

CTE/ROP Introduction to Construction 1/2

San Diego County Office of Education - Sweetwater Union High School District Pacing Guide/Course Description

Course Length: 2 Semesters	Classroom Instruction: 180 hours
SUHSD Course Number: 97299/97300	Grade Level: 9, 10, 11, 12
SDCOE Course Number: 550209	SDCOE Total Hours: 720 hours
CBEDS Number/Title: 5501/Introduction to Construction	Year of Implementation: 2011
Course Pre-requisites: None	Articulation (school/credits): None
CTE Industry Sector: Building Trades and Construction	CTE Pathway(s): Cabinetmaking & Wood Products; Engineering and Heavy Construction; Mechanical Construction; Residential & Commercial Construction
Job Titles: General Construction worker, Carpenter, Electrician, Contractor, Roofer Framer, Concrete Worker, Welder, Flooring Installer, Building Inspector, Plumber, painter, laborer, HVAC Installer & Servicer, Drywall Installer and Finisher	
Credential Information: Preliminary or Clear Full-Time Designated Subjects CTE Teaching Credential in Building Trades and Construction	
Required Textbooks: Modern Carpentry 11 th Edition by Wagner and Smith	
Course Description: This course provides pre-apprentice, entry-level to advanced training in residential and commercial construction in the building industry trades and related areas. Instruction will cover safety, OSHA 10 training, foundation design and construction; construction science and math, framing wood structures; roofing materials and installation; plumbing installation; electrical wiring; drywall installation and repair, finish work, carpentry and green construction technologies. Students use equipment which includes various hand and power tools. Employment possibilities include general construction worker, building maintenance worker, residential and commercial maintenance.	

CTE/ROP Introduction to Construction 1/2

Semester 1

- Unit 1: Introduction Basic knowledge
- Unit 2: Safety, hazardous waste
- Unit 3: Math and measurements
- Unit 4: Hand and power tools
- Unit 5: Construction management, planning & estimating
- Unit 6: Blue print reading
- Unit 7: Surveying and layout
- Unit 8: Site prep, grading, soil classification
- Unit 9: Foundation concrete
- Unit 10: Lumber framing

Semester 2

- Unit 1: Steel Stud Framing
- Unit 2: Plumbing
- Unit 3: Electrical
- Unit 4: Heating and Sheet Metal
- Unit 5: Insulation
- Unit 6: Drywall and Exterior
- Unit 7: Roofing
- Unit 8: Doors and Windows
- Unit 9: Floor Coverings
- Unit 10: Finish Carpentry
- Unit 11: Painting and Decorating
- Unit 12: Green Technology
- Unit 13: Occupational Knowledge and Job Acquisition Skills
- Unit 14: All Aspects of the Industry

CTE/ROP Introduction to Construction 1/2

<u>Semester 1 - Unit 1 – Introduction (2 hours)</u>			
Competencies	Standards	Suggested Pacing	Resources/Materials
<p>1A – Demonstrates understanding of course outline</p> <p>1B - Demonstrates understanding of syllabus</p> <p>1C - Demonstrates understanding of student expectations</p> <p>1D - Demonstrates understanding of teacher and student assessments</p>	<p><u>Career Technical Education:</u> *BTC/LT/ 9.1 Understand the characteristics and benefits of teamwork, leadership, and citizenship in the school, community, and workplace settings. 9.3 Understand how to organize and structure work individually and in teams for effective performance and the attainment of goals. 9.5 Understand how to interact with others in ways that demonstrate respect for individual and cultural differences and for the attitudes and feelings of others. <u>Core Academic:</u></p>	<p>A - 30 minutes: Course outline</p> <p>B - 30 minutes: Course Syllabus</p> <p>C - 30 minutes: Student Expectations</p> <p>D - 30 minutes: Assessments</p>	<p><u>Teacher Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p> <p><u>Student Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p>

CTE/ROP Introduction to Construction 1/2

<u>Semester 1 - Unit 2 – Safety, Hazardous Waste (21 hours)</u>			
Competencies	Standards	Suggested Pacing	Resources/Materials
<p>2A - Received safety instruction in the proper use of tools and equipment used in the construction industry.</p> <p>2B - Identifies and uses properly power tools commonly used in the construction industry.</p> <p>2C - Assembles and uses scaffolding and staging safely.</p> <p>2D - Identifies the community, health, safety and environmental issues and MSDS.</p> <p>2E - Identifies elements of storm water pollution prevention program (SWPPP).</p> <p>2F - Understands protocol with material that contains or may contain asbestos.</p> <p>2G - Received OSHA 10 training certificate.</p> <p>2H - Understands personal safety gear including harnesses.</p> <p>2I - Understands Tailgate Safety meetings.</p>	<p><u>Career Technical Education:</u> *BTC/CWP/ A2.1 Use common hand tools and accessories, such as planers, shapers, clamping and gripping tools, pliers, wrenches, wood chisels, hammers, hand saws, and squares, safely and properly. A3.1 Use portable power tools, such as single and compound miter saws, drills, sanders, saber saws, and routers, safely and appropriately. A6.3 Understand how to handle and dispose of toxic materials safely and use protective clothing as needed when using lacquers, acetone, thinners, staining materials, and so forth in an environmentally responsible manner. *BTC/EHCP/ B2.1 Use the common hand tools of the trade, such as rebar cutters, metal stud cutters/pliers, concrete floats/fresnoes, sheet metal cutters/pliers, saws, hammers, chisels, and wrenches, safely and appropriately. B5.1 Understand the importance of scaffold and ladder safety. B5.2 Know the rules and responsibilities of the various governmental safety agencies and their impact on engineering and heavy construction. B5.3 Understand the importance of worksite safety as it pertains to hazardous waste disposal and procedures for containment of toxic and hazardous materials. B7.2 Understand environmental regulations that influence engineering and heavy construction projects.</p>	<p>2A – 1 hour</p> <p>2B – 1 hour</p> <p>2C – 2 hours</p> <p>2D – 2 hours</p> <p>2E – 1 hour</p> <p>2F – 2 hours</p> <p>2G – 10 hours</p> <p>2H – 1 hour</p> <p>2I – 1 hour</p>	<p><u>Teacher Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p> <p><u>Student Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p>

