COMPUTER ENGINEERING TECHNOLOGY - B.S.

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

About This Program

The Computer Engineering Technology B.S. program provides a solid foundation in computer engineering theory and practice as well as hands-on experience with modern diagnostic and development tools and technologies. With experienced faculty, state-of-the-art facilities and opportunities for research and real-world experience, this program prepares you for a fulfilling career in this fast-growing field. 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*

Computer network architects

- 5.0% faster than the average
- 160,100 number of jobs
- $116,780 potential earnings

Network and computer systems administrators

- 4.3% about as fast as the average
- 373,900 number of jobs
- $84,810 potential earnings

Computer systems analysts

- 7.4% faster than the average
- 632,400 number of jobs
- $93,730 potential earnings

Electronics engineers, except computer

- 1.4% slower than the average
- 134,900 number of jobs
- $107,540 potential earnings

Accreditation

The B.S. degree in Computer 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

Code	Title	Credit Hours
Major Requirements (courses count in major GPA)		
ENGR 10005	INTRODUCTION TO CYBERSECURITY	3
ENGR 20000	PROFESSIONAL DEVELOPMENT IN ENGINEERING	1
ENGR 23010	COMPUTER HARDWARE	3
ENGR 26305	NETWORKING I	2
ENGR 26306	NETWORKING I LABORATORY	2
ENGR 31000	CULTURAL DYNAMICS TECHNOLOGY (DIVD) (WIC) [1]	3
ENGR 33222	DIGITAL DESIGN FOR COMPUTER ENGINEERING	3

ENGR 33223	ELECTRONIC COMMUNICATION	3
ENGR 33320	APPLIED EMBEDDED SYSTEMS I	3
ENGR 36305	NETWORKING II	2
ENGR 36306	NETWORKING II LABORATORY	1
ENGR 36337	INFORMATION TECHNOLOGY SECURITY	3
ENGR 36620	PROJECT MANAGEMENT IN ENGINEERING	3
ENGR 46099	COMPUTER ENGINEERING TECHNOLOGY CAPSTONE (ELR)	3
ENGR 46300	NETWORK SECURITY	3
ENGR 46312	WIRELESS NETWORK AND TELECOMMUNICATION SYSTEMS	3
ENGR 46316	SERVER ADMINISTRATION AND CONFIGURATION I	3
ENGR 46317	SERVER ADMINISTRATION AND CONFIGURATION II	2
ENGR 46318	SERVER ADMINISTRATION AND CONFIG II - LABORATORY	1
ENGR 46351	NETWORK MANAGEMENT AND DESIGN	2
ENGR 46352	NETWORK MANAGEMENT AND DESIGN LABORATORY	1
ENGR 47200	SYSTEMS ENGINEERING	3
Engineering (ENGR) Upper-Division Electives (30000 or 40000 level)		6
Electricity and Electronics Electives, choose from the following:		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(s), 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 26220 & ENGR 26222	PROGRAMMING FOR ENGINEERS and PROGRAMMING FOR ENGINEERS LABORATORY	
Additional Requirements (courses do not count in major GPA)		
BA 24056	BUSINESS ANALYTICS I	3
COMM 15000	INTRODUCTION TO HUMAN COMMUNICATION (KADL)	3
ENG 20002	INTRODUCTION TO TECHNICAL WRITING	3
MATH 11012	INTUITIVE CALCULUS (KMCR) [2]	3
MATH 11022	TRIGONOMETRY (KMCR) [2]	3
MGMT 24163	PRINCIPLES OF MANAGEMENT	3
PHY 13001 & PHY 13021	GENERAL COLLEGE PHYSICS I (KBS) and GENERAL COLLEGE PHYSICS LABORATORY I (KBS) (KLAB) [3]	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) [3]	5
or PHY 23102	GENERAL UNIVERSITY PHYSICS II (KBS) (KLAB)	
UC 10001	FLASHES 101	1
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)		6

General Electives (total credit hours depends on earning 120 credits hour, including 39 upper-division credit hours)	4
Minimum Total Credit Hours:	**120**

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

[2] 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 fail to obtain the minimum score required to place into required math courses are at risk of delaying graduation.

[3] PHY 23101 and PHY 23102 require prerequisites outside of this program.

