



Alabama Department of Postsecondary Education

Representing the Alabama Community College System

STATEWIDE CAREER/TECHNICAL EDUCATION COURSE ARTICULATION REVIEW MINUTES

Articulation Agreement Identifier: CAR 111 & CAR 114 (2006-1) Identifier is the postsecondary course prefix followed by Plan-of-Instruction version number (e.g.; INT 100 (2005-1)).

Applicable CIP code(s): 46.0201

Postsecondary course prefix, number, and title: CAR 111 Construction Basics & CAR 114 Construction Basics Lab

Secondary Education course(s) title and number: 430901/430004 - Architecture, Construction & Manufacturing + 431301/430030 - Carpentry I OR 430901/430004 - Architecture, Construction & Manufacturing + 430112/410007 - Construction Framing

Initial Review: January 21, 2010 Annual DPE Review: February 9, 2012

Effective date: **Fall Semester 2011.**

Course Content Analysis (all postsecondary course objectives must be sufficiently addressed in the secondary courses):

Notes:

- 1 Skills and knowledge contained in the postsecondary course objectives must be present in the corresponding secondary objectives for a “match” to occur.**
- 2. Postsecondary and Secondary objectives must reflect similar content and performance levels before the course articulation agreement will be recommended to the TEDAC Oversight Committee.**
- 3. More than one Secondary course may be used in order to articulate to a Postsecondary course.**

Postsecondary Course Objectives	Secondary Courses and Locations	TEDAC Comments
<p><u>Module A CAR 111</u></p> <p>Competency Comprehend basic safety principles in the work environment</p> <p>Objectives</p> <ul style="list-style-type: none"> • Explain the importance of safety and its role in the construction industry. • Describe what job site and shop safety means. • Identify common personal protective equipment. • Describe various personal protective equipment uses. • Explain the appropriate safety precautions around common job site hazards. • Explain the importance of HAZCOM and MSDSs. • Describe safe behavior on and around ladders and scaffolds. • Describe fire prevention and fire safety. • Explain safe work procedures around electrical hazards. <p><u>Module A CAR 114</u></p> <p>Competency Use personal protective equipment.</p> <p>Objectives</p> <ul style="list-style-type: none"> • Inspect and don personal protective equipment <p>Competency Use safe lifting procedures.</p> <p>Objectives</p> <ul style="list-style-type: none"> • Safely lift specified equipment and materials. 	<p><u>Architecture, Construction, and Manufacturing, Unit 5, Workplace Safety and OSHA Content Standard</u></p> <p>5. Practice safety standards in the work environment.</p> <p><u>Learning Objectives</u></p> <ol style="list-style-type: none"> 1. Discuss the history of OSHA. 2. Discuss the importance of OSHA in the workplace. <p><u>Architecture, Construction, and Manufacturing, Unit 11, Occupational Safety and Health Administration 10-Hour Credential Content Standard</u></p> <p>11. Explain the role that safety plays in the architecture, construction, and manufacturing industries, including completing requirements for the Occupational Safety and Health Administration 10-hour construction course credential.</p> <p><u>Learning Objectives</u></p> <ol style="list-style-type: none"> 1. Explain the role that safety plays in the construction crafts. 2. Describe the meaning of job-site safety. 3. Describe the characteristics of a competent person and a qualified person. 4. Explain the appropriate safety precautions to take around common job-site hazards. 5. Demonstrate the use and care of appropriate personal protective equipment (PPE). 	

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<p>trade.</p> <ul style="list-style-type: none"> • Identify the responsibilities of a carpenter. • Identify the responsibilities and personal characteristics of a professional craftsman. • Define various carpentry terms. 	<p>handbooks</p> <p><u>Learning Objectives</u></p> <ol style="list-style-type: none"> 1. Review technical material related to their intended field/s of study. 2. Research data that relates to their chosen field/s of study. 3. Explore course opportunities available to them at their local school/s. 4. Interpret “high-wage” and “high demand” data. 5. Use professional handbooks and manuals to reference information related to their intended field of study. <p><u>Architecture, Construction, and Manufacturing, Unit 7, Ethical and Legal Responsibilities</u></p> <p><u>Content Standard</u></p> <ol style="list-style-type: none"> 7. Assess ethical and legal responsibilities to provide guidelines for conduct in the architecture, construction, and manufacturing industry. <p><u>Learning Objectives</u></p> <ol style="list-style-type: none"> 1. Research employer expectations as related to careers in the architecture, construction, and manufacturing industry. 2. Discuss employer expectations as related to careers in the architecture, construction, and manufacturing industry. 3. Research and discuss safety responsibilities in the workplace. 4. Research substance abuse policies common to the architecture, construction, and manufacturing industry. 	