CTE/ROP Introduction to Construction 1/2

	<p>*BTC/HS/ 6.1 Know the policies, procedures, and regulations regarding health and safety in the workplace, including employers' and employees' responsibilities. 6.2 Understand critical elements of health and safety practices related to storing, cleaning, and maintaining tools, equipment, and supplies. 6.3 Know procedures for and regulations concerning the handling, storage, and disposal of hazardous materials. 6.4 Know how regulatory agency laws and regulations are created and enforced. 6.5 Evaluate past, present, and future impacts of technological developments on the environment. Core Academic: *BTC/C/2.1R/RC/G9-10/ (2.6) Demonstrate use of sophisticated learning tools by following technical directions (e.g., those found with graphic calculators and specialized software programs and in access guides to World Wide Web sites on the Internet).</p>		
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CTE/ROP Introduction to Construction 1/2

<u>Semester 1 - Unit 3 – Math and Measurement (5 hours)</u>			
Competencies	Standards	Suggested Pacing	Resources/Materials
<p>3A - Measures and lays out materials using feet, inches, fractions, fraction conversions, geometry and metric measurements.</p> <p>3B - Demonstrates trade related math computations calculating cubic yards of concrete and square footage of buildings in order to cut lumber per blueprint dimensions.</p>	<p><u>Career Technical Education:</u> *BTC/CWP/ A1.3 Convert scaled drawing measurements to full dimensional layout and template applications. A1.4 Know conventional measurement processes for cabinetmaking and wood products, linear measurements, and conversions of fractions and decimals. *BTC/EHCP/ B1.2 Calculate the required materials, such as soils, aggregate, asphalt, concrete, and pipe, for engineering and heavy construction applications. <u>Core Academic:</u> *BTC/A/1.1M/NS/G7/ (1.3) Convert fractions to decimals and percents and use these representations in estimations, computations, and applications. *BTC/A/1.1M/MR/G7/ (2.8) Make precise calculations and check the validity of the results from the context of the problem.</p>	<p>3A – 3 hours</p> <p>3B – 2 hours</p>	<p><u>Teacher Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p> <p><u>Student Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p>

CTE/ROP Introduction to Construction 1/2

<u>Semester 1 - Unit 4 – Hand and Power Tools (5 hours)</u>			
Competencies	Standards	Suggested Pacing	Resources/Materials
<p>4A - Uses portable power saw.</p> <p>4B - Uses power miter saw.</p> <p>4C - Uses power nailing and stapling equipment and installs nail cartridges safely.</p> <p>4D - Uses concrete mixer.</p> <p>4E - Uses spray painting equipment.</p> <p>4F - Uses drill motors.</p> <p>4G - Uses portable power planes.</p> <p>4H - Uses radial arm and table saws.</p> <p>4I - Use welding equipment.</p> <p>4J - Uses powder actuated tools (licensed to use).</p> <p>4K - Uses portable generators.</p> <p>4L - Uses concrete vibrators.</p>	<p><u>Career Technical Education:</u> *BTC/CWP/ A3.1 Use portable power tools, such as single and compound miter saws, drills, sanders, saber saws, and routers, safely and appropriately. A4.1 Understand the proper and safe use of stationary power tools used in the milling process, such as shapers, sanders, joiners, table saws, and band saws. A4.3 Understand the proper and safe use of stationary power tools used in the finishing process, such as glue applicators, laminate applicators, and lacquer and paint applicators. *BTC/EHCP/ B3.1 Use portable power tools, such as circular saws, saber saws, reciprocating saws, and straight and right-angle drills, safely and appropriately. B3.2 Use pneumatic tools, such as jack hammers, rotary hammers, impact wrenches, concrete tampers, framing nail guns, roofing nail guns, and drills, safely and appropriately. *BTC/RCCP/ D3.1 Use portable power tools, such as circular saws, table saws, saber saws, drills, planers, and sanders, safely and properly. D3.2 Use portable pneumatic tools, such as rough framing nail guns, interior finishing and brad nail guns, hammers, impact wrenches, drills, and compressors, safely and appropriately. D6.2 Understand the processes and materials (e.g., structural, electrical, mechanical, finish) appropriate to the architectural design and residential construction.</p>	<p>4A-4B – 30 minutes</p> <p>4C – 30 minutes</p> <p>4D – 30 minutes</p> <p>4E – 30 minutes</p> <p>4F – 30 minutes</p> <p>4G – 30 minutes</p> <p>4H – 30 minutes</p> <p>4I – 30 minutes</p> <p>4J – 30 minutes</p> <p>4K – 30 minutes</p> <p>4L - 30 minutes</p>	<p><u>Teacher Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p> <p><u>Student Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p>

