

# Construction Management Technology

This curriculum is designed to prepare individuals to apply technical knowledge and skills to the fields of architecture, construction, construction management and other associated professions.

Course work includes instruction in sustainable building and design, print reading, building codes, estimating, construction materials and methods, and other topics related to design and construction occupations.

Graduates of this pathway should qualify for entry-level jobs in architectural, engineering, construction and trades professions, as well as positions in industry and government.

This is a program that prepares individuals to supervise, manage and inspect construction sites, buildings and associated facilities. It includes instruction in site safety, personnel supervision, labor relations, diversity training, construction documentation, scheduling, resource and cost control, bid strategies, rework prevention, construction insurance and bonding, accident management and investigation, applicable law and regulations, and communication skills.

For specific information about potential positions and wages in Construction Management employment, visit the Central Piedmont Career Coach (<https://cpcc.emsicc.com/programs/construction-management-technology-academic-program-for-credit/198260?radius=&region=50%20Mile%20Radius>) website.

## Construction Management Technology (A35190)

### Degree Awarded

The Construction Management Technology Program offers two degrees:

1. An A.A.S. degree in Construction Management Technology, and
2. an A.A.S. degree Construction Management Technology - University Transfer Track

Students planning to transfer to a four year baccalaureate program should refer to the transfer degree in Construction Management

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This program prepares individuals to supervise, manage and inspect construction sites, buildings and associated facilities. It includes instruction in site safety, personnel supervision, labor relations, diversity training, construction documentation, scheduling, resource and cost control, bid strategies, rework prevention, construction insurance and bonding, accident management and investigation, and applicable law and regulations.

Other course work includes instruction in sustainable building and design, print reading, building codes, estimating, construction materials and methods, and other topics related to design and construction occupations.

Graduates of this pathway should qualify for entry-level jobs in architectural, engineering, construction and trades professions, as well as positions in industry and government.

### Admissions

- Completion of a high school diploma or equivalent is required.
- Many courses have prerequisites. Check the Courses section for details.

### For More Information

The Construction Management program is in the Construction Technologies Division. For more information, contact the program chair at 704.330.4483 or the Construction Management Program office at 704.330.4408, weekdays from 8 a.m.–5 p.m.

#### General Education Requirements

ENG 111	Writing and Inquiry	3.0
ENG 112	Writing and Research in the Disciplines	3.0
COM 231	Public Speaking	3.0
Select 3 credits of the following:		3.0

MAT 110	Mathematical Measurement and Literacy	
MAT 143	Quantitative Literacy	
MAT 171	Precalculus Algebra	
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	
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

ARC 225	Architectural Building Information Modeling I	2.0
BPR 130	Print Reading-Construction	3.0
CMT 120	Codes and Inspections	3.0
CMT 210	Construction Management Fundamentals	3.0
CMT 218	Human Relations Issues	3.0
CMT 212	Total Safety Performance	3.0
CMT 214	Planning and Scheduling	3.0
CMT 216	Costs and Productivity	3.0
CMT 226	Applications Project	3.0

