

Civil Engineering Technologies

Civil engineering deals with the planning, design, construction, and maintenance of buildings, houses, roads, bridges, and public utilities. Every construction project involves civil engineers and support technicians engaged in many different capacities, including design, supervision, and inspection. Civil engineering technology harnesses the power of advanced computer technologies in the fields of visualization, measurement, and planning to deliver high quality projects. The civil engineering technician is constantly adapting the latest technological tools to solve problems that serve clients and the public at large.

The Civil Engineering Technologies Department at Cincinnati State offers three programs and two certificates. The educational pathways leading to an associate's degree include:

- **The Architectural option** focuses on the design of building systems, including lighting, HVAC, mechanical, and electrical systems. Graduates use their expertise in computer-aided drafting (CAD) to modify and finalize an architect's or engineer's detailed design plan.
- **The Construction Management option** concentrates on understanding project documentation, building methods and materials, estimating, scheduling, and team dynamics. Graduates have the skills necessary to successfully deliver a construction project.
- **The Surveying option** emphasizes operation of state-of-the-art surveying equipment and computer software to collect data and propose solutions in boundary resolution, subdivision design, construction layout, and control networks.

All options in the CET program prepare graduates to successfully pursue baccalaureate degrees and to enter the workforce and advance professionally through technical and management positions in industry.

Courses are scheduled to meet the needs of traditional full-time students as well as part-time students, who can earn an associate's degree while attending classes two nights per week.

The department also offers certificates for educational and professional advancement in surveying.

- **The Advanced Land Surveying Certificate** serves as a conduit for graduates of an accredited associate's degree surveying programs to earn a surveying-focused bachelor's degree at Northern Kentucky University.
- **The Land Surveying certificate** is designed for graduates and students in bachelor's degree civil engineering programs who wish to be eligible for the professional surveyor examinations in the State of Ohio.

The Civil Engineering Technology program is accredited by the Engineering Technology Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, phone: (410) 347-7700 and has received an Ohio Board of Regents Program Excellence Award. Additionally, the Construction Management major has earned accreditation from the American Council for Construction Education (ACCE), making it the only program in the United States to hold both accreditations.

Civil Engineering Technology—Architectural Option (CETA)

The Architectural option prepares graduates to bridge the gap between the architect and design engineer by assisting in the design of architectural, mechanical, electrical, and lighting systems for buildings. Architectural technicians fill support positions in various architectural and engineering firms, and provide an important interface between the architect and the project engineer. To prepare students for the current needs of the profession, the curriculum provides fundamental knowledge of building information modeling and CAD using Revit Architecture and Revit MEP with regard to the design and construction of architectural, mechanical and lighting systems. In addition, students gain knowledge of construction methods and principles, architectural drafting and design, and the structural design involved in building construction.

Civil Engineering Technology—Construction Management Option (CETC)

The Construction Management option prepares graduates to coordinate and supervise the construction process from design through construction while meeting schedule, cost, and quality goals. The construction manager has a thorough understanding of project documentation, building methods and materials, estimating, scheduling, and team dynamics. Graduates are well-versed in computer-integrated construction, and the practices and methods used throughout residential, commercial, and industrial construction.

Civil Engineering Technology—Surveying Option (CETS)

A surveyor enjoys diverse responsibilities as part of his or her everyday routine. Many surveying technicians work outside, collecting data, establishing control points, and determining boundary locations. Others work inside an engineering office helping with site design activities and developing plans from the field data. Coursework in this program includes operation of state-of-the-art surveying equipment and computer software in conjunction with the fundamentals of civil and site design. Students graduate with specialized knowledge of boundary resolution, subdivision design, geographic information systems (GIS), and global positioning systems (GPS).

Advanced Surveying Certificate (ASC)

The Advanced Surveying certificate at Cincinnati State is for graduates of the Civil Engineering Technology—Surveying Option or other related associate's degree programs, and serves as the third year of a bachelor's degree program at Northern Kentucky University (NKU). Most courses in the certificate are offered through web-based distance education.