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	<p>5. Discuss substance abuse policies common to the architecture, construction, and manufacturing industry. 6. Research employee rights in the workplace. 7. Discuss employee rights in the workplace.</p> <p><u>Architecture, Construction, and Manufacturing, Unit 8, Career Planning Content Standard</u></p> <p>8. Determine factors to be considered in developing an effective career plan, including procedures for obtaining employment in the architecture, construction, and manufacturing industries. <u>Learning Objectives</u></p> <p>1. Research career paths of interest in the architecture, construction, and manufacturing industries. 2. Determine educational requirements for given career path. 3. Determine schools or colleges in the area that support that given career path. 4. Evaluate the coursework needed to achieve credentialing, a degree, or both. 5. Prepare a plan for achieving the education needed for success in the selected career pathway.</p>	

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<p><u>Module C CAR 111</u></p> <p>Competency Use basic mathematic principles in construction.</p> <p>Objectives</p> <ul style="list-style-type: none"> • Use a standard ruler and metric ruler to take various measurements. • Add, Subtract, Multiply and Divide whole numbers, with and without a calculator. • Add, Subtract, Multiply and Divide fractions. • Add, Subtract, Multiply and Divide decimals with and without a calculator. • Convert decimals to percentages and percentages to decimals. • Convert fractions to decimals and decimals to fractions. • Explain what the metric system is and why it is important to the construction trade. • Recognize and use metric units of length, weight, volume, and temperature. • Convert various metric units to standard and various standard units to metric. • Recognize various shapes used in construction and apply basic geometry to measure them. 	<p><u>Architecture, Construction, and Manufacturing, Unit 12, Construction and Manufacturing Mathematics</u></p> <p><u>Content Standard</u></p> <p>12. Solve mathematical problems encountered in the architecture, construction, and manufacturing industries.</p> <p><u>Learning Objectives</u></p> <ol style="list-style-type: none"> 1. Add, subtract, multiply, and divide whole numbers, with and without a calculator. 2. Use a standard ruler and a metric ruler to measure. 3. Add, subtract, multiply, and divide fractions. 4. Add, subtract, multiply, and divide decimals, with and without a calculator. 5. Convert decimals to percentages and percentages to decimals. 6. Convert fractions to decimals and decimals to fractions. 7. Explain what the metric system is and how it is important in the construction trade. 8. Recognize and use metric units of length, weight, volume, and temperature. 9. Recognize some of the basic shapes used in the construction industry, and apply basic geometry to measure them. 10. Convert feet, inches, and parts of an inch to its decimal equivalent. 11. Convert decimal feet and parts of a foot to foot, inch, an parts of and inch equivalent. 12. Multiply linear measurements by trigonometric functions. 	

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<p><u>Module D CAR 111</u></p> <p>Competency Explain the uses of Hand and Power Tools.</p> <p>Objectives</p> <ul style="list-style-type: none"> • Identify the hand tools commonly used by carpenters and describe their uses. • State the general safety rules for operating all power tools, regardless of type. • Identify the portable power tools commonly used by carpenters and describe their uses. • Identify the stationary power tools commonly used by carpenters and describe their uses. • Explain the safe and appropriate use of various hand tools. • Explain the safe and appropriate use of various portable power tools. • Explain the safe and appropriate use of various stationary power tools. 	<p>13. Solve right triangle problems for unknown angles. 14. Solve right triangle problems for unknown side.</p> <p><u>Architecture, Construction, and Manufacturing, Unit 13, Hand Tools & Power Tools</u></p> <p><u>Content Standard</u></p> <p>13. Demonstrate correct use of hand tools and power tools utilized in the architecture, construction, and manufacturing industry.</p> <p><u>Learning Objectives</u></p> <ol style="list-style-type: none"> 1. Recognize and identify some of the basic hand tools used in the construction trade. 2. Use hand tools safely. 3. Describe the basic procedures for taking care of hand tools. 4. Identify power tools commonly used in the construction trades. 5. Use power tools safely. 6. Explain how to maintain power tools properly. 7. Visually inspect the following tools to determine if they are safe to use: <ul style="list-style-type: none"> • Hammer 	

