

BACHELOR OF SCIENCE IN APPLIED SCIENCE IN CIVIL AND CONSTRUCTION ENGINEERING TECHNOLOGY

Bachelor of Science in Applied Science Degree

Robert Korenic, CCET Program Coordinator (330) 941-3287

Students in the Civil and Construction Engineering Technology (CCET) program may choose to complete two years of study and earn an Associate of Applied Science (AAS) degree. The AAS degree provides early access to employment in engineering support positions. Upon completion of the AAS degree, the student may continue on for the Bachelor of Science in Applied Science (BSAS) degree. This program provides additional coursework, continuing the student's growth to that of an engineer or engineering designer. Exceptional students may be eligible for enrollment in a Master of Engineering or Master of Business Administration program.

The civil and construction engineering technology programs is based on the "two-plus-two" educational system which provides the student with the flexibility of earning an associate degree and a bachelor's degree according to his or her needs. After completing the requirements of the associate degree, the student may elect to either enter industry or, through an added two years of full-time study (averaging 17 hours per semester) or equivalent part-time study, earn the Bachelor of Science in Applied Science (BSAS).

Graduates of the BSAS degree program obtain employment as engineers or engineering designers for government agencies, consulting engineers and architects, industry and manufacturing, and contractors. Because their education is more extensive, they are prepared for more responsibility and more-rapid advancement. BSAS engineers design, plan, inspect, and direct construction, production, and maintenance activities.

Based on an evaluation of their work, transfer students who have a related associate degree from a regionally accredited institution may be admitted to the bachelor's degree program at the junior level.

Program Educational Objectives

Educational objectives for the civil and construction engineering technology programs have been developed by faculty and the program industrial advisory committee to support the university, college, and the School of Computer Science, Information, and Engineering Technology missions. Graduates of the CCET bachelor's degree program are prepared to support civil engineers in:

- structural design
- public works
- construction
- inspection
- transportation
- environmental engineering

Bachelor's degree graduates are prepared to assist with planning, design, inspection, and direction of the construction of projects involving buildings, roads, dams, bridges, airports, and wastewater treatment facilities.

During their first few years after earning the civil and construction engineering technology degree at YSU, graduates will have demonstrated the ability to:

1. Secure employment and achieve recognition in a technical career related to their civil and construction engineering technology degree.

2. Continue to gain professional knowledge through lifelong learning and communicate effectively in a professional environment.

Accreditation

The Bachelor of Science in Applied Science in Civil and Construction Engineering Technology is accredited by the Engineering Technology Accreditation Commission of ABET, <https://www.abet.org>, under the General Criteria and the Program Criteria for Civil Engineering Technology and Construction Engineering Technology.

Date of last campus visit: October 2024
Accredited through: 2030
Next campus visit: October 2029

COURSE	TITLE	S.H.
FIRST YEAR REQUIREMENT -STUDENT SUCCESS		
YSU 1500	Success Seminar	1-2
or YSU 1500S	Youngstown State University Success Seminar	
or HONR 1500	Intro to Honors	
General Education Courses:		
ENGL 1550	Writing 1	3-4
or ENGL 1549	Writing 1 with Support	
ENGL 1551	Writing 2	3
Gen Ed Math		
MATH 1513	Algebra and Transcendental Function (or higher level 5-10 course based on Math Placement)	
or MATH 1510 & MATH 1511	College Algebra and Trigonometry	
or MATH 1510C & MATH 1511C	College Algebra with Co-requisite Support and Trigonometry with Co-requisite Support	
Gen Ed NS		
CHEM 1515	General Chemistry 1	3
CHEM 1515L	General Chemistry 1 Laboratory	1
PHYS 1501	Fundamentals of Physics 1	4
or PHYS 2610	General Physics 1	
Gen Ed AH		
HIST 2650	CL History of American Democracy	3
PHIL 2625	Introduction to Professional Ethics	3
Gen Ed Social and Behavioral Science (select two courses)		6
Gen Ed Electives: CMST 1545, MATH 1570 and one selected by student		
CMST 1545	Communication Foundations	3
Gen Ed Elective		
MATH 1570	Applied Calculus 1 (Met in major)	
or MATH 1571	Calculus 1	
Courses in the Major:		
CCET 1503	CAD Technology	2
CCET 1504	Drafting and Plan Reading	2
ENTC 1505	Engineering Technology Concepts	4
or ENGR 1550 & ENGR 1560	Engineering Concepts and Engineering Computing	
MATH 1570	Applied Calculus 1	4
or MATH 1571	Calculus 1	
MET 1515	Mechanics 1	3
CCET 2604	Properties and Strength of Materials	3
CCET 2614L	Materials Laboratory 1	2
CEEN 2610 & 2610L	Surveying and Surveying Laboratory	4
MET 2616	Mechanics 2	3
CCET 2607	Civil 3D	3