CTE/ROP Introduction to Construction 1/2

	<p>*BTC/HS/ 6.1 Know the policies, procedures, and regulations regarding health and safety in the workplace, including employers' and employees' responsibilities. 6.2 Understand critical elements of health and safety practices related to storing, cleaning, and maintaining tools, equipment, and supplies. <u>Core Academic:</u></p>		
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CTE/ROP Introduction to Construction 1/2

<u>Semester 1 - Unit 5 – Construction Management, Planning & Estimating (5 hours)</u>			
Competencies	Standards	Suggested Pacing	Resources/Materials
<p>5A - Identifies key elements of Construction Management, Planning and Estimating.</p>	<p><u>Career Technical Education:</u> *BTC/RCCP/ D6.1 Develop building plans and schedules by using processes common to residential and commercial construction. *BTC/PSCT/ 5.1 Apply appropriate problem-solving strategies and critical thinking skills to work-related issues and tasks. *BTC/ELR/ 8.1 Know the major local, district, state, and federal regulatory agencies and entities that affect the industry and how they enforce laws and regulations. <u>Core Academic:</u></p>	<p>5A – 5 hours</p>	<p><u>Teacher Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p> <p><u>Student Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p>

CTE/ROP Introduction to Construction 1/2

<u>Semester 1 - Unit 6 – Blue Print Reading (10 hours)</u>			
Competencies	Standards	Suggested Pacing	Resources/Materials
<p>6A - Reads and interprets drawings, blueprints and other standard plans used in the construction industry.</p> <p>6B - Reads and abides by building codes and other regulations pertaining to the construction industry.</p> <p>6C - Estimates and orders materials from blueprints.</p> <p>6D - Prepares bid packages from given specifications.</p> <p>6E - Schedules labor and materials as needed on various projects relating to the construction trade.</p> <p>6F - Demonstrates a basic understanding of cost control.</p> <p>6G - Budgets materials and labor in order to complete project under bid.</p>	<p><u>Career Technical Education:</u> *BTC/EHCP/ B4.1 - Know how to read, understand, and construct projects accurately from commercial specifications and blueprints, ensuring compliance with state and local building codes. B4.2 - Understand how to estimate the cost of supplies and materials for an engineering and heavy construction project. *BTC/MCP/ C4.2 - Understand how to estimate equipment and materials from blueprints and specifications. *BTC/RCCP/ D4.1 Interpret and use residential construction blueprints and specifications. D4.2 Understand how to estimate materials from blueprints and specifications. D4.3 Understand the sequencing of events for specific construction projects. *BTC/C/2.1R/RC/G9-10/ (2.1) Analyze the structure and format of functional workplace documents, including the graphics and headers, and explain how authors use the features to achieve their purposes. (2.6) Demonstrate use of sophisticated learning tools by following technical directions (e.g., those found with graphic calculators and specialized software programs and in access guides to World Wide Web sites on the Internet). *BTC/C/2.1R/RC/G11-12/ (2.3) Verify and clarify facts presented in other types of expository texts by using a variety of consumer, workplace, and public documents.</p>	<p>6A – 2 hours</p> <p>6B – 2 hours</p> <p>6C – 1 hour</p> <p>6D – 1 hours</p> <p>6E – 2 hours</p> <p>6F – 1 hour</p> <p>6G – 1hour</p>	<p><u>Teacher Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p> <p><u>Student Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p>

CTE/ROP Introduction to Construction 1/2

	<p>*BTC/PSCT/ 5.1 Apply appropriate problem-solving strategies and critical thinking skills to work-related issues and tasks.</p> <p>*BTC/TKS/ 10.1 Understand construction processes and systems and their importance in construction technology.</p> <p><u>Core Academic:</u></p>		
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CTE/ROP Introduction to Construction 1/2

<u>Semester 1 - Unit 7 – Surveying and Layout (5 hours)</u>			
Competencies	Standards	Suggested Pacing	Resources/Materials
<p>7A - Surveys and does layout of building site using surveying equipment to assure compliance with property lines.</p> <p>7B - Understands vertical surveys and building site layouts.</p>	<p><u>Career Technical Education:</u> *BTC/RCCP/ D6.3 Prepare the site layout and the site, including the grading and engineering of the building pad. D6.4 Understand the phases of residential and commercial construction. *BTC/PSCT/ 5.1 Apply appropriate problem-solving strategies and critical thinking skills to work-related issues and tasks. 5.3 Use critical thinking skills to make informed decisions and solve problems. *BTC/TKS/ 10.1 Understand construction processes and systems and their importance in construction technology. <u>Core Academic:</u></p>	<p>7A – 4 hours</p> <p>7B – 1 hour</p>	<p><u>Teacher Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p> <p><u>Student Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p>