Advanced surveying courses in geographic information systems (GIS), global positioning systems (GPS), and legal topics are offered through online instruction. This cooperative venture with NKU has been approved by the State Boards of Registration in Ohio, Indiana, and Kentucky.

Students should check with their state licensing board for changes to specific requirements before taking any coursework. Graduates of other related associate's degree programs will be required to complete all prerequisite material in the Cincinnati State CETS program prior to acceptance into the certificate program. Students who wish to transfer credits must meet with the certificate advisor.

Program Prerequisites: Graduate of the Cincinnati State Civil Engineering Technologies Surveying Option, or completion of comparable coursework. Prospective students must meet with the certificate advisor prior to admission to the program.

Land Surveying Certificate (LSC)

The Land Surveying Certificate is for graduates of bachelor's degree civil engineering programs who are interested in pursuing Professional Surveying registration in the State of Ohio. The Ohio State Board of Registration for Professional Engineers and Surveyors requires graduates from an approved civil engineering bachelor's degree program to successfully complete designated courses in surveying and mapping sciences to qualify for the surveying fundamentals examination. Cincinnati State's Land Surveying Certificate satisfies this requirement. The certificate program courses are offered in the evening and may be completed in consecutive semesters.

Civil Engineering Technology—Architectural Option (CETA)

All degree-seeking students must complete a First Year Experience (FYE) course as part of the first 12 credit hours taken at Cincinnati State.

Semester 1		Credits
CET 100	Introduction to Civil Engineering Technology	3
ENG 101	English Composition	3
CET 105	Introduction to Surveying	4
CET 115	Architectural Drafting and Computer Aided Design	4
MAT 125	Algebra and Trigonometry	4
Semester 2		
CULT 110	Social Issues in Technology	3
CET 120	Advanced Computer Aided Design: Revit Architecture	4
CET 125	Statics and Strength of Materials (CET)	4
MAT 126	Functions and Calculus	4
CET 130	Building Codes and Materials	3
Semester 3		
COMM 110	Public Speaking	3
CET 291	Full-Time Cooperative Education 1: Civil Engineering Technology	2
Semester 4		
PHY 151	Physics 1: Algebra and Trigonometry-Based	4
CET 205	Architectural Design and 3D Modeling: Revit Architecture	4
CET 210	Lighting and Electrical Systems Design	4
CET 215	Mechanical and HVAC Systems Design	4
Semester 5		
CET 292	Full-Time Cooperative Education 2: Civil Engineering Technology	2
Semester 6		
ENG 10X English Composition Elective		3
ECO 110	Principles of Macroeconomics	3
CET 200	Structural Design	4
CET 220	3D Modeling: Revit MEP and Revit Structure	4

CET 280	Civil Engineering Technology Architectural Capstone	5
Total Credits:		78

Electives

English Composition Elective

ENG 102	Composition and Argument	3
ENG 103	Composition and Literature	3
ENG 104	Composition and Technical Communication	3
ENG 105	Composition and Business Communication	3

Civil Engineering Technology—Construction Management Option (CETC)

All degree-seeking students must complete a First Year Experience (FYE) course as part of the first 12 credit hours taken at Cincinnati State.

