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

Bachelor of Science in Applied Science Degree

(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 School of Engineering Technology missions. Graduates of the CCET associate 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:

- Secure employment in a technical career related to their civil and construction engineering technology degree.
- Communicate effectively in a professional environment.
- Continue growth in professional knowledge and skills.
- Achieve recognition consistent with their educational achievements.

Accreditation and Registration

The civil and construction engineering technology bachelor program is accredited by the ETAC Accreditation Commission of ABET, http://www.abet.org. In most states, including Ohio, West Virginia and Pennsylvania, bachelor's degree graduates are qualified to take the Fundamentals of Engineering (FE) exam, and, with sufficient work experience, the Professional Engineers (PE) exam. Graduates are also qualified to apply to the National Institute for Certification in Engineering Technologies (NICET) for certification procedures in various specialty areas, depending on academic major and employment area.

Date of last campus visit: October, 2017

Accredited through: 2024

Next campus visit: 2023

Link to accrediting body: ABET (http://www.abet.org/)

COURSE	TITLE	S.H.
FIRST YEAR REQUIREMENT -STUDENT SUCCESS		
YSU 1500	Success Seminar	1-2
or SS 1500	Strong Start Success Seminar	
or HONR 1500	Intro to Honors	
General Education Courses:		
MATH 1513	Algebra and Transcendental Function	5
ENGL 1550	Writing 1	3-4
or ENGL 1549	Writing 1 with Support	
ENGL 1551	Writing 2	3
CMST 1545	Communication Foundations	3
PHIL 2626	Engineering Ethics	3
or PHIL 2625	Introduction to Professional Ethics	
GER SPA		3
GER SPA		3
GER SS		3
GER SS		3
GER AH		3
CHEM 1515	General Chemistry 1	3
CHEM 1515L	General Chemistry 1 Laboratory	1
PHYS 1501	Fundamentals of Physics 1	4
Courses in the Major:		
MATH 2670	Applied Calculus 2	5
MATH 1570	Applied Calculus 1	4
ENTC 1505	Engineering Technology Concepts	4
CCET 1503	CAD Technology	2
CCET 1504	Drafting and Plan Reading	2
MET 1515	Mechanics 1	3
CCET 2604	Properties and Strength of Materials	3
CCET 2614L	Materials Laboratory 1	2
CEEN 2610	Surveying	3
CEEN 2610L	Surveying Laboratory	1
MET 2616	Mechanics 2	3
CCET 2607	Civil 3D	3
CCET 2620	Transportation Technology	3
CCET 3706	Structural Design	4
CCET 3709	Structural Analysis 1	3
CCET 3711	Specifications and Estimating	3

CCET 3724	Hydraulics and Land Development	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 3705	Computing for Technologists	3
EET 3725 & 3725L	Electromechanical Systems and Electromechanical Systems Lab	4
CCET 3735	Heavy Highway Technology	3
CCET 3740	Construction Management	3
CCET 3708	Building Information Modeling	3
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	
CCET 3714	Soil Mechanics	2
CCET 3714L	Soil Mechanics Laboratory (Technical Elective (1 courses required):)	1
Technical Elective (1 courses required):		**3**
Any CCET or Design Elective		
MET 4870	Applied Finite Element Method	
CEEN 4835	Highway Design	
CEEN 5820	Pavement Material and Design	
CCET 4884	Civil/Structural Facilities Design	3
EET 4810	Electrical System Design	3
Total Semester Hours		**135-137**

Year 1

Fall		**S.H.**
YSU 1500	Success Seminar	1
ENTC 1505	Engineering Technology Concepts	4
CCET 1503	CAD Technology	2
CCET 1504	Drafting and Plan Reading	2
MATH 1513	Algebra and Transcendental Function	5
ENGL 1550	Writing 1	3
	Semester Hours	**17**
Spring		
MET 1515	Mechanics 1	3
CCET 2604	Properties and Strength of Materials	3
CCET 2614L	Materials Laboratory 1	2
PHYS 1501	Fundamentals of Physics 1	4
ENGL 1551	Writing 2	3
Social Science GER [1]		3
	Semester Hours	**18**

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	Engineering Ethics (Arts & Humanities GER)	3
CCET 2607	Civil 3D	3
	Semester Hours	**19**
Spring		
MATH 1570	Applied 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 Technologists	3
MATH 2670	Applied Calculus 2	5
CHEM 1515	General Chemistry 1	4
CHEM 1515L	General Chemistry 1 Laboratory	0
EET 3725 & 3725L	Electromechanical Systems and Electromechanical Systems Lab	4
	Semester Hours	**19**
Spring		
Design Elective		3
CCET 3735	Heavy Highway Technology	3
CCET 3740	Construction Management	3
CCET 3708 & 3708L	Building Information Modeling and	3
CCET Elective		3
	Semester Hours	**15**

Year 4

Fall		
Design Elective		3
CCET 3714 & 3714L	Soil Mechanics and Soil Mechanics Laboratory	3
CCET Elective		3
Technical Elective		3
Social & Personal Awareness GER [1]		3
	Semester Hours	**15**
Spring		
CCET 4884	Civil/Structural Facilities Design [2]	3
EET 4810	Electrical System Design	3
Social & Personal Awareness GER [1]		3
Social Science GER [1]		3
Arts & Humanities GER [1]		3
	Semester Hours	**15**
	Total Semester Hours	**135**

1 General Education Requirement: see "Schedule of Classes" for details.
SPA = Social & Personal Awareness (2 required for BSAS)
SS = Social Sciences (2 required for BSAS)
AH = Arts & Humanities (2 required for BSAS)

2 Capstone course sequence must be taken concurrently, requires Program Coordinator approval.

3 General Education Elective: Choose BIOL 2601 General Biology 1: Molecules and Cells, BIOL 2601L General Biology I: Molecules and Cells Laboratory, GEOL 1505 Physical Geology, GEOL 1505L Physical Geology Laboratory, GEOL 2611 Geology for Engineers

Electives

COURSE	TITLE	S.H.
Technical Electives		
Select one of the following:		3
Any CCET Electrical/Design Elective		
MET 4860	Robotics Technology	
CEEN 4835	Highway Design [4]	
CEEN 5820	Pavement Material and Design [4]	
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 [4]	
ENTC 4895	Independent Engineering Technology Project [4]	
Total Semester Hours		**16-18**

[4] Approval of the CCET Program Coordinator is required **before** taking the course.

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