MECHANICAL ENGINEERING TECHNOLOGY - B.S.

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

About This Program
Take your engineering career to the next level with Kent State's Bachelor of Science in Mechanical Engineering Technology program. With a focus on both theory and practice, this program prepares you for a wide range of mechanical engineering technology roles in industries such as aerospace, automotive, manufacturing and more. You'll have access to state-of-the-art facilities and experienced faculty who are dedicated to helping you succeed. 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*
Mechanical engineering technologists and technicians
• 3.1% about as fast as the average
• 43,500 number of jobs
• $58,230 potential earnings

Calibration technologists and technicians and engineering technologists and technicians, except drafters, all other
• 2.1% slower than the average
• 91,600 number of jobs
• $64,190 potential earnings

Electro-mechanical and mechatronics technologists and technicians
• 3.0% about as fast as the average
• 14,600 number of jobs
• $59,800 potential earnings

Mechanical engineers
• 3.9% about as fast as the average
• 316,300 number of jobs
• $90,160 potential earnings

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.

First-Year Students on the Kent Campus: First-year admission policy on the Kent Campus is selective. Admission decisions are based upon cumulative grade point average, strength of high school college preparatory curriculum and grade trends. Students not admissible to the Kent Campus may be administratively referred to one of the seven regional campuses to begin their college coursework. For more information, visit the admissions website for first-year students.

First-Year Students on the Regional Campuses: First-year admission to Kent State's campuses at Ashtabula, East Liverpool, Geauga, Salem, Stark, Trumbull and Tuscarawas, as well as the Twinsburg Academic Center, is open to anyone with a high school diploma or its equivalent. For more information on admissions, contact the Regional Campuses admissions offices.

International Students: All international students must provide proof of English language proficiency unless they meet specific exceptions. For more information, visit the admissions website for international students.

Transfer Students: Students who have attended any other educational institution after graduating from high school must apply as undergraduate transfer students. For more information, visit the admissions website for transfer students.

Former Students: Former Kent State students or graduates who have not attended another college or university since Kent State may complete the reenrollment or reinstatement form on the University Registrar's website.

Admission policies for undergraduate students may be found in the University Catalog. Some programs may require that students meet certain requirements before progressing through the program. For programs with progression requirements, the information is shown on the Coursework tab.

Program Requirements
Major Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGR 11000</td>
<td>INTRODUCTION TO ENGINEERING</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 13585</td>
<td>COMPUTER AIDED ENGINEERING GRAPHICS</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 20000</td>
<td>PROFESSIONAL DEVELOPMENT IN ENGINEERING</td>
<td>1</td>
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</table>
ENGR 20002 MATERIALS AND PROCESSES 3
ENGR 23585 ADVANCED COMPUTER AIDS DESIGN 3
ENGR 30001 APPLIED THERMODYNAMICS 3
ENGR 31000 CULTURAL DYNAMICS TECHNOLOGY (DIVD) (WIC) 1
ENGR 31016 MANUFACTURING TECHNOLOGY 3
ENGR 33031 PROGRAMMABLE LOGIC CONTROLLERS 3
ENGR 33033 HYDRAULICS/PNEUMATICS 3
ENGR 33111 STATICS AND STRENGTH OF MATERIALS 3-6 or MERT 22005
or MERT 22007
ENGR 33333 INDUSTRIAL ROBOTICS 3
ENGR 33364 METALLURGY AND MATERIALS SCIENCE 3
ENGR 43080 INDUSTRIAL AND ENVIRONMENTAL SAFETY 3
ENGR 43550 COMPUTER-AIDED MANUFACTURING 3
ENGR 43580 COMPUTER-AIDED MACHINE DESIGN 3
ENGR 43899 APPLIED ENGINEERING CAPSTONE (ELR) 3
ENGR 47200 SYSTEMS ENGINEERING 3

Engineering (ENGR) Electives 6

Electricity and Electronics Electives, choose from the following: 4-7

EERT 12000 ELECTRIC CIRCUITS I
& EERT 12001 and ELECTRIC CIRCUITS II
ENGR 21020 SURVEY OF ELECTRICITY AND ELECTRONICS
& ENGR 21022 and SURVEY OF ELECTRICITY AND ELECTRONICS LABORATORY

Programming Elective(s), choose from the following: 3-4

CS 13001 COMPUTER SCIENCE I: PROGRAMMING AND PROBLEM SOLVING
CS 13011 & CS 13012 and COMPUTER SCIENCE IA: PROCEDURAL PROGRAMMING
and COMPUTER SCIENCE IB: OBJECT ORIENTED PROGRAMMING
ENGR 26220 PROGRAMMING FOR ENGINEERS
& ENGR 26222 and PROGRAMMING FOR ENGINEERS LABORATORY

Additional Requirements (courses do not count in major GPA) 3

ACCT 23020 INTRODUCTION TO FINANCIAL ACCOUNTING
CHEM 10050 FUNDAMENTALS OF CHEMISTRY (KBS)
COMM 15000 INTRODUCTION TO HUMAN COMMUNICATION (KADL)
ECON 22060 PRINCIPLES OF MICROECONOMICS (KSS)
ENG 20002 INTRODUCTION TO TECHNICAL WRITING

PHY 13001 & PHY 13021 GENERAL COLLEGE PHYSICS I (KBS) and GENERAL COLLEGE PHYSICS LABORATORY I (KBS) (KLAB) 2

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) 2

or PHY 23102 GENERAL UNIVERSITY PHYSICS II (KBS) (KLAB)

UC 10001 FLASHES 101 1

Mathematics Electives, choose from the following: 3 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 credits hour, including 39 upper-division credit hours) 5

Minimum Total Credit Hours: 120

1 A minimum C grade must be earned to fulfill the writing-intensive requirement.
2 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 your degree.
3 Applicants to this program 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.

Graduation Requirements

Minimum Major GPA 2.250
Minimum Overall GPA 2.000

Roadmap

This roadmap is a recommended semester-by-semester plan of study for this major. However, courses designated as critical (!) must be completed in the semester listed to ensure a timely graduation.

Semester One Credits
COMM 15000 INTRODUCTION TO HUMAN COMMUNICATION (KADL) 3
ENGR 13585 COMPUTER AIDED ENGINEERING GRAPHICS 3
UC 10001 FLASHES 101 1
Mathematics Elective 3
Kent Core Requirement 3
Kent Core Requirement 3

Credit Hours 16

Semester Two Credits
ENGR 11000 INTRODUCTION TO ENGINEERING 3
ENGR 23585 ADVANCED COMPUTER AIDS DESIGN 3
PHY 13001 & PHY 13021 GENERAL COLLEGE PHYSICS I (KBS) and GENERAL COLLEGE PHYSICS LABORATORY I (KBS) (KLAB) 2

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) 2

or PHY 23102 GENERAL UNIVERSITY PHYSICS II (KBS) (KLAB)

UC 10001 FLASHES 101 1

Mathematics Elective 3

Credit Hours 14

Semester Three Credits
ECON 22060 PRINCIPLES OF MICROECONOMICS (KSS) 3
ENGR 20000 PROFESSIONAL DEVELOPMENT IN ENGINEERING 1
ENGR 20002 MATERIALS AND PROCESSES 3
PHY 13002 & PHY 13022 and GENERAL COLLEGE PHYSICS LABORATORY II (KBS) (KLAB) 2

or PHY 23101 or GENERAL UNIVERSITY PHYSICS II (KBS) (KLAB)

Kent Core Requirement 3

Credit Hours 15
Semester Four

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 23020</td>
<td>INTRODUCTION TO FINANCIAL ACCOUNTING</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 10050</td>
<td>FUNDAMENTALS OF CHEMISTRY (KBS)</td>
<td>3</td>
</tr>
<tr>
<td>ENG 20002</td>
<td>INTRODUCTION TO TECHNICAL WRITING</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Electricity and Electronics Electives</td>
<td>4-7</td>
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</table>