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
ENGR 10005	INTRODUCTION TO CYBERSECURITY	3
MATH 11022	TRIGONOMETRY (KMCR)	3
UC 10001	FLASHES 101	1
Kent Core Requirement		3
Kent Core Requirement		3
Kent Core Requirement		3
	Credit Hours	**16**
Semester Two		
COMM 15000	INTRODUCTION TO HUMAN COMMUNICATION (KADL)	3
MATH 11012	INTUITIVE CALCULUS (KMCR)	3
PHY 13001 & PHY 13021 or PHY 23101	GENERAL COLLEGE PHYSICS I (KBS) and GENERAL COLLEGE PHYSICS LABORATORY I (KBS) (KLAB) or GENERAL UNIVERSITY PHYSICS I (KBS) (KLAB)	5
Kent Core Requirement		3
	Credit Hours	**14**
Semester Three		
ENG 20002	INTRODUCTION TO TECHNICAL WRITING	3
ENGR 20000	PROFESSIONAL DEVELOPMENT IN ENGINEERING	1
ENGR 23010	COMPUTER HARDWARE	3
PHY 13002 & PHY 13022 or PHY 23102	GENERAL COLLEGE PHYSICS II (KBS) and GENERAL COLLEGE PHYSICS LABORATORY II (KBS) (KLAB) or GENERAL UNIVERSITY PHYSICS II (KBS) (KLAB)	5
Programming Elective(s)		3-4
	Credit Hours	**15**
Semester Four		
ENGR 31000	CULTURAL DYNAMICS TECHNOLOGY (DIVD) (WIC)	3

MGMT 24163	PRINCIPLES OF MANAGEMENT	3
Electricity and Electronics Electives		4-7
Kent Core Requirement		3
Kent Core Requirement		3
	Credit Hours	**16**
Semester Five		
ENGR 26305	NETWORKING I	2
ENGR 26306	NETWORKING I LABORATORY	2
ENGR 33222	DIGITAL DESIGN FOR COMPUTER ENGINEERING	3
ENGR 33223	ELECTRONIC COMMUNICATION	3
ENGR 36337	INFORMATION TECHNOLOGY SECURITY	3
ENGR 47200	SYSTEMS ENGINEERING	3
	Credit Hours	**16**
Semester Six		
ENGR 33320	APPLIED EMBEDDED SYSTEMS I	3
ENGR 36305	NETWORKING II	2
ENGR 36306	NETWORKING II LABORATORY	1
ENGR 36620	PROJECT MANAGEMENT IN ENGINEERING	3
ENGR 46300	NETWORK SECURITY	3
Engineering (ENGR) Upper-Division Elective (30000 or 40000 level)		3
	Credit Hours	**15**
Semester Seven		
BA 24056	BUSINESS ANALYTICS I	3
ENGR 46316	SERVER ADMINISTRATION AND CONFIGURATION I	3
ENGR 46351	NETWORK MANAGEMENT AND DESIGN	2
ENGR 46352	NETWORK MANAGEMENT AND DESIGN LABORATORY	1
Engineering (ENGR) Upper-Division Elective (30000 or 40000 level)		3
General Elective		3
	Credit Hours	**15**
Semester Eight		
ENGR 46099	COMPUTER ENGINEERING TECHNOLOGY CAPSTONE (ELR)	3
ENGR 46312	WIRELESS NETWORK AND TELECOMMUNICATION SYSTEMS	3
ENGR 46317	SERVER ADMINISTRATION AND CONFIGURATION II	2
ENGR 46318	SERVER ADMINISTRATION AND CONFIG II - LABORATORY	1
Kent Core Requirement		3
General Elective		1
	Credit Hours	**13**
	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 (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 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 Computer Engineering Technology provides students with the opportunity to study computer systems and software-hardware interface so that they are capable of analyzing the problems in the computer and networking industry and producing computer engineering, networking and software solutions. The major's curriculum includes materials necessary for students to be eligible for industry certifications (e.g., Cisco, Microsoft, CompTIA) for career advancement.

Computer engineering technologists focus on hardware or software issues. When companies need custom applications and network systems designed, they call the computer engineering technologist. In this age of heavy computer usage, with companies using computers for a large variety of functions, the computer engineering technologist is

invaluable in keeping equipment running, updating software, maintaining connectivity and interfacing with users.

Computer engineering technologists typically work for large companies, installing, testing, operating and maintaining the computer network ins. They may also find employment with companies that sell computers, at computer repair stores or at independent emergency repair facilities. Other common work locations include computer and peripheral manufacturing facilities, computer distribution facilities, computer research facilities and educational institutions.

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

Students may apply early to the Master of Engineering Technology degree (Computer Engineering Technology concentration) 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.