CTE/ROP Introduction to Construction 1/2

<u>Semester 1 - Unit 8 – Site Prep, Grading, Soil Classification (5 hours)</u>			
Competencies	Standards	Suggested Pacing	Resources/Materials
<p>8A - Interprets and understands a soil report.</p> <p>8B - Understands proper procedures associated with soil compaction.</p> <p>8C - Understands all industry procedures and processes for excavation.</p> <p>8D - Understands and identifies all safety concerns and procedures associated with trenching.</p>	<p><u>Career Technical Education:</u> *BTC/RCCP/ D6.3 Prepare the site layout and the site, including the grading and engineering of the building pad. D6.4 Understand the phases of residential and commercial construction. *BTC/C/2.1R/RC/G11-12/ (2.3) Verify and clarify facts presented in other types of expository texts by using a variety of consumer, workplace, and public documents. *BTC/PSCT/ 5.1 Apply appropriate problem-solving strategies and critical thinking skills to work-related issues and tasks. *BTC/HS/ 6.1 Know the policies, procedures, and regulations regarding health and safety in the workplace, including employers' and employees' responsibilities. <u>Core Academic:</u></p>	<p>8A – 2 hours</p> <p>8B – 1hour</p> <p>8C – 1 hour</p> <p>8D – 1 hour</p>	<p><u>Teacher Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p> <p><u>Student Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p>

CTE/ROP Introduction to Construction 1/2

<u>Semester 1 - Unit 9 – Foundation Concrete (10 hours)</u>			
Competencies	Standards	Suggested Pacing	Resources/Materials
<p>9A - Forms, pours and finishes concrete foundations and slabs per blueprint specifications.</p> <p>9B - Builds and repairs masonry walls and structures.</p>	<p><u>Career Technical Education:</u> *BTC/EHCP/ B6.1 Understand the development of building plans and schedules using processes common to engineering and heavy construction. *BTC/RCCP/ D4.1 Interpret and use residential construction blueprints and specifications. D6.1 Develop building plans and schedules by using processes common to residential and commercial construction. D6.2 Understand the processes and materials (e.g., structural, electrical, mechanical, finish) appropriate to the architectural design and residential construction. *BTC/PSCT/ 5.5 Apply the design process in the design, development, evaluation, and refinement of a prototype for a construction industry product. *BTC/TKS/ 10.7 Understand the attributes of good design. <u>Core Academic:</u> *BTC/C/2.4LS/LSSA/G9-10/ (1.7) Use props, visual aids, graphs, and electronic media to enhance the appeal and accuracy of presentations.</p>	<p>9A - 8 hours</p> <p>9B – 2 hours</p>	<p><u>Teacher Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p> <p><u>Student Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p>

CTE/ROP Introduction to Construction 1/2

<u>Semester 1 - Unit 10 – Lumber Framing (22 hours)</u>			
Competencies	Standards	Suggested Pacing	Resources/Materials
<p>10A - Builds and repairs common wood and chain link fences.</p> <p>10B - Frames basic wooden structures using procedures and techniques accepted by the construction industry.</p> <p>10C - Identifies and properly selects fasteners, hardware and adhesives for proper application as needed on construction job site.</p> <p>10D - Identifies, by characteristics and size, wood commonly used in the construction industry.</p>	<p><u>Career Technical Education:</u></p> <p>*BTC/RCCP/</p> <p>D4.1 - Interpret and use residential construction blueprints and specifications.</p> <p>D4.4 - Solve common residential construction problems, such as framing, plumbing, and electrical, by using the official codes adopted by the state and local building standards commission.</p> <p>*BTC/PSCT/</p> <p>5.5 Apply the design process in the design, development, evaluation, and refinement of a prototype for a construction industry product.</p> <p>*BTC/TKS/</p> <p>10.1 Understand construction processes and systems and their importance in construction technology.</p> <p>10.7 Understand the attributes of good design.</p> <p><u>Core Academic:</u></p>	<p>10A – 4 hours</p> <p>10B – 12 hours</p> <p>10C – 2 hours</p> <p>10D – 4 hours</p>	<p><u>Teacher Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p> <p><u>Student Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p>

CTE/ROP Introduction to Construction 1/2

<u>Semester 2 - Unit 1– Steel Stud Framing (5 hours)</u>			
Competencies	Standards	Suggested Pacing	Resources/Materials
<p>11A - Installs metal studs as per construction industry standards.</p> <p>11B - Demonstrates welding applications used in the construction industry.</p>	<p><u>Career Technical Education:</u> *BTC/RCCP/ D4.4 Solve common residential construction problems, such as framing, plumbing, and electrical, by using the official codes adopted by the state and local building standards commission. D6.2 Understand the processes and materials (e.g., structural, electrical, mechanical, finish) appropriate to the architectural design and residential construction. *BTC/PSCT/ 5.1 Apply appropriate problem-solving strategies and critical thinking skills to work-related issues and tasks. *BTC/TKS/ 10.1 Understand construction processes and systems and their importance in construction technology. <u>Core Academic:</u> *BTC/C/2.4LS/LSSA/G9-10/ (1.7) Use props, visual aids, graphs, and electronic media to enhance the appeal and accuracy of presentations.</p>	<p>11A – 3 hours</p> <p>11B – 2 hours</p>	<p><u>Teacher Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p> <p><u>Student Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p>