CST 111	Construction I	4.0
CST 241	Planning/Estimating I	3.0
SST 140	Green Building and Design Concepts	3.0
WOL 110	Basic Construction Skills	3.0
WBL 111	Work-Based Learning I	1.0
Select one of the following:		3.0
BUS 139	Entrepreneurship I	
BUS 230	Small Business Management	
Select 6 credits of the following:		6.0
ARC 112	Construction Materials & Methods	
AHR 113	Comfort Cooling	
ARC 114	Architectural CAD	
ARC 132	Specifications & Contracts	
ARC 221	Architectural 3-D CAD	
AHR 114	Heat Pump Technology	
PLU 111	Intro to Basic Plumbing	
PLU 115	Basic Plumbing	
PLU 140	Intro to Plumbing Codes	
MAS 140	Introduction to Masonry	
MAS 130	Masonry III	
CAR 110	Introduction to Carpentry	
WBL 110	World of Work	
AHR 130	HVAC Controls	
CAR 140	Basic Carpentry	
ARC 112	Construction Materials & Methods	
ARC 131	Building Codes	
ARC 132	Specifications & Contracts	
ARC 133	Construction Document Analysis	
ARC 225	Architectural Building Information Modeling I	
ARC 226	Architectural Building Information Modeling II	
BUS 110	Introduction to Business	
CIV 111	Soils and Foundations	
CIV 222	Reinforced Concrete	
CIV 230	Construction Estimating	
ELC 111	Introduction to Electricity	
ELC 112	DC/AC Electricity	
ELC 113	Residential Wiring	
ELC 115	Industrial Wiring	
SRV 110	Surveying I	
SPA 111 & SPA 181	Elementary Spanish I and Spanish Lab 1	
SRV 111	Surveying II	
SST 110	Introduction to Sustainability	
SST 120	Energy Use Analysis	
SST 130	Modeling Renewable Energy	
SST 210	Issues in Sustainability	
WLD 112	Basic Welding Processes	
WBL 121	Work-Based Learning II	
WBL 131	Work-Based Learning III	
WBL 211	Work-Based Learning IV	
CST 110	Intro to Construction	
Total Credits		67

## Construction Management Technology - University Transfer Track (A35190T)

### General Education Requirements

ENG 111	Writing and Inquiry	3.0
ENG 112	Writing and Research in the Disciplines	3.0
COM 231	Public Speaking	3.0
MAT 171	Precalculus Algebra	4.0
Select one course from the following:		3.0
ART 111	Art Appreciation	
ART 114	Art History Survey I	
ART 115	Art History Survey II	
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 one course from 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:

ARC 225	Architectural Building Information Modeling I	2.0
BPR 130	Print Reading-Construction	3.0
CMT 120	Codes and Inspections	3.0
CMT 210	Construction Management Fundamentals	3.0
CMT 218	Human Relations Issues	3.0
CMT 212	Total Safety Performance	3.0
CMT 214	Planning and Scheduling	3.0
CMT 216	Costs and Productivity	3.0
CMT 226	Applications Project	3.0
WOL 110	Basic Construction Skills	3.0
CST 111	Construction I	4.0
CST 241	Planning/Estimating I	3.0
SST 140	Green Building and Design Concepts	3.0
WBL 111	Work-Based Learning I	1.0
ACC 120	Principles of Financial Accounting	4.0
BUS 115	Business Law I	3.0
PHY 151	College Physics I	4.0
SPA 111 & SPA 181	Elementary Spanish I and Spanish Lab 1	4.0
Total Credits		74

**No diplomas are offered in Construction Management Technology.**

## Construction Management Technology Certificates (C35190)

The certificates listed below can be earned in the Construction Management (A35190) program.

- Construction Management Technology Certificate-Specialization in Fast Track Carpentry (C35190-C1) (p. 3)
- Construction Management Technology Certificate-Specialization in Entry Level Construction Supervision (C35190-C2) (p. 3)
- Construction Management Technology Certificate-Specialization in Entry Level Estimating I (C35190-C3) (p. 3)
- Construction Management Technology Certificate-Specialization in Entry Level Project Supervision (C35190-C5) (p. 3)
- Construction Management Technology Certificate-Specialization in Green Building (C35190-C7) (p. 3)
- Construction Management Technology Certificate-Specialization in Introduction to Building Code Inspector (C35190-C8) (p. 3)
- Construction Management Technology Certificate-Specialization in Entry Level Construction Skills (C35190-C9) (p. 4)

### Admissions

- Completion of a high school diploma or equivalent is encouraged as the foundation of a career in this area.
- Many courses have prerequisites or co-requisites; check the Courses section for details.

### Contact Information

For more information, call the Construction Technologies Division at 704.330.4421 or the Construction Management program office at 704.330.4408.

## Construction Management Technology Certificate with a Specialization – Fast Track Carpentry (C35190-C1)

This certificate also is available to high school students enrolled in Career and College Promise.

