
2026-2027

PROGRAM GUIDE

CONSTRUCTION CLUSTER



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ALABAMA STATE DEPARTMENT OF EDUCATION
CAREER AND TECHNICAL EDUCATION
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In the Architecture and Construction cluster, course work leads to careers in construction technology, electrical, heating, ventilation, air- conditioning, (HVAC), masonry, plumbing, technical design, utility line work and welding. Course content includes significant technical depth and incorporates engineering concepts and terminology. The Architecture and Construction cluster provides students with basic knowledge and skills within a safe and appropriate setting for student exploration and achievement. The active, structured, and stimulating environment simulates the workplace setting and enhances student ability to adapt to an ever-changing job market.

****Courses highlighted in yellow are shared with other clusters. See “Shared Courses” table on page 6 for additional details.**

Career Pathway Program	Construction Technology Program (Must teach three courses from this program list within two years)		
	Courses in the construction technology program will ground the trainee in the basic knowledge and principles of carpentry and cabinetmaking. Students will become skilled in different phases of a project from start to finish. Once completing this course, the student will be able to interpret construction drawings, and frame walls, ceilings, and floors of a structure. Emphasis is placed on job safety, use of hand tools and stationary power tools, materials and hardware, various types of joinery, and component assembly and installation. This program covers content such as Building Materials, Cabinet Fabrication, and Advanced Wall Systems. This program aligns with NCCER standards.		
Course Number	Career Pathway Program Courses	Career Readiness Indicator (CRI)	In Demand Occupations
17002G1002	Architecture and Construction Foundations	- Alabama Certified Employee (ACE) - Construction and Skilled Trade Assessment (CAST) - Home Builders Association of Alabama Residential Construction Skills Certification - NCCER Core (Module 6 is an elective and not required for CRI) - NCCER Ag Tech Heavy Equipment Operations and Safety - NCCER Ag Tech Introduction to Construction and Safety - NCCER Ag Tech Welding and Fabrication - NCCER Cabinetmaking Level 1 - NCCER Carpentry Level 1 - NCCER Construction Technology Level 1 - NCCER Heavy Equipment Operations Simulation Based Credential - NC3 FESTO – Fundamentals of Industrial Wiring - OSHA 10 + AHA Heartsaver CPR AED (Both Areas are REQUIRED) - OSHA 30 - Ready for Industry NOCTI Microcredential – Construction - Skills for Success – Asphalt Roller Operator - Skills for Success – Bulldozer Operator - Skills for Success – Carpentry Helper - Skills for Success – Electrical Helper - Skills for Success – Excavator Operator - Skills for Success – Plumbing Assistant - Skills for Success – Skid Steer Operator	- Carpenters - Construction Laborers - Construction Managers - Cost Estimators - Crane & Tower Operators - Fence Erectors - First-Line Supervisors of Construction Trades & Extraction Workers - Glaziers - Helper – Installation, Maintenance, & Repair Workers - Operating Engineers & Other Construction Equipment Operators - Painters, Construction & Maintenance - Roofers - Sheet Metal Workers
17007G1002	Cabinetmaking Finishing		
17007G1001	Cabinetmaking Joinery		
17047G1001	Career Pathway Project in Architecture and Construction		
17013G1001	Carpentry: Commercial Framing and Layout		
17002G1003	Construction Building Systems		
17011G1001	Construction Finishing		
17002G1011	Construction Foundation Layout		
17017G1000	CTE Lab in Architecture and Construction		
17013G1002	Industrial Carpentry		
17013G1003	Industrial Site Layout, Formwork, and Concrete		
17998G1050	Internship in Arch and Const		
12002G1003	Project Management		
17002G1010	Residential Building		
17049G1000	Safety and Health Regulations		
17006G1001	Wood Technology: 2D Design		
17006G1002	Wood Technology: 3D Design		