CTE/ROP Introduction to Construction 1/2

<u>Semester 2 - Unit 2 – Plumbing (10 hours)</u>			
Competencies	Standards	Suggested Pacing	Resources/Materials
<p>12A - Installs repairs and replaces plumbing fixtures.</p> <p>12B - Installs (rough-In) waste and water supply.</p>	<p><u>Career Technical Education:</u> *BTC/MCP/ C5.2 Use appropriate safety procedures and practices in various work environment settings pertaining to mechanical construction (e.g., plumbing, electrical, HVAC). *BTC/TKS/ 10.1 Understand construction processes and systems and their importance in construction technology. <u>Core Academic:</u></p>	<p>12A – 5 hours</p> <p>12B – 5 hours</p>	<p><u>Teacher Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p> <p><u>Student Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p>

CTE/ROP Introduction to Construction 1/2

<u>Semester 2 - Unit 3 – Electrical (10 hours)</u>			
Competencies	Standards	Suggested Pacing	Resources/Materials
<p>13A - Performs basic electrical installations using Romex cable and complies with proper wiring gauge sizes.</p> <p>13B - Has general knowledge of electrical power generation and distribution from the power plant to the receptacle.</p> <p>13C - Demonstrates basic electrical theory and has an understanding of Ohms law.</p>	<p><u>Career Technical Education:</u> *BTC/RCCP/ D4.3 Understand the sequencing of events for specific construction projects. D6.2 Understand the processes and materials (e.g., structural, electrical, mechanical, finish) appropriate to the architectural design and residential construction. D6.4 Understand the phases of residential and commercial construction. *BTC/TKS/ 10.1 Understand construction processes and systems and their importance in construction technology. <u>Core Academic:</u> *BTC/A/1.2S/PH/G9-12/ (5.b) Students know how to solve problems involving Ohm’s law.</p>	<p>13A – 5 hours</p> <p>13B – 5 hours</p>	<p><u>Teacher Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p> <p><u>Student Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p>

CTE/ROP Introduction to Construction 1/2

<u>Semester 2 - Unit 4 – Heating and Sheet Metal (5 hours)</u>			
Competencies	Standards	Suggested Pacing	Resources/Materials
<p>14A - Identifies and explains all the components of an HVAC system.</p> <p>14B - Identifies basic mechanical systems used in the construction industry.</p> <p>14C - Understands all associated building codes related to HVAC and operations systems.</p> <p>14D - Understands and identifies various types of flashing procedures used with HVAC systems.</p>	<p><u>Career Technical Education:</u> *BTC/MCP/ C4.1 Know how to read, understand, and construct projects accurately from mechanical construction blueprints and specifications. C4.3 Understand the sequencing of events for a specific mechanical construction project. C5.2 Use appropriate safety procedures and practices in various work environment settings pertaining to mechanical construction (e.g., plumbing, electrical, HVAC). C6.3 Understand the phases of mechanical construction, such as rough and finish, electrical, sheet metal ducting, and HVAC installation. *BTC/PSCT/ 5.1 Apply appropriate problem-solving strategies and critical thinking skills to work-related issues and tasks. *BTC/HS/ 6.4 Know how regulatory agency laws and regulations are created and enforced. *BTC/TKS/ 10.1 Understand construction processes and systems and their importance in construction technology. <u>Core Academic:</u> *BTC/A/1.2S/PH/G9-12/ (3.a) Students know heat flow and work are two forms of energy transfer between systems.</p>	<p>14A – 2 hours</p> <p>14B – 1 hour</p> <p>14C – 1 hour</p> <p>14D – 1 hour</p>	<p><u>Teacher Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p> <p><u>Student Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p>

CTE/ROP Introduction to Construction 1/2

<u>Semester 2 - Unit 5 – Insulation (5 hours)</u>			
Competencies	Standards	Suggested Pacing	Resources/Materials
<p>15A - Installs insulation according to construction industry standards.</p> <p>15B - Understands specific R-value and proper installation and application.</p>	<p><u>Career Technical Education:</u></p> <p>*BTC/EHCP/</p> <p>B6.2 Know the appropriate use of tools, processes, and materials in architectural design, project development, and engineering and heavy construction (e.g., structural, electrical, mechanical, and finish phases).</p> <p>*BTC/RCCP/</p> <p>D4.1 Interpret and use residential construction blueprints and specifications.</p> <p>D6.2 Understand the processes and materials (e.g., structural, electrical, mechanical, finish) appropriate to the architectural design and residential construction.</p> <p>D6.4 Understand the phases of residential and commercial construction.</p> <p>*BTC/PSCT/</p> <p>5.1 Apply appropriate problem-solving strategies and critical thinking skills to work-related issues and tasks.</p> <p>*BTC/HS/</p> <p>6.1 Know the policies, procedures, and regulations regarding health and safety in the workplace, including employers' and employees' responsibilities.</p> <p><u>Core Academic:</u></p>	<p>15A – 3 hours</p> <p>15B – 2 hours</p>	<p><u>Teacher Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p> <p><u>Student Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p>

