CTE/ROP General 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: 550204	**Grade Level:** 11, 12
SDCOE Course Number: 5502	**SDCOE Total Hours:** 200 hours
CBEDS Number/Title: 5502/General Construction I / II	**Year of Implementation:** 2012
Course Pre-requisites: Introduction to Construction 1/2	**Articulation (school/credits):** None
CTE Industry Sector: Building Trades and Construction	**CTE Pathway(s):** Cabinetmaking and Wood Products, Residential and Commercial Construction
Job Titles: General Construction Worker, Carpenter, Electrician Assistant, Roofer, Framer, Concrete Worker, Flooring Installer, Painter, Laborer, 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 11th Edition by Wagner and Smith	
Course Description: This course provides pre-apprentice, Intermediate 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 or steel 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 General Construction 1/2

Semester 1

Unit 1: Introduction
Unit 2: Safety, Hazardous Waste & