MECHATRONICS ENGINEERING TECHNOLOGY - B.S.

College of Aeronautics and Engineering
Aeronautics and Technology Building
Kent Campus
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Description

The Bachelor of Science degree in Mechatronics Engineering Technology integrates mechanical, electrical, computer and controls. Mechatronics engineering technology revolves around the design, construction and operation of automated systems, robots and intelligent products, which result from the integration of software and hardware.

Using automated systems is becoming more popular for operating equipment/machinery in a host of situations, including on assembly and manufacturing lines, on automobiles and aircraft and in electrical power generations to reduce labor costs, increase precision and accuracy and provide quality and safety for workers.

Graduates from the mechatronics engineering technology program manage and support the design, operation and analysis of mechanical and electrical devices connected with automated systems, robots and computer-integrated manufacturing. They can work in any company that develops, designs or manufactures and markets these devices. Opportunities exist in manufacturing sales as well as research.

Fully Offered At:

- Kent Campus

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.

Freshman Students on the Kent Campus: The freshman admission policy on the Kent Campus is selective. Admission decisions are based upon the following: cumulative grade point average, ACT and/or SAT scores, strength of high school college preparatory curriculum and grade trends. The Admissions Office at the Kent Campus may defer the admission of students who do not meet admissions criteria but who demonstrate areas of promise for successful college study. Deferred applicants may begin their college coursework at one of seven regional campuses of Kent State University. For more information on admissions, including additional requirements for some academic programs, visit the admissions website for new freshmen.

Freshman Students on the Regional Campuses: Kent State campuses at Ashtabula, East Liverpool, Geauga, Salem, Stark, Trumbull and Tuscarawas, as well as the Regional Academic Center in Twinsburg, have open enrollment admission for students who hold a high school diploma, GED or equivalent.

English Language Proficiency Requirements for International Students: All international students must provide proof of English language proficiency (unless they meet specific exceptions) by earning a minimum 525 TOEFL score (71 on the Internet-based version), minimum 75 MELAB score, minimum 6.0 IELTS score or minimum 48 PTE score, or by completing the ESL level 112 Intensive Program. For more information on international admission, visit the Office of Global Education's admission website.

Transfer, Transitioning and Former Students: For more information about admission criteria for transfer, transitioning and former students, please visit the admissions website.

Program Learning Outcomes

Graduates of this program will be able to:

1. Select and apply a knowledge of mathematics, science, engineering and technology to engineering technology problems that require the application of principles and applied procedures or methodologies.
2. Design systems, components or processes for broadly defined engineering technology problems.
3. Select and apply the knowledge, techniques, skills, and modern tools of the discipline to broadly defined engineering technology activities.

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.

Destination Kent State: First Year Experience	1
Course is not required for students with 25 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
Writing-Intensive Course (WIC)	1 course
Students must earn a minimum C grade in the course.	
Upper-Division Requirement	39 (or 42)
Students must successfully complete 39 upper-division (numbered 30000 to 49999) credit hours to graduate. Students in a B.A. and/or B.S. degree in the College of Arts and Sciences must complete 42 upper-division credit hours.	
Total Credit Hour Requirement	120
Some bachelor's degrees require students to complete more than 120 credit hours.	

Kent Core Requirements

Kent Core Composition (KCMP)	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**

Program Requirements

Major Requirements

Code	Title	Credit Hours
Major Requirements (courses count in major GPA)		
TECH 13580	ENGINEERING GRAPHICS I	3
TECH 20002	MATERIALS AND PROCESSES	3
TECH 21020	SURVEY OF ELECTRICITY AND ELECTRONICS	3
TECH 21022	SURVEY OF ELECTRICITY AND ELECTRONICS LABORATORY	1
TECH 23581	COMPUTER-AIDED ENGINEERING GRAPHICS	3
TECH 26010	INTRODUCTION TO COMPUTER ENGINEERING TECHNOLOGY	3
TECH 26200	PROGRAMMING FOR ENGINEERS I	3
TECH 31000	CULTURAL DYNAMICS OF TECHNOLOGY (DIVD) (WIC) [1]	3
TECH 31010	ENGINEERING AND PROFESSIONAL ETHICS	3
TECH 33031	PROGRAMMABLE LOGIC CONTROLLERS	3
TECH 33032	PROGRAMMABLE LOGIC CONTROLLERS II	3
TECH 33033	HYDRAULICS/PNEUMATICS	3
TECH 33040	CONTROL SYSTEMS	3
TECH 33092	COOPERATIVE EDUCATION - PROFESSIONAL DEVELOPMENT (ELR) (WIC) [1]	3
TECH 33111	STATICS AND STRENGTH OF MATERIALS	3
TECH 33222	DIGITAL DESIGN FOR COMPUTER ENGINEERING	3
TECH 33333	INDUSTRIAL ROBOTICS	3
TECH 33700	QUALITY TECHNIQUES	3
TECH 34002	ADVANCED COMPUTER-AIDED DESIGN II	3
TECH 36200	PROGRAMMING FOR ENGINEERS II	3
TECH 43030	MECHATRONICS	3
TECH 43031	MECHATRONICS II	3
TECH 43060	MANAGEMENT OF TECHNOLOGY INNOVATION	3
TECH 43080	INDUSTRIAL AND ENVIRONMENTAL SAFETY	3
TECH 43580	COMPUTER-AIDED MACHINE DESIGN	3
Additional Requirements (courses do not count in major GPA)		
COMM 15000	INTRODUCTION TO HUMAN COMMUNICATION (KADL)	3
ECON 22060	PRINCIPLES OF MICROECONOMICS (KSS)	3
MATH 12002	ANALYTIC GEOMETRY AND CALCULUS I (KMCR)	5
PHY 13001	GENERAL COLLEGE PHYSICS I (KBS)	4
PHY 13002	GENERAL COLLEGE PHYSICS II (KBS)	4
PHY 13021	GENERAL COLLEGE PHYSICS LABORATORY I (KBS) (KLAB)	1
PHY 13022	GENERAL COLLEGE PHYSICS LABORATORY II (KBS) (KLAB)	1
UC 10097	DESTINATION KENT STATE: FIRST YEAR EXPERIENCE	1
Kent Core Composition		6
Kent Core Humanities and Fine Arts (minimum one course from each)		9
Kent Core Social Sciences (cannot be ECON course)		3
Kent Core Additional		3
General Electives (total credit hours depends on earning 120 credit hours, including 39 upper-division credit hours)		4
Minimum Total Credit Hours:		120

[1] A minimum C grade must be earned to fulfill writing-intensive requirement.

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 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
TECH 13580	ENGINEERING GRAPHICS I	3
TECH 26010	INTRODUCTION TO COMPUTER ENGINEERING TECHNOLOGY	3
UC 10097	DESTINATION KENT STATE: FIRST YEAR EXPERIENCE	1
Kent Core Requirement		3
Kent Core Requirement		3
	Credit Hours	16
Semester Two		
MATH 12002	ANALYTIC GEOMETRY AND CALCULUS I (KMCR)	5
PHY 13001	GENERAL COLLEGE PHYSICS I (KBS)	4
PHY 13021	GENERAL COLLEGE PHYSICS LABORATORY I (KBS) (KLAB)	1
TECH 23581	COMPUTER-AIDED ENGINEERING GRAPHICS	3
Kent Core Requirement		3
	Credit Hours	16
Semester Three		
ECON 22060	PRINCIPLES OF MICROECONOMICS (KSS)	3
PHY 13002	GENERAL COLLEGE PHYSICS II (KBS)	4
PHY 13022	GENERAL COLLEGE PHYSICS LABORATORY II (KBS) (KLAB)	1
TECH 20002	MATERIALS AND PROCESSES	3
Kent Core Requirement		3
	Credit Hours	14
Semester Four		
TECH 21020	SURVEY OF ELECTRICITY AND ELECTRONICS	3
TECH 21022	SURVEY OF ELECTRICITY AND ELECTRONICS LABORATORY	1
TECH 26200	PROGRAMMING FOR ENGINEERS I	3
TECH 33033	HYDRAULICS/PNEUMATICS	3
Kent Core Requirement		3
Kent Core Requirement		3
	Credit Hours	16
Semester Five		
TECH 33031	PROGRAMMABLE LOGIC CONTROLLERS	3

TECH 33092	COOPERATIVE EDUCATION - PROFESSIONAL DEVELOPMENT (ELR) (WIC)	3
TECH 33111	STATICS AND STRENGTH OF MATERIALS	3
TECH 36200	PROGRAMMING FOR ENGINEERS II	3
Kent Core Requirement		3
	Credit Hours	15
Semester Six		
TECH 31010	ENGINEERING AND PROFESSIONAL ETHICS	3
TECH 33032	PROGRAMMABLE LOGIC CONTROLLERS II	3
TECH 33040	CONTROL SYSTEMS	3
TECH 33333	INDUSTRIAL ROBOTICS	3
TECH 34002	ADVANCED COMPUTER-AIDED DESIGN II	3
	Credit Hours	15
Semester Seven		
TECH 31000	CULTURAL DYNAMICS OF TECHNOLOGY (DIVD) (WIC)	3
TECH 33222	DIGITAL DESIGN FOR COMPUTER ENGINEERING	3
TECH 43030	MECHATRONICS	3
TECH 43060	MANAGEMENT OF TECHNOLOGY INNOVATION	3
TECH 43580	COMPUTER-AIDED MACHINE DESIGN	3
	Credit Hours	15
Semester Eight		
TECH 33700	QUALITY TECHNIQUES	3
TECH 43031	MECHATRONICS II	3
TECH 43080	INDUSTRIAL AND ENVIRONMENTAL SAFETY	3
General Electives		4
	Credit Hours	13
	Minimum Total Credit Hours:	120