CTE/ROP Introduction to Construction 1/2

<u>Semester 2 - Unit 6 – Drywall and Exterior (15 hours)</u>			
Competencies	Standards	Suggested Pacing	Resources/Materials
<p>16A - Installs repairs and finishes drywall as per construction industry standards.</p> <p>16B - Installs paneling according to construction industry standards.</p> <p>16C - Identifies various exterior finishes, including a variety of sheet metal components.</p> <p>16D - Applies ceiling tiles according to construction industry standards.</p>	<p><u>Career Technical Education:</u> *BTC/EHCP/ B6.2 Know the appropriate use of tools, processes, and materials in architectural design, project development, and engineering and heavy construction (e.g., structural, electrical, mechanical, and finish phases). *BTC/RCCP/ D4.1 Interpret and use residential construction blueprints and specifications. D4.3 Understand the sequencing of events for specific construction projects. D6.2 Understand the processes and materials (e.g., structural, electrical, mechanical, finish) appropriate to the architectural design and residential construction. D6.4 Understand the phases of residential and commercial construction. *BTC/PSCT/ 5.1 Apply appropriate problem-solving strategies and critical thinking skills to work-related issues and tasks. *BTC/TKS/ 10.1 Understand construction processes and systems and their importance in construction technology. <u>Core Academic:</u> *BTC/A/1.1M/MR/G7/ (2.1) Use estimation to verify the reasonableness of calculated results.</p>	<p>16A – 5 hours</p> <p>16B – 3 hours</p> <p>16C – 5 hours</p> <p>16D – 2 hours</p>	<p><u>Teacher Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p> <p><u>Student Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p>

CTE/ROP Introduction to Construction 1/2

<u>Semester 2 - Unit 7 – Roofing (5 hours)</u>			
Competencies	Standards	Suggested Pacing	Resources/Materials
<p>17A - Understands various types of roofing systems.</p> <p>17B - Installs and repairs various types of roofs with a variety of roofing materials, including flashing and gutters.</p>	<p><u>Career Technical Education:</u></p> <p>*BTC/EHCP/</p> <p>B6.1 Understand the development of building plans and schedules using processes common to engineering and heavy construction.</p> <p>*BTC/RCCP/</p> <p>D4.3 Understand the sequencing of events for specific construction projects.</p> <p>D6.4 Understand the phases of residential and commercial construction.</p> <p>*BTC/PSCT/</p> <p>5.3 Use critical thinking skills to make informed decisions and solve problems.</p> <p>*BTC/TKS/</p> <p>10.1 Understand construction processes and systems and their importance in construction technology.</p> <p><u>Core Academic:</u></p>	<p>17A – 1 hour</p> <p>17B – 4 hours</p>	<p><u>Teacher Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p> <p><u>Student Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p>

CTE/ROP Introduction to Construction 1/2

<u>Semester 2 - Unit 8 – Doors and Windows (5 hours)</u>			
Competencies	Standards	Suggested Pacing	Resources/Materials
<p>18A - Installs and repairs doors and door hardware per construction industry standards.</p> <p>18B - Understands various types of door and window systems.</p>	<p><u>Career Technical Education:</u> *BTC/EHCP/ B6.2 Know the appropriate use of tools, processes, and materials in architectural design, project development, and engineering and heavy construction (e.g., structural, electrical, mechanical, and finish phases). *BTC/RCCP/ D6.1 Develop building plans and schedules by using processes common to residential and commercial construction. D6.2 Understand the processes and materials (e.g., structural, electrical, mechanical, finish) appropriate to the architectural design and residential construction. D6.4 Understand the phases of residential and commercial construction. *BTC/TKS/ 10.1 Understand construction processes and systems and their importance in construction technology. 10.7 Understand the attributes of good design. <u>Core Academic:</u> *BTC/C/2.1R/RC/G9-10/ (2.6) Demonstrate use of sophisticated learning tools by following technical directions (e.g., those found with graphic calculators and specialized software programs and in access guides to World Wide Web sites on the Internet).</p>	<p>18A – 4 hours</p> <p>18B – 1 hour</p>	<p><u>Teacher Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p> <p><u>Student Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p>

CTE/ROP Introduction to Construction 1/2

<u>Semester 2 - Unit 9 – Floor Covering (5 hours)</u>			
Competencies	Standards	Suggested Pacing	Resources/Materials
<p>19A - Installs and repairs various floor coverings.</p>	<p><u>Career Technical Education:</u> *BTC/RCCP/ D6.1 Develop building plans and schedules by using processes common to residential and commercial construction. D6.2 Understand the processes and materials (e.g., structural, electrical, mechanical, finish) appropriate to the architectural design and residential construction. *BTC/TKS/ 10.1 Understand construction processes and systems and their importance in construction technology. <u>Core Academic:</u></p>	<p>19A – 5 hours</p>	<p><u>Teacher Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p> <p><u>Student Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p>