Kent Core Requirement 3

Credit Hours 16

Semester Five

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGR 30001</td>
<td>APPLIED THERMODYNAMICS</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 33031</td>
<td>PROGRAMMABLE LOGIC CONTROLLERS</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 33111</td>
<td>STATICS AND STRENGTH OF MATERIALS</td>
<td>3-6</td>
</tr>
<tr>
<td>or MERT 22005</td>
<td>or STATICS and STRENGTH OF MATERIALS</td>
<td></td>
</tr>
<tr>
<td>and MERT 22007</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGR 47200</td>
<td>SYSTEMS ENGINEERING</td>
<td>3</td>
</tr>
<tr>
<td>Programming Elective(s)</td>
<td>3-4</td>
<td></td>
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</table>

Credit Hours 15

Semester Six

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>ENGR 31000</td>
<td>CULTURAL DYNAMICS TECHNOLOGY (DIVD)</td>
<td>3</td>
</tr>
<tr>
<td>WIC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGR 33033</td>
<td>HYDRAULICS/PNEUMATICS</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 33364</td>
<td>METALLURGY AND MATERIALS SCIENCE</td>
<td>3</td>
</tr>
<tr>
<td>Kent Core Requirement</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Kent Core Requirement</td>
<td>3</td>
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</table>

Credit Hours 15

Semester Seven

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>ENGR 31016</td>
<td>MANUFACTURING TECHNOLOGY</td>
<td>3</td>
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<tr>
<td>ENGR 43550</td>
<td>COMPUTER-AIDED MANUFACTURING</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 43580</td>
<td>COMPUTER-AIDED MACHINE DESIGN</td>
<td>3</td>
</tr>
<tr>
<td>Engineering (ENGR) Elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>General Elective</td>
<td>3</td>
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</tr>
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</table>

Credit Hours 15

Semester Eight

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>ENGR 33333</td>
<td>INDUSTRIAL ROBOTICS</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 43080</td>
<td>INDUSTRIAL AND ENVIRONMENTAL SAFETY</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 43899</td>
<td>APPLIED ENGINEERING CAPSTONE (ELR)</td>
<td>3</td>
</tr>
<tr>
<td>Engineering (ENGR) Elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>General Elective</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flashes 101 (UC 10001)</td>
<td>1 credit hour</td>
</tr>
<tr>
<td>Course is not required for students with 30+ transfer credits (excluding College Credit Plus) or age 21+ at time of admission.</td>
<td></td>
</tr>
<tr>
<td>Diversity Domestic/Global (DIVD/DIVG)</td>
<td>2 courses</td>
</tr>
<tr>
<td>Students must successfully complete one domestic and one global course, of which one must be from the Kent Core.</td>
<td></td>
</tr>
<tr>
<td>Experiential Learning Requirement (ELR)</td>
<td>varies</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kent Core Composition (KCMP)</td>
<td>6</td>
</tr>
<tr>
<td>Kent Core Mathematics and Critical Reasoning (KMCR)</td>
<td>3</td>
</tr>
<tr>
<td>Kent Core Humanities and Fine Arts (KHUM/KFA) (min one course each)</td>
<td>9</td>
</tr>
<tr>
<td>Kent Core Social Sciences (KSS) (must be from two disciplines)</td>
<td>6</td>
</tr>
<tr>
<td>Kent Core Basic Sciences (KBS/KLAB) (must include one laboratory)</td>
<td>6-7</td>
</tr>
<tr>
<td>Kent Core Additional (KADL)</td>
<td>6</td>
</tr>
</tbody>
</table>

Total Credit Hours: 36-37

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.

Full Description

The Bachelor of Science degree in Mechanical Engineering Technology teaches design, operation, installation, maintenance and analysis of machinery. The program prepares students to become highly technical professionals in current and emerging fields using mechanical and computer-aided engineering. Students learn to develop innovative solutions to problems encountered in manufacturing.

Information on the program’s education objectives and student enrollment and graduation data can be found on the college website.

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

Students may apply early to the Master of Engineering Technology degree (Mechanical Engineering Technology concentration) and double count 9 credit hours of graduate courses toward both degree programs.

Mechanical Engineering Technology - B.S.
See the Combined Bachelor’s/Master’s Degree Program policy in the University Catalog for more information.