Civil Engineering Technology

Civil Engineering Technology (A40140)

Degree Awarded

The Associate in Applied Science Degree - Civil Engineering Technology is awarded by the college upon completing this program. This degree is accepted at some colleges and universities towards the first two years of a 2 + 2 bachelor's-level engineering technology program.

Admissions

- A high school diploma or equivalent is required.
- Central Piedmont placement tests are required in English and mathematics. Developmental classes in mathematics and English courses are available for students to build basic skills and knowledge.
- A counseling/orientation appointment follows placement testing.
- Students should see a faculty advisor before registration.
- Many courses have prerequisites or co-requisites; check the Courses section for details.

Program Accreditation

The Associate in Applied Science in Civil Engineering Technology Program is accredited by the Engineering Technology Accreditation Commission of ABET, under the General Criteria and the Program Criteria for Civil Engineering Technology and Similarly Named Programs.

Contact Information

Civil Engineering Technology is in the Engineering Technologies Division. For more information, call the Program Chair at 704.330.6892 or visit the Civil Engineering Technologies website.

Note: Students who do not take program-related courses for a one-year period must reenter the program under Catalog requirements in effect at the time of reentry.

General Education Requirements		
ENG 111	Writing and Inquiry	3.0
ENG 114	Professional Research & Reporting	3.0
or ENG 112	Writing and Research in the Disciplines	
MAT 171	Precalculus Algebra	4.0
Select 3 credits of the following:		3.0
ART 111	Art Appreciation	
ART 114	Art History Survey I	
ART 115	Art History Survey II	
HUM 120	Cultural Studies	
DRA 111	Theatre Appreciation	
HUM 130	Myth in Human Culture	
MUS 110	Music Appreciation	
MUS 112	Introduction to Jazz	
PHI 215	Philosophical Issues	
PHI 240	Introduction to Ethics	
REL 110	World Religions	
Select 3 credits of the following:		3.0
ECO 251	Principles of Microeconomics	
ECO 252	Principles of Macroeconomics	
HIS 111	World Civilizations I	
HIS 112	World Civilizations II	
HIS 131	American History I	
HIS 132	American History II	
POL 120	American Government	
PSY 150	General Psychology	
SOC 210	Introduction to Sociology	
Major Requirements		
ACA 122	College Transfer Success	1.0
CEG 111	Introduction to Gis and Gnss	4.0
CEG 115	Intro to Tech & Sustainability	3.0
CEG 151	Cad for Engineering Technology	3.0
CEG 210	Construction Materials & Methods	3.0
CEG 211	Hydrology & Erosion Control	3.0
CEG 212	Introduction to Environmental Technology	3.0
CEG 235	Project Management and Estimating	3.0
CIV 111	Soils and Foundations	4.0
EGR 251	Statics	3.0
EGR 252	Strength of Materials	3.0
SRV 110	Surveying I	4.0
SRV 111	Surveying II	4.0
DFT 152	CAD II	3.0
PHY 151	College Physics I	4.0
or PHY 251	General Physics I	
MAT 172	Precalculus Trigonometry	4.0
or MAT 271	Calculus I	
Select 3 Credit Technical Elective:		3.0
MAT 271	Calculus I	
MAT 272	Calculus II	
WBL 112	Work-Based Learning I	
PHY 152	College Physics II	
PHY 252	General Physics II	
CHM 151	General Chemistry I	
SRV 210	Surveying III	
SRV 220	Surveying Law	
SRV 240	Topo/Site Surveying	
Total Credits		**71**

Civil Engineering Technology - Geomatics Technology (A40140G)

General Education Requirements		
ENG 111	Writing and Inquiry	3.0
ENG 112	Writing and Research in the Disciplines	3.0
or ENG 114	Professional Research & Reporting	
MAT 171	Precalculus Algebra	4.0
Select 3 credits of the following:		3.0
ART 111	Art Appreciation	
ART 114	Art History Survey I	
ART 115	Art History Survey II	
DRA 111	Theatre Appreciation	