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<p><u>Module B CAR 114</u></p> <p>Competency Use Hand and Power Tools.</p> <p>Objectives</p> <ul style="list-style-type: none"> • Demonstrate the safe and appropriate use of hand tools. • Demonstrate safe and appropriate use of various power tools. 	<ul style="list-style-type: none"> • Screwdriver • Saw <p>8. Make a straight square cut using a crosscut saw. 9. Safely and properly use the following tools:</p> <ul style="list-style-type: none"> • Hammer and cat's paw (to drive and pull nails) • Screwdriver (slotted and Phillips) • Adjustable wrench • Channellock® pliers • Spirit level • Carpenter's square and steel tape • Saw • Assorted plies • Open and closed end wrenches <p>10. Safely and properly operate an electric drill. 11. Safely and properly operate a circular saw. 12. Safely and properly operate a bench grinder. 13. Safely and properly operate a portable belt sander. 14. Safely and properly operate a pneumatic power nailer.</p> <p><u>OR</u></p> <p><u>Carpentry I, Unit 2, Hand & Power Tools</u></p> <p><u>Content Standard</u></p> <p>2. Demonstrate the proper use of hand and power tools used in carpentry.</p> <p><u>Learning Objectives</u></p>	

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<p><u>Module E CAR 111</u></p> <p>Competency Comprehend the uses of building materials.</p> <p>Objectives</p> <ul style="list-style-type: none"> • Describe the proper safety precautions used with various building materials. • Explain the terms commonly used in discussing wood and lumber. 	<ol style="list-style-type: none"> 1. Obtain safe operation skills regarding tools and equipment. 2. Identify hand and power tool functions and applications. 3. Inspect and maintain tools and equipment for safe operation. 4. Accomplish safe hands-on use of tools and equipment. 5. Demonstrate the safe and appropriate use and maintenance of various portable power tools. 6. Demonstrate the safe and appropriate use and maintenance of various stationary power tools. 7. Demonstrate the safe and appropriate use and maintenance of various pneumatic power tools. 8. Demonstrate the safe and appropriate use and maintenance of various powder actuated power tools. <p><u>Construction Framing, Unit 3, Grades and Types of Lumber</u> <u>Content Standard</u></p> <ol style="list-style-type: none"> 3. Compare applications of hardwood and softwood lumber used in framing structures. <ul style="list-style-type: none"> • Identifying grades of lumber Examples: appearance grade, timber grade, dimension grade • Identifying defects that affect lumber grade Examples: knot, wane, split, check, warp 	

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<ul style="list-style-type: none"> • State the uses of various types of hardwoods and softwoods. • Identify the uses of various types of pressure treated lumber. • Explain how lumber is graded. • Explain how plywood is manufactured, graded, and used. • Identify various types of building boards and identify their uses. • State the uses of various types of engineered lumber. • Describe the proper method of caring for lumber and wood products on the job site. • Calculate the quantities of lumber and wood products needed using industry-standard methods. <p><u>Module C CAR 114</u></p> <p>Competency Use building materials properly.</p> <p>Objectives</p> <ul style="list-style-type: none"> • Given a selection of building materials, identify a particular material and demonstrate its use. • Identify lumber and plywood grades and their uses 	<p><u>Learning Objective</u></p> <ol style="list-style-type: none"> 1. Describe the uses of various types of hardwoods and softwoods. 2. Identify the different grades and markings of wood building materials. 3. Describe the proper method of storing and handling building materials. 4. Identify and describe defects. <p><u>Construction Framing, Unit 7&8, Wall Framing Content Standard</u></p> <ol style="list-style-type: none"> 7. Design a wall framing system for a structure. <ul style="list-style-type: none"> • Comparing the use of wood and metal wall framing components • Describing the use of a sole plate in structures • Demonstrating the construction of corner posts with and without blocking • Demonstrating the use and installation of full, cripple, and trimmer studs • Demonstrating the installation of a double top plate in structures • Demonstrating the installation of rough openings for doors and windows, including headers • Demonstrating techniques for bracing a wall 8. Compare various wall sheathing materials for structures. 	