### Major Requirements

BPR 130	Print Reading-Construction	3.0
CAR 140	Basic Carpentry	4.0
CMT 120	Codes and Inspections	3.0
WOL 110	Basic Construction Skills	3.0
WBL 111	Work-Based Learning I	1.0
Total Credits		14

## Construction Management Technology Certificate with a Specialization – Entry Level Construction Supervision (C35190-C2)

This certificate also is available to high school students enrolled in Career and College Promise.

### Major Requirements

BPR 130	Print Reading-Construction	3.0
CMT 212	Total Safety Performance	3.0
BUS 139	Entrepreneurship I	3.0

CMT 210	Construction Management Fundamentals	3.0
CMT 218	Human Relations Issues	3.0
SST 140	Green Building and Design Concepts	3.0
Total Credits		18

## Construction Management Technology Certificate with a Specialization – Entry Level Estimating I (C35190-C3)

### Major Requirements

Take one of the following courses:		3.0-4.0
ACC 120	Principles of Financial Accounting	
BUS 230	Small Business Management	
BUS 139	Entrepreneurship I	
BPR 130	Print Reading-Construction	3.0
CST 241	Planning/Estimating I	3.0
CMT 210	Construction Management Fundamentals	3.0
CIS 110	Introduction to Computers	3.0
Total Credits		15-16

## Construction Management Technology Certificate Specialization in Entry Level Project Supervision (C35190-C5)

### Major Requirements

BPR 130	Print Reading-Construction	3.0
CMT 210	Construction Management Fundamentals	3.0
CMT 212	Total Safety Performance	3.0
CMT 214	Planning and Scheduling	3.0
CMT 216	Costs and Productivity	3.0
CMT 218	Human Relations Issues	3.0
Total Credits		18

## Construction Management Technology Certificate Specialization in Green Building (C35190-C7)

This certificate also is available to high school students enrolled in Career and College Promise.

### Major Requirements

BPR 130	Print Reading-Construction	3.0
CMT 120	Codes and Inspections	3.0
CST 111	Construction I	4.0
SST 140	Green Building and Design Concepts	3.0
Total Credits		13

## Construction Management Technology Certificate Specialization in Introduction to Building Code Inspector (C35190-C8)

### Major Requirements

ARC 112	Construction Materials & Methods	4.0
BPR 130	Print Reading-Construction	3.0
CMT 120	Codes and Inspections	3.0
CST 111	Construction I	4.0

WBL 111	Work-Based Learning I	1.0
WBL 121	Work-Based Learning II	1.0
Total Credits		16

### Construction Management Technology Certificate Specialization in Entry Level Construction Skills (C35190-C9)

This certificate is also available to students enrolled in Career and College Promise.

AHR 180	HVACR Customer Relations	1.0
BPR 130	Print Reading-Construction	3.0
CST 111	Construction I	4.0
ELC 111	Introduction to Electricity	3.0
WOL 110	Basic Construction Skills	3.0
WLD 112	Basic Welding Processes	2.0
Total Credits		16

**CMT 120. Codes and Inspections. 3.0 Credits.** Class-3.0. Clinical-0.0. Lab-0.0. Work-0.0

This course covers building codes and the code inspections process used in the design and construction of residential and commercial buildings. Emphasis is placed on commercial, residential, and accessibility (ADA) building codes. Upon completion, students should understand the building code inspections process and apply building code principals and requirements to construction projects.

**CMT 210. Construction Management Fundamentals. 3.0 Credits.** Class-3.0. Clinical-0.0. Lab-0.0. Work-0.0

This course introduces the student to the fundamentals of effective supervision emphasizing professionalism through knowledge and applied skills. Topics include safety, planning and scheduling, contracts, problem-solving, communications, conflict resolution, recruitment, employment laws and regulations, leadership, motivation, teamwork, discipline, setting objectives, and training. Upon completion, students should be able to demonstrate the basic skills necessary to be successful as a supervisor in the construction industry.

**CMT 212. Total Safety Performance. 3.0 Credits.** Class-3.0. Clinical-0.0. Lab-0.0. Work-0.0

This course covers the importance of managing safety and productivity equally by encouraging people to take individual responsibility for safety and health in the workplace. Topics include safety management, controlling construction hazards, communicating and enforcing policies, OSHA compliance, personal responsibility and accountability, safety planning, training, and personal protective equipment. Upon completion, the student should be able to properly supervise safety at a construction jobsite and qualify for OSHA Training Certification.