HUM 120	Cultural Studies	
HUM 130	Myth in Human Culture	
MUS 110	Music Appreciation	
MUS 112	Introduction to Jazz	
PHI 215	Philosophical Issues	
PHI 240	Introduction to Ethics	
REL 110	World Religions	
Select 3 credits of the following:		3.0
ECO 251	Principles of Microeconomics	
ECO 252	Principles of Macroeconomics	
HIS 111	World Civilizations I	
HIS 112	World Civilizations II	
HIS 131	American History I	
HIS 132	American History II	
POL 120	American Government	
PSY 150	General Psychology	
SOC 210	Introduction to Sociology	
Major Requirements:		
ACA 122	College Transfer Success	1.0
CEG 211	Hydrology & Erosion Control	3.0
SRV 110	Surveying I	4.0
CEG 115	Intro to Tech & Sustainability	3.0
CEG 151	Cad for Engineering Technology	3.0
CEG 111	Introduction to Gis and Gnss	4.0
CEG 212	Introduction to Environmental Technology	3.0
CEG 210	Construction Materials & Methods	3.0
CIV 111	Soils and Foundations	4.0
SRV 111	Surveying II	4.0
EGR 251	Statics	3.0
CEG 235	Project Management and Estimating	3.0
SRV 210	Surveying III	4.0
SRV 240	Topo/Site Surveying	4.0
Select 3 Credit Technical Elective:		3.0
SRV 220	Surveying Law	
EGR 252	Strength of Materials	
DFT 152	CAD II	
PHY 151	College Physics I	
PHY 152	College Physics II	
PHY 251	General Physics I	
MAT 172	Precalculus Trigonometry	
MAT 271	Calculus I	
MAT 272	Calculus II	
WBL 112	Work-Based Learning I	
CHM 151	General Chemistry I	
Total Credits		**65**

CIV 111. Soils and Foundations. 4.0 Credits. Class-2.0. Clinical-0.0. Lab-4.0. Work-0.0
This course presents an overview of soil as a construction material using both analysis and testing procedures. Topics include index properties, classification, stress analysis, compressibility, compaction, dewatering, excavation, stabilization, settlement, and foundations. Upon completion, students should be able to perform basic soil tests and analyze engineering properties of soil. This course presents an overview of soil as a construction material using both analysis and testing procedures. Topics include index properties, classification, stress analysis, compressibility, compaction, dewatering, excavation, stabilization, settlement and foundations. Upon completion, students should be able to perform basis soil tests and analyze engineering properties of soil.
Prerequisites: Take EGR 250 EGR 251 or MEC 210; Minimum; grade C; Take ENG 111

CIV 125. Civil/Surveying CAD. 3.0 Credits. Class-1.0. Clinical-0.0. Lab-6.0. Work-0.0
This course introduces civil/surveying computer-aided drafting (CAD) software. Topics include drawing, editing, and dimensioning commands; plotting; and other related civil/surveying topics. Upon completion, students should be able to produce civil/surveying drawings using CAD software.
Prerequisites: Take CEG 151

CIV 221. Steel and Timber Design. 3.0 Credits. Class-2.0. Clinical-0.0. Lab-3.0. Work-0.0
This course introduces the basic elements of steel and timber structures. Topics include strength of materials applications, the analysis and design of steel and timber beams, columns, and connections and concepts of structural detailing. Upon completion, students should be able to analyze, design, and draw simple plans using Computer Aided Drafting and Design software (CADD).
Prerequisites: Take One: EGR 250 or MEC 210

CIV 222. Reinforced Concrete. 3.0 Credits. Class-2.0. Clinical-0.0. Lab-3.0. Work-0.0
This course introduces the basic elements of reinforced concrete structures. Topics include analysis and design of reinforced concrete beams, slabs, columns, footings, and retaining walls. Upon completion, students should be able to analyze and design components of a structure using reinforced concrete and draw simple plans using Computer Aided Drafting and Design software (CADD).
Prerequisites: Take One: EGR 250, EGR 251, or MEC 210

CIV 230. Construction Estimating. 3.0 Credits. Class-2.0. Clinical-0.0. Lab-3.0. Work-0.0
This course covers quantity take-offs of labor, materials, and equipment and calculation of direct and overhead costs for a construction project. Topics include the interpretation of working drawings and specifications, types of contracts and estimates, building codes, bidding techniques and procedures, and estimating software. Upon completion, students should be able to prepare a detailed cost estimate and bid documents for a construction project.
Prerequisites: Take One: ARC 111, CIS 110, CIS 111, or EGR 115

CIV 250. Civil Engineering Technology Project. 2.0 Credits. Class-1.0. Clinical-0.0. Lab-3.0. Work-0.0
This course includes an integrated team approach to civil engineering technology projects. Emphasis is placed on project proposal, site selection, analysis/design of structures, construction material selection, time and cost estimating, planning, and management of a project. Upon completion, students should be able to apply team concepts, prepare estimates, submit bid proposals, and manage projects.