requirements (courses do not count in major GPA)		
ACCT 23020	INTRODUCTION TO FINANCIAL ACCOUNTING	3
CAE 12260	SOLVING PROBLEMS IN AERONAUTICS AND ENGINEERING ³	1-3
CHEM 10050	FUNDAMENTALS OF CHEMISTRY (KBS)	3
or CHEM 10060	GENERAL CHEMISTRY I (KBS)	
or CHEM 10970	HONORS GENERAL CHEMISTRY I (KBS)	
COMM 15000	INTRODUCTION TO HUMAN COMMUNICATION (KADL)	3
ECON 22060	PRINCIPLES OF MICROECONOMICS (KSS)	3
ENG 20002	INTRODUCTION TO TECHNICAL WRITING	3
PHY 13001 & PHY 13021	GENERAL COLLEGE PHYSICS I (KBS) and GENERAL COLLEGE PHYSICS LABORATORY I (KBS) (KLAB) ⁴	5
or PHY 23101	GENERAL UNIVERSITY PHYSICS I (KBS) (KLAB)	
PHY 13002 & PHY 13022	GENERAL COLLEGE PHYSICS II (KBS) and GENERAL COLLEGE PHYSICS LABORATORY II (KBS) (KLAB) ⁴	5
or PHY 23102	GENERAL UNIVERSITY PHYSICS II (KBS) (KLAB)	
UC 10001	FLASHES 101	1
Mathematics Electives, choose from the following: ⁵		6-8
MATH 11022 & MATH 12002	TRIGONOMETRY (KMCR) and ANALYTIC GEOMETRY AND CALCULUS I (KMCR)	
MATH 12011 & MATH 12012	CALCULUS WITH PRECALCULUS I (KMCR) and CALCULUS WITH PRECALCULUS II (KMCR)	
Kent Core Composition		6
Kent Core Humanities and Fine Arts (minimum one course from each)		9
Kent Core Social Sciences (must be from two disciplines) (cannot be ECON)		3
General Electives (total credit hours depends on earning 120 credit hours, including 39 upper-division credit hours)		5
Minimum Total Credit Hours:		120

¹ Preferred option for students: ENGR 13586, ENGR 13587, ENGR 20002, ENGR 21020, ENGR 21022, ENGR 30001 and ENGR 33111. Some options may require coursework outside of this program.

² A minimum C grade must be earned to fulfill the writing-intensive requirement.

³ Students scoring 34 or below on the ALEKS math assessment are required to enroll in CAE 12260 until they successfully complete MATH 00022.

⁴ Students who desire to change their major to Aerospace Engineering or Mechatronics Engineering should take PHY 23101 and PHY 23102. Failing to do so may result in having to retake physics to complete their degree. PHY 23101 and PHY 23102 require coursework outside the major. Students planning to remain in the Mechanical Engineering Technology program should take PHY 13001, PHY 13002, PHY 13021 and PHY 13022.

⁵ MATH 12011 and MATH 12012 are the preferred math electives for this program. However, students wishing to change their major to Aerospace Engineering or Mechatronics Engineering should take MATH 11022 and MATH 12002 to avoid additional coursework.

Graduation Requirements

Minimum Major GPA	Minimum Overall GPA
2.250	2.000

Roadmap

This roadmap is a recommended semester-by-semester plan of study for this program. Students will work with their advisor to develop a sequence based on their academic goals and history. Courses designated as critical (!) must be completed in the semester listed to ensure a timely graduation.

Semester One		Credits
CAE 12260	SOLVING PROBLEMS IN AERONAUTICS AND ENGINEERING	1
COMM 15000	INTRODUCTION TO HUMAN COMMUNICATION (KADL)	3
ENGR 13586	COMPUTER AIDED DESIGN I	3
& ENGR 13587	and COMPUTER AIDED DESIGN I LABORATORY	
or	or COMPUTER-AIDED DESIGN	
MERT 12001		
UC 10001	FLASHES 101	1
Mathematics Elective		3-5
Kent Core Requirement		3
Kent Core Requirement		3
Credit Hours		17
Semester Two		
ENGR 11001	INTRODUCTION TO ENGINEERING	2
ENGR 11002	INTRODUCTION TO ENGINEERING LABORATORY	1
ENGR 23585	COMPUTER AIDED DESIGN II	3
PHY 13001	GENERAL COLLEGE PHYSICS I (KBS)	5
& PHY 13021	and GENERAL COLLEGE PHYSICS LABORATORY	
or	I (KBS) (KLAB)	
PHY 23101	or GENERAL UNIVERSITY PHYSICS I (KBS)	
	(KLAB)	
Mathematics Elective		3-5
Credit Hours		14
Semester Three		
CHEM 10050	FUNDAMENTALS OF CHEMISTRY (KBS)	3
or	or GENERAL CHEMISTRY I (KBS)	
CHEM 10060	or HONORS GENERAL CHEMISTRY I (KBS)	
or		
CHEM 10970		
ECON 22060	PRINCIPLES OF MICROECONOMICS (KSS)	3
ENGR 20000	PROFESSIONAL DEVELOPMENT IN ENGINEERING	1
ENGR 20002	MATERIALS AND PROCESSES	3
or	or MANUFACTURING PROCESSES	
MERT 12004		
PHY 13002	GENERAL COLLEGE PHYSICS II (KBS)	5
& PHY 13022	and GENERAL COLLEGE PHYSICS LABORATORY	
or	II (KBS) (KLAB)	
PHY 23102	or GENERAL UNIVERSITY PHYSICS II (KBS)	
	(KLAB)	
Credit Hours		15
Semester Four		
ACCT 23020	INTRODUCTION TO FINANCIAL ACCOUNTING	3
ENG 20002	INTRODUCTION TO TECHNICAL WRITING	3
Electrical Circuits Electives		4-7
Kent Core Requirement		3

