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.

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Date of last campus visit:   October 2024
Accredited through:   2030
Next campus visit:     October 2029
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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 course based on Math Placement)	5-10
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		3
PHIL 2626	Engineering Ethics	3
or PHIL 2625	Introduction to Professional Ethics	
Gen Ed SS		3
Gen Ed SS		3
Gen Ed Electives: CMST 1545, MATH 1570 and one selected by student		
CMST 1545	Communication Foundations	3
Gen Ed Elective		3
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
CCET 3705	Computing for Engineers	3
CCET 3706	Structural Design	4
CCET 3708	Building Information Modeling	3
CCET 3709	Structural Analysis 1	3
CCET 3711	Specifications and Estimating	3
CCET 3714 & 3714L	Soil Mechanics and Soil Mechanics Laboratory	3
EET 3725 & 3725L	Electromechanical Systems and Electromechanical Systems Lab	4
CCET 3724	Hydraulics and Land Development	3
CCET 3740	Construction Management	3
CCET 3735	Heavy Highway Technology	3
EET 4810	Electrical System Design	3
CCET 4884	Civil/Structural Facilities Design	3
Design Elective (3 courses required):		**9**
CCET 4812	Concrete Design	
CCET 4813	Steel Design	
CCET 4814	Foundation Design	
CCET 4815	Masonry Design	
CCET 4816	Timber Design	
CCET Elective (2 courses required):		**6**
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	
ENTC 4895	Independent Engineering Technology Project	
STEM 4890	STEM Internship	
MET 4870	Applied Finite Element Method	
CEEN 4835	Highway Design	
CEEN 5820	Pavement Material and Design	
Total Semester Hours		**124-131**

Year 1

Fall		**S.H.**
YSU 1500 or YSU 1500S or HONR 1500	Success Seminar or Youngstown State University Success Seminar or Intro to Honors	1-2
ENTC 1505 or ENGR 1550 ***and*** ENGR 1560	Engineering Technology Concepts or Engineering Concepts ***and*** Engineering Computing	4
CCET 1503	CAD Technology	2
CCET 1504	Drafting and Plan Reading	2
MATH 1513 or MATH 1510 ***and*** MATH 1511 or MATH 1510C ***and*** MATH 1511C	Algebra and Transcendental Function or College Algebra ***and*** Trigonometry or College Algebra with Co-requisite Support ***and*** Trigonometry with Co-requisite Support	5-10
ENGL 1550 or ENGL 1549	Writing 1 or Writing 1 with Support	3-4
	Semester Hours	**17-24**

Spring

MET 1515	Mechanics 1	3
CCET 2604	Properties and Strength of Materials	3
CCET 2614L	Materials Laboratory 1	2
PHYS 1501 or PHYS 2610	Fundamentals of Physics 1 or General Physics 1	4
ENGL 1551	Writing 2	3
	Semester Hours	**15**

Year 2

Fall

CEEN 2610 & 2610L	Surveying and Surveying Laboratory	4
MET 2616	Mechanics 2	3
CCET 3709	Structural Analysis 1	3
CCET 2620	Transportation Technology	3
PHIL 2626 or PHIL 2625	Engineering Ethics (Arts & Humanities GER) or Introduction to Professional Ethics	3
CCET 2607	Civil 3D	3
	Semester Hours	**19**

Spring

MATH 1570 or MATH 1571	Applied Calculus 1 or Calculus 1	4
CCET 3724	Hydraulics and Land Development	3
CCET 3706	Structural Design	4
CCET 3711	Specifications and Estimating	3
CMST 1545	Communication Foundations	3
	Semester Hours	**17**

Year 3

Fall

Design Elective		3
CCET 3705	Computing for Engineers	3
CHEM 1515	General Chemistry 1	3
CHEM 1515L	General Chemistry 1 Laboratory	1
EET 3725	Electromechanical Systems	3
EET 3725L	Electromechanical Systems Lab	1
	Semester Hours	**14**

Spring

Design Elective		3
CCET 3735	Heavy Highway Technology	3
CCET 3740	Construction Management	3
CCET 3708	Building Information Modeling	3
CCET Elective		3
	Semester Hours	**15**

Year 4

Fall

Design Elective		3
CCET Elective		3
CCET 3714	Soil Mechanics	2
CCET 3714L	Soil Mechanics Laboratory	1
Social Science GER		3
	Semester Hours	**12**

Spring

CCET 4884	Civil/Structural Facilities Design	3
EET 4810	Electrical System Design	3
Elective GER		3
Social Science GER		3

Arts & Humanities GER		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 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	
ENTC 4895	Independent Engineering Technology Project	
MET 4870	Applied Finite Element Method	3
CEEN 4835	Highway Design	3
CEEN 5820	Pavement Material and Design	3
Total Semester Hours		**22-24**

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