Career Pathway Program	Electrical Program (Must teach three courses from this program list within two years) Electricians install electrical systems in structures; they install wiring and other electrical components, such as circuit breaker panels, switches, and light fixtures, and they follow blueprints, the <i>National Electrical Code®</i> and state and local codes. To prepare trainees for a career in the electrical field, this program utilizes NCCER's comprehensive, 4-level Electrical curriculum that complies with DOL time-based standards for apprenticeship.		
	Course Number	Career Pathway Program Courses	Career Readiness Indicator (CRI) In Demand Occupations
	17002G1002	Architecture and Construction Foundations	- Alabama Certified Employee (ACE) - Construction and Skilled Trade Assessment (CAST) - Home Builders Association of Alabama Residential Construction Skills Certification - NCCER Core (Module 6 is an elective and not required for CRI) - NCCER Electrical Level 1 - NCCER Heavy Equipment Operations Simulation Based Credential - NC3 FESTO – Fundamentals of Industrial Wiring - OSHA 10 + AHA Heartsaver CPR AED (Both Areas are REQUIRED) - OSHA 30 - Skills for Success – Carpentry Helper - Skills for Success – Electrical Helper - Skills for Success – Excavator Operator - Skills for Success – Skid Steer Operator
	17047G1001	Career Pathway Project in Architecture and Construction	
	17017G1000	CTE Lab in Architecture and Construction	
	17102G1000	Electrical Fundamentals	
	17103G1001	Electrical Installation	
	17102G1001	Electrical Technology	
	17998G1050	Internship in Arch and Const	
	17104G1010	Motor Controls	
	12002G1003	Project Management	
	17049G1000	Safety and Health Regulations	
			- Construction Laborers - Cost Estimators - Electrical Power-Line Installers and Repairers - Electricians - Helpers, Electricians - Helpers, Installation, Maintenance, & Repair Workers

Career Pathway Program	Heating, Ventilation, and Air Conditioning Program (Must teach three courses from this program list within two years) The increasing development of HVAC (heating and air-conditioning systems) technology causes employers to recognize the importance of continuous education and keeping up to speed with the latest equipment and skills. This program aligns with NCCER's standards that have been designed by highly qualified subject matter experts with this in mind. This curriculum is recognized by North American Technician Excellence (NATE) and presents theoretical and practical skills essential to your success as an HVAC installer or technician.		
	Course Number	Career Pathway Program Courses	Career Readiness Indicator (CRI) In Demand Occupations
	17002G1002	Architecture and Construction Foundations	- Alabama Certified Employee (ACE) - Construction and Skilled Trade Assessment (CAST) - EPA Card - Home Builders Association of Alabama Residential Construction Skills Certification - NCCER Core (Module 6 is an elective and not required for CRI) - NCCER HVAC Level 1 - OSHA 10 + AHA Heartsaver CPR AED (Both Areas are REQUIRED) - OSHA 30 - Skills for Success – Carpentry Helper - Skills for Success – Electrical Helper - Skills for Success – Excavator Operator - Skills for Success – Skid Steer Operator
	17047G1001	Career Pathway Project in Architecture and Construction	
	17017G1000	CTE Lab in Architecture and Construction	
	17056G1001	HVAC Fundamentals	
	17055G1001	HVAC Installation and Operation	
	17052G1001	HVAC Refrigeration Systems	
	17998G1050	Internship in Arch and Const	
	12002G1003	Project Management	
	17049G1000	Safety and Health Regulations	
			- Construction Laborers - Cost Estimators - Heating, Air Conditioning, & Refrigeration Mechanics & Installers - Helpers, Installation, Maintenance, & Repair Workers - Sheet Metal Workers

Career Pathway Program	Masonry Program (Must teach three courses from this program list within two years) The study of masonry is one of the world's oldest and most respected crafts. Masonry construction existed for thousands of years. This program encompasses modules such as Mortar, Metalwork in Masonry, and Estimating; and aligns with NCCER standards.		
	Course Number	Career Pathway Program Courses	Career Readiness Indicator (CRI) In Demand Occupations
	17002G1002	Architecture and Construction Foundations	- Alabama Certified Employee (ACE) - Construction and Skilled Trade Assessment (CAST) - Home Builders Association of Alabama Residential Construction Skills Certification - NCCER Core (Module 6 is an elective and not required for CRI) - NCCER Heavy Equipment Operations Simulation Based Credential - NCCER Masonry Level 1 - OSHA 10 + AHA Heartsaver CPR AED (Both Areas are REQUIRED) - OSHA 30 - Skills for Success – Bulldozer Operator - Skills for Success – Carpentry Helper - Skills for Success – Excavator Operator - Skills for Success – Skid Steer Operator
	17047G1001	Career Pathway Project in Architecture and Construction	
	17017G1000	CTE Lab in Architecture and Construction	
	17998G1050	Internship in Arch and Const	
	17008G1002	Masonry Laying Techniques	
	17008G1001	Masonry: Mortar, Materials, and Installation	
	17008G1003	Masonry: Residential	
	12002G1003	Project Management	
	17049G1000	Safety and Health Regulations	