Kent Core Requirement		3
Credit Hours		16
Semester Five		
ENGR 30001	APPLIED THERMODYNAMICS	3
or	or THERMODYNAMICS FOR ENGINEERING	
MERT 42000	TECHNOLOGY	
ENGR 33031	PROGRAMMABLE LOGIC CONTROLLERS	3
ENGR 33111	STATICS AND STRENGTH OF MATERIALS	3-6
or	or STATICS <i>and</i> STRENGTH OF MATERIALS	
MERT 22005		
<i>and</i>		
MERT 22007		
ENGR 35550	LAW AND ETHICS FOR ENGINEERS	2
ENGR 47200	SYSTEMS ENGINEERING	3
Credit Hours		14
Semester Six		
ENGR 33033	HYDRAULICS/PNEUMATICS	3
ENGR 33364	METALLURGY AND MATERIALS SCIENCE	3
Programming Elective		3-4
Kent Core Requirement		3
Kent Core Requirement		3
Credit Hours		15
Semester Seven		
ENGR 31016	MANUFACTURING TECHNOLOGY	3
ENGR 33700	QUALITY TECHNIQUES	3
ENGR 43550	COMPUTER-AIDED MANUFACTURING	3
ENGR 43580	COMPUTER-AIDED MACHINE DESIGN	3
Engineering (ENGR) Elective		3
Credit Hours		15
Semester Eight		
ENGR 43080	INDUSTRIAL AND ENVIRONMENTAL SAFETY	3
ENGR 43899	ENGINEERING TECHNOLOGY CAPSTONE (ELR) (WIC)	3
Engineering (ENGR) Elective		3
General Electives		5
Credit Hours		14
Minimum Total Credit Hours:		120

University Requirements

All students in a bachelor's degree program at Kent State University must complete the following university requirements for graduation.

NOTE: University requirements may be fulfilled in this program by specific course requirements. Please see Program Requirements for details.

Flashes 101 (UC 10001)	1 credit hour
Course is not required for students with 30+ transfer credits (excluding College Credit Plus) or age 21+ at time of admission.	
Diversity Domestic/Global (DIVD/DIVG)	2 courses
Students must successfully complete one domestic and one global course, of which one must be from the Kent Core.	
Experiential Learning Requirement (ELR)	varies
Students must successfully complete one course or approved experience.	
Kent Core (see table below)	36-37 credit hours
Writing-Intensive Course (WIC)	1 course
Students must earn a minimum C grade in the course.	

Upper-Division Requirement	39 credit hours
Students must successfully complete 39 upper-division (numbered 30000 to 49999) credit hours to graduate.	
Total Credit Hour Requirement	120 credit hours

Kent Core Requirements

Kent Core Composition (KCOMP)	6
Kent Core Mathematics and Critical Reasoning (KMCR)	3
Kent Core Humanities and Fine Arts (KHUM/KFA) (min one course each)	9
Kent Core Social Sciences (KSS) (must be from two disciplines)	6
Kent Core Basic Sciences (KBS/KLAB) (must include one laboratory)	6-7
Kent Core Additional (KADL)	6
Total Credit Hours:	36-37

emerging fields using mechanical and computer-aided engineering. Students learn to develop innovative solutions to problems encountered in manufacturing.

Applicants to this program should understand that this is a math-intensive program.

Students may apply early to the Master of Engineering Technology degree and double count 9 credit hours of graduate courses toward both degree programs. See the Combined Bachelor's/Master's Degree Program Policy in the University Catalog for more information.

Program Learning Outcomes

Graduates of this program will be able to:

1. Apply knowledge, techniques, skills and modern tools of mathematics, science, engineering and technology to solve broadly defined engineering problems appropriate to the discipline.
2. Design systems, components or processes meeting specified needs for broadly defined engineering problems appropriate to the discipline.
3. Apply written, oral and graphical communication in broadly defined technical and non-technical environments, and an ability to identify and use appropriate technical literature.
4. Conduct standard tests, measurements and experiments and analyze and interpret the results to improve processes.
5. Function effectively as a member as well as a leader on technical teams.

The educational objectives of the program are the following:

1. Drive positive societal change while working in the areas of mechanical, robotic systems, hydraulics, pneumatics and automation, including other engineering technology fields in a manner that promotes excellence, integrity and success.
2. Practice forward-thinking through continued education by way of professional development, graduate education and other continued self-motivated learning.
3. Successfully navigate the ever-changing trajectory of the world, practicing compassion as you strive to meet your personal and professional goals.

Full Description

The Bachelor of Science degree in Mechanical Engineering Technology prepares graduates with knowledge across engineering technology disciplines for professional careers in mechanical, robotic systems, hydraulics, pneumatics, automation and other related fields that provide solutions to broadly defined challenges. The program teaches design, operation, installation, maintenance and analysis of machinery. This is an engineering technology degree that focuses on hands-on applications and not a traditional mechanical engineering degree. The program prepares students to become technical professionals in current and