CCET 2620	Transportation Technology	3	Spring		
CCET 3706	Structural Design	4	MET 1515	Mechanics 1	3
CCET 3708	Building Information Modeling	3	CCET 2604	Properties and Strength of Materials	3
CCET 3709	Structural Analysis 1	3	CCET 2614L	Materials Laboratory 1	2
CCET 3711	Specifications and Estimating	3	PHYS 1501	Fundamentals of Physics 1	4
CCET 3714 & 3714L	Soil Mechanics and Soil Mechanics Laboratory	3	or PHYS 2610	or General Physics 1	
EET 3725 & 3725L	Electromechanical Systems and Electromechanical Systems Lab	4	ENGL 1551	Writing 2	3
CCET 3724	Hydraulics and Land Development	3	Semester Hours		15
CCET 3740	Construction Management	3	Year 2		
CCET 3735	Heavy Highway Technology	3	Fall		
EET 4810	Electrical System Design	3	CEEN 2610 & 2610L	Surveying and Surveying Laboratory	4
CCET 4840	Advanced Hydrology	3	MET 2616	Mechanics 2	3
CCET 4884	Civil/Structural Facilities Design	3	CCET 3709	Structural Analysis 1	3
Design Elective (3 courses required):		9	CCET 2620	Transportation Technology	3
CCET 4812	Concrete Design		CCET 2607	Civil 3D	3
CCET 4813	Steel Design		PHIL 2625	Introduction to Professional Ethics	3
CCET 4814	Foundation Design		Semester Hours		19
CCET 4815	Masonry Design		Spring		
CCET 4816	Timber Design		MATH 1570 or MATH 1571	Applied Calculus 1 or Calculus 1	4
CCET Elective (2 courses required):		6	CCET 3724	Hydraulics and Land Development	3
CCET 3790	Drone Use in Engineering Technology		CCET 3706	Structural Design	4
CCET 4807	Project Planning & Scheduling		CCET 3711	Specifications and Estimating	3
CCET 4809	Structural Analysis 2		CMST 1545	Communication Foundations	3
CCET 4810	Construction Surveying		Semester Hours		17
CCET 4824	Environmental Technology		Year 3		
CCET 4890	Special Topics in Civil and Construction Engineering Technology		Fall		
CCET 4895	Independent Engineering Technology Project		Design Elective		3
STEM 4890	STEM Internship		CHEM 1515	General Chemistry 1	3
MET 4870	Applied Finite Element Method		CHEM 1515L	General Chemistry 1 Laboratory	1
CEEN 4835	Highway Design		CCET 4840	Advanced Hydrology	3
CEEN 5820	Pavement Material and Design		EET 3725	Electromechanical Systems	3
			EET 3725L	Electromechanical Systems Lab	1
Total Semester Hours		124-131	Semester Hours		14
Year 1			Spring		
Fall		S.H.	Design Elective		3
YSU 1500 or YSU 1500S or HONR 1500	Success Seminar or Youngstown State University Success Seminar or Intro to Honors	1-2	CCET 3735	Heavy Highway Technology	3
ENTC 1505 or ENGR 1550 and ENGR 1560	Engineering Technology Concepts or Engineering Concepts and Engineering Computing	4	CCET 3740	Construction Management	3
CCET 1503	CAD Technology	2	CCET 3708	Building Information Modeling	3
CCET 1504	Drafting and Plan Reading	2	CCET Elective		3
MATH 1513 or MATH 1510 and MATH 1511	Algebra and Transcendental Function or College Algebra and Trigonometry or College Algebra with Co-requisite Support and Trigonometry with Co-requisite Support	5-10	Semester Hours		15
or MATH 1510C and MATH 1511C			Year 4		
ENGL 1550 or ENGL 1549	Writing 1 or Writing 1 with Support	3-4	Fall		
Semester Hours		17-24	Design Elective		3
			CCET Elective		3
			CCET 3714	Soil Mechanics	2
			CCET 3714L	Soil Mechanics Laboratory	1
			Social and Behavioral Science GER		3
			Semester Hours		12
			Spring		
			CCET 4884	Civil/Structural Facilities Design	3
			EET 4810	Electrical System Design	3
			Elective GER		3
			Social and Behavioral Science GER		3

HIST 2650	CL History of American Democracy	3
Semester Hours		15
Total Semester Hours		124-131

Electives

COURSE	TITLE	S.H.
Design Electives		
Select three of the following:		9
CCET 4812	Concrete Design	
CCET 4813	Steel Design	
CCET 4814	Foundation Design	
CCET 4815	Masonry Design	
CCET 4816	Timber Design	
CCET Electives		
Select two of the following:		4-6
CCET 3790	Drone Use in Engineering Technology	
CCET 4807	Project Planning & Scheduling	
CCET 4809	Structural Analysis 2	
CCET 4810	Construction Surveying	
CCET 4824	Environmental Technology	
CCET 4890	Special Topics in Civil and Construction Engineering Technology	
CCET 4895	Independent Engineering Technology Project	
MET 4870	Applied Finite Element Method	
CEEN 4835	Highway Design	
CEEN 5820	Pavement Material and Design	
Total Semester Hours		13-15

PROGRAM OUTCOMES

BACHELOR OF SCIENCE IN APPLIED SCIENCE IN CIVIL AND CONSTRUCTION ENGINEERING TECHNOLOGY

Graduates of the Bachelor's Degree in Civil and Construction Engineering Technology will possess the following competencies upon graduation:

- **Learning Outcome 1:** ability to plan, prepare, and utilize design, construction, and operations documents, such as specifications, contacts, change orders, engineering drawings, and construction schedules
- **Learning Outcome 2:** perform economic analyses and cost estimates related to design, construction, operations, and maintenance of systems related to civil and construction engineering
- **Learning Outcome 3:** ability to select appropriate construction and engineering materials/practices
- **Learning Outcome 4:** (Construction Engineering Technology) ability to apply principles of construction law and ethics
- **Learning Outcome 5:** apply basic technical concepts related to the civil and construction engineering technology field; such as hydraulics, hydrology, geotechnics, structures, material behavior, transportation systems, and water and wastewater systems
- **Learning Outcome 6:** perform standard analysis/design in at least one technical specialty within civil and construction engineering technology