Career Pathway Program	Plumbing Program (Must teach three courses from this program list within two years) Most people are familiar with plumbers who come to their home to unclog a drain or install an appliance. In addition to these activities, however, plumbers install, maintain, and repair many different types of pipe systems. For example, some systems move water to a municipal water treatment plant and then to residential, commercial, and public buildings. Other systems dispose of waste, provide gas to stoves and furnaces, or supply air conditioning. Pipe systems in power plants carry the steam that powers huge turbines. Pipes also are used in manufacturing plants, such as wineries, to move material through production processes. This program aligns with NCCER's four-level curriculum that covers topics such as Plumbing Tools, Types of Valves, and Potable Water Treatment.		
	Course Number	Career Pathway Program Courses	Career Readiness Indicator (CRI) In Demand Occupations
	17002G1002	Architecture and Construction Foundations	- Alabama Certified Employee (ACE) - Construction and Skilled Trade Assessment (CAST) - Home Builders Association of Alabama Residential Construction Skills Certification - NCCER Core (Module 6 is an elective and not required for CRI) - NCCER Pipefitting Level 1 - NCCER Plumbing Level 1 - OSHA 10 + AHA Heartsaver CPR AED (Both Areas are REQUIRED) - OSHA 30 - Skills for Success – Bulldozer Operator - Skills for Success – Carpentry Helper - Skills for Success – Excavator Operator - Skills for Success – Plumbing Assistant - Skills for Success – Skid Steer Operator
	17047G1001	Career Pathway Project in Architecture and Construction	
	17017G1000	CTE Lab in Architecture and Construction	
	17998G1050	Internship in Arch and Const	
	17058G1001	Plumbing and Pipefitting	
	17058G1002	Plumbing Systems	
	12002G1003	Project Management	
	17049G1000	Safety and Health Regulations	

Career Pathway Program	Technical Design Program (Must teach three courses from this program list within two years)		
	Courses in the Technical Design program are designed to enable students to pursue a successful career in an architectural, engineering, or industrial field. Students learn technical, mechanical drafting, and computer-aided drafting.		
Course Number	Career Pathway Program Courses	Career Readiness Indicator (CRI)	In Demand Occupations
21103G1005	Architectural Design Fundamentals – Required Foundational Course	- Alabama Certified Employee (ACE) - Autodesk – AutoCAD Certified User - Autodesk – Fusion Certified User - Autodesk – Inventor Certified User - Autodesk – Revit Certified User - NC3 FESTO – Introduction to CAD - OSHA 10 + AHA Heartsaver CPR AED (Both Areas are REQUIRED) - OSHA 30 - Solid Edge Certified Associate Level I - SolidWorks CAD Design Associate - Skills for Success – Land Survey Technician	- Architectural & Civil Drafters - Construction Laborers - Civil Engineering Technologists & Technicians - Civil Engineers - Cost Estimators - Surveying & Mapping Technicians
21103G1003	Architectural Building Information Modeling (BIM) I		
21103G1004	Architectural Building Information Modeling (BIM) II		
21103G1006	Architectural Structural Design		
17047G1001	Career Pathway Project in Architecture and Construction		
17017G1000	CTE Lab in Architecture and Construction		
17998G1050	Internship in Arch and Const		
12002G1003	Project Management		
17049G1000	Safety and Health Regulations		
21106G1001	Technical Design Communications I		
21106G1002	Technical Design Communications II		