CTE/ROP Introduction to Construction 1/2

<u>Semester 2 - Unit 10 – Finish Carpentry (10 hours)</u>			
Competencies	Standards	Suggested Pacing	Resources/Materials
<p>20A - Applies trim and molding according to construction industry standards.</p> <p>20B - Understands trim and molding systems.</p> <p>20C - Identifies cabinet systems and performs basic installation.</p> <p>20D - Identifies basic casework and trim.</p>	<p><u>Career Technical Education:</u> *BTC/CWP/ A5.1 Know how to read, understand, design, and construct cabinets accurately from cabinetmaking fabrication and installation plans and specifications. A5.4 Solve common cabinetmaking problems by using construction codes and cabinet building standards stated in the Manual of Millwork. A7.1 Design and create cabinet and wood products. A7.6 Use installation tools and understand the processes for the installation of cabinets, millwork, and wood products. *BTC/PSCT/ 5.1 Apply appropriate problem-solving strategies and critical thinking skills to work-related issues and tasks. *BTC/TKS/ 10.1 Understand construction processes and systems and their importance in construction technology. <u>Core Academic:</u> *BTC/A/1.1M/MR/G7/ (2.1) Use estimation to verify the reasonableness of calculated results.</p>	<p>20A – 2 hours</p> <p>20B – 2 hours</p> <p>20C – 3 hours</p> <p>20D – 3 hours</p>	<p><u>Teacher Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p> <p><u>Student Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p>

CTE/ROP Introduction to Construction 1/2

<u>Semester 2 - Unit 11 – Painting and Decorating (5 hours)</u>			
Competencies	Standards	Suggested Pacing	Resources/Materials
<p>21A - Prepares surfaces and applies various paints and stains.</p>	<p><u>Career Technical Education:</u> *BTC/CWP/ A7.5 Use finish tools (e.g., airless sprayers, palm sanders) and techniques for finishing cabinets and wood products. *BTC/RCCP/ D6.2 Understand the processes and materials (e.g., structural, electrical, mechanical, finish) appropriate to the architectural design and residential construction. *BTC/HS/ 6.1 Know the policies, procedures, and regulations regarding health and safety in the workplace, including employers' and employees' responsibilities. <u>Core Academic:</u> *BTC/C/2.1R/RC/G9-10/ (2.6) Demonstrate use of sophisticated learning tools by following technical directions (e.g., those found with graphic calculators and specialized software programs and in access guides to World Wide Web sites on the Internet).</p>	<p>21A – 5 hours</p>	<p><u>Teacher Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p> <p><u>Student Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p>

CTE/ROP Introduction to Construction 1/2

<u>Semester 2 - Unit 12 – Green Technology (5 hours)</u>			
Competencies	Standards	Suggested Pacing	Resources/Materials
<p>22A – Understands green standards for water.</p> <p>22B - Understands green standards for energy.</p> <p>22C - Understands green practices and materials.</p> <p>22D – Evaluates and promotes indoor environmental quality.</p> <p>22E – Uses green furniture.</p>	<p><u>Career Technical Education:</u> *BTC/HS/ 6.5 Evaluate past, present, and future impacts of technological developments on the environment. *BTC/TKS/ 10.1 Understand construction processes and systems and their importance in construction technology. <u>Core Academic:</u></p>	<p>22A – 1 hour</p> <p>22B – 1 hour</p> <p>22C – 1 hour</p> <p>22D – 1 hour</p> <p>22E – 1 hour</p>	<p><u>Teacher Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p> <p><u>Student Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p>

CTE/ROP Introduction to Construction 1/2

<u>Semester 2 - Unit 13 – Occupational Knowledge and Job Acquisition Skills (5 hours)</u>			
Competencies	Standards	Suggested Pacing	Resources/Materials
<p>1A - Accessing and utilizing technology and information</p> <p>1B - Practicing occupational safety standards</p> <p>1C - Thinking critically and solves problems effectively</p> <p>1D - Using basic skills in reading, writing, mathematics, listening and speaking as they relate to occupation specific skills</p> <p>1E - Attaining a comprehensive understanding of all aspects of industry the individual is preparing to enter</p> <p>1F - Applying knowledge to real world problems and situations</p> <p>3A - Completing an appropriate resume and job application</p> <p>3B - Acquiring job interview techniques</p> <p>3C - Attaining awareness of advanced career and educational opportunities</p>	<p><u>Career Technical Education:</u></p> <p>*BTC/CWP/</p> <p>A9.1 Understand the careers that are available in cabinetmaking and wood products manufacturing and related occupations (e.g., custom crafts, furniture making, marketing).</p> <p>*BTC/RCCP/</p> <p>D1.1 Identify design solutions for residential construction problems.</p> <p>D1.5 Know the use of conventional construction formulas to determine production requirements.</p> <p>D4.4 Solve common residential construction problems, such as framing, plumbing, and electrical, by using the official codes adopted by the state and local building standards commission.</p> <p>D5.2 Know the safety procedures and practices in various work environment settings pertaining to residential and commercial construction.</p> <p>D6.4 Understand the phases of residential and commercial construction.</p> <p>D7.1 Understand significant historical trends in the construction industry.</p> <p>*BTC/PSCT/</p> <p>5.1 Apply appropriate problem-solving strategies and critical thinking skills to work-related issues and tasks.</p> <p>5.3 Use critical thinking skills to make informed decisions and solve problems.</p> <p>*BTC/HS/</p> <p>6.1 Know the policies, procedures, and regulations regarding health and safety in the workplace, including employers' and employees' responsibilities.</p>	<p>1A-1F - 2 hours</p> <p>3A-3C – 3 hours</p>	<p><u>Teacher Resources:</u></p> <p>Modern Carpentry 11th Edition by Wagner and Smith</p> <p><u>Student Resources:</u></p> <p>Modern Carpentry 11th Edition by Wagner and Smith</p>