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	<p>Examples: foam board, oriented strand board, insulating board, plywood</p> <p><u>Learning Objective</u></p> <ol style="list-style-type: none"> 1. Describe the advantages of wood wall framing. 2. Describe the advantages of metal wall framing. 3. Describe the purpose of a sole plate in structures. 4. Construct corner posts with and without blocking. 5. Install full, cripple, and trimmer studs and explain their use. 6. Construct and install a double top plate. 7. Construct rough openings for doors and windows, including headers. 8. Demonstrate the proper method to brace a wall. 9. Identify and describe wall sheathing materials for structures. <p><u>OR</u></p> <p><u>Carpentry I, Unit 3 & 4,</u> <u>Building Materials, Fasteners, and Adhesives</u> <u>Content Standard</u></p> <ol style="list-style-type: none"> 3. Calculate quantities of lumber and wood products using industry-standard methods. 4. Install fasteners, anchors, and adhesives used in carpentry. <p><u>Learning Objectives</u></p> <ol style="list-style-type: none"> 1. Calculate / Estimate material quantities of materials from prints or working drawings. 2. Read and interpret plans. 3. Determine Material Specifications. 	

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<p><u>Module F CAR 111</u></p> <p>Competency Explain functions of fasteners and adhesives.</p> <p>Objectives</p> <ul style="list-style-type: none"> • Explain the safety precautions used for various types of fasteners and adhesives. • Identify the various types of fasteners used in construction work. • Explain the use of various types of fasteners and their application. • Identify the various types of adhesives used in construction work. • Explain the use of various types of adhesives and their application. <p><u>Module D CAR 114</u></p> <p>Competency Use fasteners and adhesives properly.</p> <p>Objectives</p> <ul style="list-style-type: none"> • Identify the different types of nails, staples, screws, anchors and adhesives. 	<p>4. Assemble, fabricate, install, and construct using fasteners, anchors, and adhesives in accordance with drawings.</p> <p><u>Construction Framing, Unit 7&8, Wall Framing Content Standard</u></p> <p>7. Design a wall framing system for a structure.</p> <ul style="list-style-type: none"> • Comparing the use of wood and metal wall framing components • Describing the use of a sole plate in structures • Demonstrating the construction of corner posts with and without blocking • Demonstrating the use and installation of full, cripple, and trimmer studs • Demonstrating the installation of a double top plate in structures • Demonstrating the installation of rough openings for doors and windows, including headers • Demonstrating techniques for bracing a wall <p>8. Compare various wall sheathing materials for structures.</p> <p>Examples: foam board, oriented strand board, insulating board, plywood</p> <p><u>Learning Objective</u></p> <ol style="list-style-type: none"> 1. Describe the advantages of wood wall framing. 2. Describe the advantages of metal wall framing. 	

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<ul style="list-style-type: none"> Select and demonstrate the appropriate use of fasteners for various applications. Select and demonstrate the appropriate use of adhesives for various applications. 	<ol style="list-style-type: none"> Describe the purpose of a sole plate in structures. Construct corner posts with and without blocking. Install full, cripple, and trimmer studs and explain their use. Construct and install a double top plate. Construct rough openings for doors and windows, including headers. Demonstrate the proper method to brace a wall. Identify and describe wall sheathing materials for structures. <p><u>OR</u></p> <p><u>Carpentry I, Unit 3 & 4,</u> <u>Building Materials, Fasteners, and Adhesives</u> <u>Content Standard</u></p> <ol style="list-style-type: none"> Calculate quantities of lumber and wood products using industry-standard methods. Install fasteners, anchors, and adhesives used in carpentry. <p><u>Learning Objectives</u></p> <ol style="list-style-type: none"> Calculate / Estimate material quantities of materials from prints or working drawings. Read and interpret plans. Determine Material Specifications. Assemble, fabricate, install, and construct using fasteners, anchors, and adhesives in accordance with drawings. 	