Corequisites: Take CMT 210

**CMT 214. Planning and Scheduling. 3.0 Credits.** Class-3.0. Clinical-0.0. Lab-0.0. Work-0.0

This course covers the need for and the process of planning construction projects, as well as the mechanics and vocabulary of project scheduling. Topics include project preplanning, scheduling formats, planning for production, short interval planning, schedule updating and revising, and computer-based planning and scheduling. Upon completion, the student should be able to understand the need for planning and scheduling, the language and logic of scheduling, and use of planning skills.

Prerequisites: Take All: CMT 210 and BPR 130

**CMT 216. Costs and Productivity. 3.0 Credits.** Class-3.0. Clinical-0.0. Lab-0.0. Work-0.0

This course covers the relationships between time, work completed, work-hours spent, schedule duration, equipment hours, and materials used. Topics include production rates, productivity unit rates, work method improvements, and overall total project cost control. Upon completion, the student should be able to demonstrate an understanding of how costs may be controlled and productivity improved on a construction project.

Prerequisites: Take CMT 210

**CMT 218. Human Relations Issues. 3.0 Credits.** Class-3.0. Clinical-0.0. Lab-0.0. Work-0.0

This course provides instruction on human relations issues as they relate to construction project supervision. Topics include relationships, human behavior, project staffing issues, teamwork, effective communication networks, laws and regulations, and identifying and responding to conflict, crisis, and discipline. Upon completion, the student will demonstrate an understanding of the importance of human relations in the success of a construction project.

Prerequisites: Take CMT 210

**CMT 226. Applications Project. 3.0 Credits.** Class-2.0. Clinical-0.0. Lab-2.0. Work-0.0

This course provides an individual and/or integrated team approach to a practical construction management project. Topics include project selection, research and planning, implementation, and a final presentation. Upon completion, students should be able to plan and implement an applications-oriented construction management project.

**CST 110. Intro to Construction. 2.0 Credits.** Class-1.0. Clinical-0.0. Lab-2.0. Work-0.0

This course introduces construction terminology, materials, and practices found at a construction worksite. Emphasis is placed on common and innovative practices, methods, materials, and other related topics of the construction industry. Upon completion, students should be able to successfully identify various practices, methods, and materials used in the construction industry.

**CST 111. Construction I. 4.0 Credits.** Class-3.0. Clinical-0.0. Lab-3.0. Work-0.0

This course covers standard and alternative building methods to include wall framing. Topics include safety and footings, foundations, floor framing systems, and wall framing systems commonly used in the construction industry. Upon completion, students should be able to safely erect all framing necessary to begin roof framing.

Prerequisites: Take WOL 110 Minimum grade C

**CST 150. Building Science. 3.0 Credits.** Class-2.0. Clinical-0.0. Lab-2.0. Work-0.0

This course introduces concepts and techniques for the design and interaction of the mechanical systems of high performance buildings. Topics include building envelope, heating, ventilation and air conditioning (HVAC), indoor air quality, lighting, plumbing and electrical. Upon completion, students should be able to understand building systems interaction and performance.

**CST 241. Planning/Estimating I. 3.0 Credits.** Class-2.0. Clinical-0.0. Lab-2.0. Work-0.0

This course covers the procedures involved in planning and estimating a construction/building project. Topics include performing quantity take-offs of materials necessary for a building project. Upon completion, students should be able to accurately complete a take-off of materials and equipment needs involved in a construction project.

Prerequisites: Take One: BPR 130, MAT 121, or MAT 171

**CST 242. Planning/Estimating II. 4.0 Credits.** Class-3.0. Clinical-0.0.

Lab-2.0. Work-0.0

This course covers planning and estimating practices which are applicable to commercial construction. Emphasis is placed on planning and developing take-offs of materials, labor, and equipment in accordance with industry formats. Upon completion, students should be able to accurately complete take-offs and planning time lines necessary to complete a commercial structure.

Prerequisites: Take CST 241