CTE/ROP Introduction to Construction 1/2

	<p>*BTC/TKS/ 10.10 Understand the need to obtain and maintain industry-standard, technical certifications significant to an industry sector.</p> <p>*BTC/A/1.1M/NS/G7/ (1.1) Read, write, and compare rational numbers in scientific notation (positive and negative powers of 10) with approximate numbers using scientific notation.</p> <p>Core Academic: *BTC/C/2.2W/WSA/G11-12/ (2.5) Write job applications and résumés:</p> <ul style="list-style-type: none">a. Provide clear and purposeful information and address the intended audience appropriately.b. Use varied levels, patterns, and types of language to achieve intended effects and aid comprehension.c. Modify the tone to fit the purpose and audience.d. Follow the conventional style for that type of document (e.g., résumé, memorandum) and use page formats, fonts, and spacing that contribute to the readability and impact of the document.		
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CTE/ROP Introduction to Construction 1/2

<u>Semester 2 - Unit 14 – All Aspects of the Industry (Ongoing)</u>			
Competencies	Standards	Suggested Pacing	Resources/Materials
<p>23A - Identifies key elements of industry planning.</p> <p>23B - Identifies key elements of management.</p> <p>23C - Understands industry finance.</p> <p>23D - Understands the underlying principles of technology.</p> <p>23E - Identifies the labor and regulatory issues.</p> <p>23F - Understands the community, health, safety and environmental issues.</p> <p>23G - Allocates resources (i.e., time, money, materials, space and staff).</p> <p>23H - Works on teams, teaches others, serve customers, lead, negotiate and works well with people from culturally diverse background.</p> <p>23I - Acquires and evaluate data, organize and maintains files, interprets and communicates information as well as use computer to process information.</p> <p>23J - Understands social, organizational, and technical systems, monitors correct performance and improves systems.</p> <p>23K - Selects equipment and tools, applies technology to specific tasks and maintains</p>	<p><u>Career Technical Education:</u> *BTC/CWP/ A9.2 Understand the need for professional growth across all aspects of the industry, including financial, leadership, and advancement elements. *BTC/EHCP/ B4.2 Understand how to estimate the cost of supplies and materials for an engineering and heavy construction project. B4.3 Understand how to plan all construction phases, including subcontractor schedules, clearing, rough grading, wet and dry utilities, fine grading, concrete, and job closeout. B5.2 Know the rules and responsibilities of the various governmental safety agencies and their impact on engineering and heavy construction. *BTC/RCCP/ D4.2 Understand how to estimate materials from blueprints and specifications. D4.3 Understand the sequencing of events for specific construction projects. D4.5 Understand industry conventions for the creation and maintenance of construction logs. D5.2 Know the safety procedures and practices in various work environment settings pertaining to residential and commercial construction. D6.1 Develop building plans and schedules by using processes common to residential and commercial construction. D6.4 Understand the phases of residential and commercial construction. D7.2 Develop financial plans for construction projects.</p>	<p>23A-23M - ongoing</p>	<p><u>Teacher Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p> <p><u>Student Resources:</u> Modern Carpentry 11th Edition by Wagner and Smith</p>

CTE/ROP Introduction to Construction 1/2

<p>and troubleshoots equipment. 23L - Follow safety procedures and practices. 23M - Demonstrates understanding of ethics and confidentiality.</p>	<p>D7.3 Understand the environmental regulations that influence residential and commercial design. *BTC/A/1.1M/NS/G7/ (1.1) Read, write, and compare rational numbers in scientific notation (positive and negative powers of 10) with approximate numbers using scientific notation. (1.6) Calculate the percentage of increases and decreases of a quantity. *BTC/PSCT/ 5.1 Apply appropriate problem-solving strategies and critical thinking skills to work-related issues and tasks. *BTC/HS/ 6.1 Know the policies, procedures, and regulations regarding health and safety in the workplace, including employers' and employees' responsibilities. *BTC/ELR/ 8.2 Understand the concept and application of ethical and legal behavior consistent with workplace standards. 8.4 Understand how social, organizational, and technological systems work. *BTC/TKS/ 10.1 Understand construction processes and systems and their importance in construction technology. 10.10 Understand the need to obtain and maintain industry-standard, technical certifications significant to an industry sector. <u>Core Academic:</u></p>		
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