		Credits
Semester 1		
CET 100	Introduction to Civil Engineering Technology	3
ENG 101	English Composition	3
CET 105	Introduction to Surveying	4
CET 115	Architectural Drafting and Computer Aided Design	4
MAT 125	Algebra and Trigonometry	4
Semester 2		
CET 110	Advanced Surveying and Construction Layout	3
CET 120	Advanced Computer Aided Design: Revit Architecture	4
CET 125	Statics and Strength of Materials (CET)	4
MAT 126	Functions and Calculus	4
CET 135	Construction Estimating	3
Semester 3		
COMM 110	Public Speaking	3
CET 291	Full-Time Cooperative Education 1: Civil Engineering Technology	2
Semester 4		
PHY 151	Physics 1: Algebra and Trigonometry-Based	4
CET 225	Building Construction	3
CET 230	Construction Management	3
CET 235	Construction Scheduling	3
CET 240	Cost Engineering	3
Semester 5		
CULT 110	Social Issues in Technology	3
CET 292	Full-Time Cooperative Education 2: Civil Engineering Technology	2
XXX XXX Business Elective		3
Semester 6		
ENG 105	Composition and Business Communication	3
ECO 110	Principles of Macroeconomics	3
CET 200	Structural Design	4
CET 245	Building Information Models for Construction	2
CET 285	Civil Engineering Technology Construction Management Capstone	3
Total Credits:		80

Electives

Business Elective

BUS 110	Business Ethics	3
Any ACC, FIN, MGT, MKT		

Civil Engineering Technology—Surveying Option (CETS)

All degree-seeking students must complete a First Year Experience (FYE) course as part of the first 12 credit hours taken at Cincinnati State.

Semester 1		Credits
CET 100	Introduction to Civil Engineering Technology	3
ENG 101	English Composition	3
CET 105	Introduction to Surveying	4
CET 115	Architectural Drafting and Computer Aided Design	4
MAT 125	Algebra and Trigonometry	4
Semester 2		
CET 110	Advanced Surveying and Construction Layout	3
CULT 110	Social Issues in Technology	3
CET 120	Advanced Computer Aided Design: Revit Architecture	4
CET 125	Statics and Strength of Materials (CET)	4
MAT 126	Functions and Calculus	4
Semester 3		
COMM 110	Public Speaking	3
CET 291	Full-Time Cooperative Education 1: Civil Engineering Technology	2
Semester 4		
PHY 151	Physics 1: Algebra and Trigonometry-Based	4
CET 250	Route Location and Design	4
CET 251	Elements of Land Surveying 1	4
CET 255	Land Information Modeling	3
Semester 5		
ECO 110	Principles of Macroeconomics	3
CET 292	Full-Time Cooperative Education 2: Civil Engineering Technology	2
Semester 6		
ENG 10X English Composition Elective		3
CET 252	Elements of Land Surveying 2	4
CET 260	Control Surveying	4
CET 265	Subdivision Design and Drainage Control	4
CET 290	Civil Engineering Technology Surveying Capstone	3
Total Credits:		79

Electives

English Composition Elective

ENG 102	Composition and Argument	3
ENG 104	Composition and Technical Communication	3
ENG 105	Composition and Business Communication	3

Advanced Surveying Certificate (ASC)

Program Prerequisites: Graduate from the Cincinnati State Civil Engineering Technologies Surveying Option, or complete comparable coursework. Meet with the certificate advisor prior to admission to the program.

Most courses are offered via web-based distance education.

Semester 1		Credits
CULT 105	Issues in Human Diversity	3
CET 267	Surveying Laws, Ethics, and History	4
Semester 2		
MGT 101	Principles of Management	3

CET 277	Survey Calculations and Statistics	4
Semester 3		
MGT 220	Leadership	3
CET 287	Geospatial Surveying	4
Total Credits:		21

Land Surveying Certificate (LSC)

Program Prerequisite: Enrolled in or a graduate of a four-year Civil Engineering degree program.

This program meets the Ohio State Board of Registration for Professional Engineering and Surveyors requirements for education needed to become eligible for the registration exam for professional surveyors.

		Credits
Semester 1		
CET 250	Route Location and Design	4
CET 251	Elements of Land Surveying 1	4
Semester 2		
CET 252	Elements of Land Surveying 2	4
CET 260	Control Surveying	4
Semester 3		
CET 267	Surveying Laws, Ethics, and History	4
Semester 4		
CET 2XX	Surveying Elective	4
Total Credits:		24

Electives

Surveying Elective

CET 277	Survey Calculations and Statistics	4
CET 287	Geospatial Surveying	4