Career Pathway Program	Utility Line Worker Program (Must teach three courses from this program list within two years)		
	Utility Line Worker addresses the fundamental aspects of power line and telecommunications work to include safety, electrical theory, climbing techniques, aerial framing and rigging, and operating utility service equipment.		
Course Number	Career Pathway Program Courses	Career Readiness Indicator (CRI)	In Demand Occupations
17002G1002	Architecture and Construction Foundations	- Alabama Certified Employee (ACE) - Construction and Skilled Trade Assessment (CAST) - Fundamentals of Electricity – AC/DC - NCCER Core (Module 6 is an elective and not required for CRI) - NCCER Ag Tech Heavy Equipment Operations and Safety - NCCER Heavy Equipment Operations Simulation Based Credential - OSHA 10 + AHA Heartsaver CPR AED (Both Areas are REQUIRED) - OSHA 30 - Skills for Success – Bulldozer Operator - Skills for Success – CDL Class A - Skills for Success – CDL Class B - Skills for Success – Excavator Operator - Skills for Success – Fiber Optics Technician and Installer - Skills for Success – Land Survey Technician - Skills for Success – Skid Steer Operator	- Construction Laborers - Cost Estimators - Electrical Power-Line Installers & Repairs - Helpers, Installation, Maintenance, & Repair Workers
17047G1001	Career Pathway Project in Architecture and Construction		
17017G1000	CTE Lab in Architecture and Construction		
17998G1050	Internship in Arch and Const		
12002G1003	Project Management		
17049G1000	Safety and Health Regulations		
17104G1011	Utility Line Worker		
17104G1012	Utility Line Workers Service Equipment		

Career Pathway Program	Welding Program (Must teach three courses from this program list within two years) Welding is a highly skilled industry that can take you places all over the world. From ladders to aircraft carriers, from NASCAR to national defense, and from the laboratory to sales and repair, the varied welding industry impacts virtually every industry. New ways are being developed to bond dissimilar materials and non-metallic materials, such as plastics, composites, and new alloys. Advances in laser beam and electron beam welding, new fluxes, and other new technologies and techniques all point to an increasing need for highly trained and skilled workers. This program aligns with NCCER's four-level curriculum covering topics such as Oxyfuel Cutting, Welding Symbols, and Stainless-Steel Groove Welds. NCCER's curriculum also correlates to the AWS standards and guidelines for an Entry Welder.		
	Course Number	Career Pathway Program Courses	Career Readiness Indicator (CRI) In Demand Occupations
	17002G1002	Architecture and Construction Foundations	- Alabama Certified Employee (ACE) - AWS Certifications (Each are will count as a CRI): - FCAW 3-G Uphill Progression D1.1 - GMAW 3-G Uphill Progression D1.1 - GTAW 3-G Uphill Progression (Aluminum) D1.2 - GTAW 3-G Uphill Progression (Steel) - SMAW 3-G Uphill Progression D1.1 - Construction and Skilled Trade Assessment (CAST) - NCCER Core (Module 6 is an elective and not required for CRI) - NCCER Ag Tech Welding and Fabrication - NCCER Welding Level 1 - OSHA 10 + AHA Heartsaver CPR AED (Both Areas are REQUIRED) - OSHA 30 - Skills for Success – Excavator Operator - Skills for Success – Skid Steer Operator
	17047G1001	Career Pathway Project in Architecture and Construction	
	17017G1000	CTE Lab in Architecture and Construction	
	17998G1050	Internship in Arch and Const	
	12002G1003	Project Management	
	17049G1000	Safety and Health Regulations	
	13207G1003	Welding: GMAW and FCAW	
	13207G1001	Welding: SMAW I	
	13207G1002	Welding: SMAW II	
			- Construction Laborers - Cost Estimators

2026–2027 Subject and Personnel Codes

Construction Cluster Courses	
Course Number	Course Name
17002G1002	Architecture and Construction Foundations
21103G1003	Architectural Building Information Modeling (BIM) I
21103G1004	Architectural Building Information Modeling (BIM) II
21103G1005	Architectural Design Fundamentals – Required Foundation Course
21103G1006	Architectural Structural Design
17007G1002	Cabinetmaking Finishing
17007G1001	Cabinetmaking Joinery
17047G1001	Career Pathway Project in Architecture and Construction
17013G1001	Carpentry: Commercial Framing and Layout
17002G1003	Construction Building Systems
17011G1001	Construction Finishing
17002G1011	Construction Foundations Layout
17017G1000	CTE Lab in Architecture and Construction
17102G1000	Electrical Fundamentals
17103G1001	Electrical Installation
17102G1001	Electrical Technology
17056G1001	HVAC Fundamentals
17055G1001	HVAC Installation and Operation
17052G1001	HVAC Refrigeration Systems
17013G1002	Industrial Carpentry
17013G1003	Industrial Site Layout, Formwork, and Concrete
17998G1050	Internship in Arch and Const
17008G1002	Masonry Laying Techniques
17008G1001	Masonry: Mortar, Materials, and Installation
17008G1003	Masonry: Residential
17104G1010	Motor Controls
17058G1001	Plumbing and Pipefitting
17058G1002	Plumbing Systems
12002G1003	Project Management
17002G1010	Residential Building
17049G1000	Safety and Health Regulations
21106G1001	Technical Design Communications I
21106G1002	Technical Design Communications II
17104G1011	Utility Line Worker
17104G1012	Utility Line Worker Service Equipment
13207G1003	Welding: GMAW and FCAW
13207G1001	Welding: SMAW I
13207G1002	Welding: SMAW II
17006G1001	Wood Technology: 2D Design
17006G1002	Wood Technology: 3D Design

