COMPUTER ENGINEERING TECHNOLOGY - B.S.

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

About This Program

Want to be the expert who builds, secures and optimizes the systems that power our connected world? Designated by the National Security Agency (NSA) as a Center of Academic Excellence in Cyber Defense, the Computer Engineering Technology program bridges the gap between hardware and software, giving students hands-on experience with embedded systems, digital design, cybersecurity, networking and advanced computing technologies. 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 hardware engineers

- 1.6% slower than the average
- 71,100 number of jobs
- $119,560 potential earnings

Computer network architects

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

Computer network support specialists

- 6.4% faster than the average
- 195,100 number of jobs
- $65,450 potential earnings

Computer systems analysts

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

Network and computer systems administrators

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

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 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.

Former Students: Former Kent State students who have not attended another institution since Kent State and were not academically dismissed will complete the re-enrollment process through the Financial, Billing and Enrollment Center. Former students who attended another college or university since leaving Kent State must apply for admissions as a transfer or post-undergraduate student.

Transfer Students: Students who attended an educational institution after graduating from high school or earning their GED must apply as transfer students. For more information, visit the admissions website for transfer students.

Admission policies for undergraduate students may be found in the University Catalog's Academic Policies.

Students may be required to meet certain criteria to progress in their program. Any progression requirements will be listed on the program's Coursework tab

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

Program Requirements

Major Requirements

Code	Title	Credit Hours
Major Requirements (courses count in major GPA)		
BA 44152	PROJECT MANAGEMENT [1]	3
or EMAT 41510	PROJECT MANAGEMENT AND TEAM DYNAMICS (WIC)	
or ENGR 36620	PROJECT MANAGEMENT IN ENGINEERING	
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	1
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 46099	COMPUTER ENGINEERING TECHNOLOGY CAPSTONE (ELR)	3
ENGR 46305	NETWORK SECURITY	2
ENGR 46306	NETWORK SECURITY LABORATORY	1
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
Additional Major Electives, choose from the following:		6
Any Aeronautics (AERN) course		
Any Computer Science (CS) course		
Any Design Innovation (DI) course		
Any Engineering (ENGR) course		
Any Information Technology (IT) course		
Electrical Circuits 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, 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)	3
MATH 11022	TRIGONOMETRY (KMCR)	3
MGMT 24163	PRINCIPLES OF MANAGEMENT	3
PHY 13001 & PHY 13021	GENERAL COLLEGE PHYSICS I (KBS) and GENERAL COLLEGE PHYSICS LABORATORY I (KBS) (KLAB) [2]	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) [2]	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 credit hours, 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] 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 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
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		3-4
	Credit Hours	**15**
Semester Four		
ENGR 31000	CULTURAL DYNAMICS TECHNOLOGY (DIVD) (WIC)	3
MGMT 24163	PRINCIPLES OF MANAGEMENT	3
Electrical Circuits 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	1
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	**15**
Semester Six		
BA 44152 or EMAT 41510 or ENGR 36620	PROJECT MANAGEMENT or PROJECT MANAGEMENT AND TEAM DYNAMICS (WIC) or PROJECT MANAGEMENT IN ENGINEERING	3
ENGR 33320	APPLIED EMBEDDED SYSTEMS I	3
ENGR 36305	NETWORKING II	2
ENGR 36306	NETWORKING II LABORATORY	1
ENGR 46305	NETWORK SECURITY	2
ENGR 46306	NETWORK SECURITY LABORATORY	1
Additional Major Elective		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
Additional Major Elective		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		2
	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 (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.

The educational objectives of the program are the following:

1. Drive positive change in the community by engaging in careers in the field of computer engineering, information systems and other engineering technology disciplines in a manner that promotes excellence and integrity.
2. Have a depth of applied skills to specialize in one or more core computer engineering areas, such as computer hardware, networks and operating systems, and equip students with problem-solving, teamwork and communication skills.
3. Successfully navigate the ever-changing trajectory of the computer engineering technology industry, practicing compassion as you strive to meet your personal career goals.

Full Description

The Bachelor of Science degree in Computer Engineering Technology prepares students with problem-solving skills and computer technology foundational knowledge to engineer solutions in computer engineering technology (CET) fields. The program 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 networking. 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 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.