Shared Courses			
Course Number	Course Name	Cluster(s)	Required Year to Implement COS
17049G1000	Safety and Health Regulations	Health Science Manufacturing Transportation, Distribution and Logistics	2022-2023
12002G1003	Project Management	Business and Marketing	2022-2023

General Note: Course descriptions and content standards for most courses are located on the Alabama Department of Education website at: [Alabama Achieves | Career and Technical Education | Courses of Study](#).

College and Career Readiness Indicator Course Matrix

Program Name	Construction Technology	Technical Design Program	Electrical	Heating, Ventilation, And Air Conditioning,
Foundation Course(s)	Architecture and Construction Foundations	Architecture Design Fundamentals – Required Foundation Course	Architecture and Construction Foundations	Architecture and Construction Foundations
Concentrator Course(s)	Cabinetmaking Finishing Cabinetmaking Joinery Carpentry: Commercial Framing and Layout Construction Building Systems Construction Finishing Construction Foundations Layout Industrial Carpentry Industrial Site Layout, Formwork, and Concrete Project Management Residential Building Safety and Health Regulations Wood Technology: 2D Design Wood Technology: 3D Design	Architectural Building Information Modeling (BIM) I Architectural Building Information Modeling (BIM) II Architectural Structural Design Project Management Safety and Health Regulations Technical Design Communications I Technical Design Communications II	Electrical Fundamentals Electrical Installation Electrical Technology Motor Controls Project Management Safety and Health Regulations	HVAC Fundamentals HVAC Installation and Operation HVAC Refrigeration Systems Project Management Safety and Health Regulations
Capstone Course(s)	Career Pathway Project – Architecture and Construction CTE Lab in Architecture and Construction Internship in Arch and Const	Career Pathway Project – Architecture and Construction CTE Lab in Architecture and Construction Internship in Arch and Const	Career Pathway Project – Architecture and Construction CTE Lab in Architecture and Construction Internship in Arch and Const	Career Pathway Project – Architecture and Construction CTE Lab in Architecture and Construction Internship in Arch and Const

Program Name	Masonry	Plumbing	Utility Line Worker	Welding
Foundation Course(s)	Architecture and Construction Foundations	Architecture and Construction Foundations	Architecture and Construction Foundations	Architecture and Construction Foundations
Concentrator Course(s)	Masonry Laying Techniques Masonry: Mortar, Materials, and Installation Masonry: Residential Project Management Safety and Health Regulations	Plumbing and Pipefitting Plumbing Systems Project Management Safety and Health Regulations	Project Management Safety and Health Regulations Utility Line Worker Utility Line Worker Service Equipment	Project Management Safety and Health Regulations Welding: GMAW and FCAW Welding: SMAW I Welding: SMAW II
Capstone Course(s)	Career Pathway Project – Architecture and Construction CTE Lab in Architecture and Construction Internship in Arch and Const	Career Pathway Project – Architecture and Construction CTE Lab in Architecture and Construction Internship in Arch and Const	Career Pathway Project – Architecture and Construction CTE Lab in Architecture and Construction Internship in Arch and Const	Career Pathway Project – Architecture and Construction CTE Lab in Architecture and Construction Internship in Arch and Const

To meet the CCR Indicator as a CTE completer, a student must earn three (3.0) credits with the grade of a “C” or higher in CTE courses that are part of an approved CTE program of study. Additional requirements are outlined in Memorandum [FY25-2048 Updates on Career and Technical Education Completer Status](#).

This matrix is intended for general guidance on the CCR completer status and is subject to change. For all CTE programming information, please refer to the CTE Cluster specific Program Guide. It contains a list of approved CTE programs, valid course numbers, required prerequisite courses, approved Career Readiness Indicators (CRIs) and in demand occupations.

***Courses are listed in alphabetical order, not in sequential order.**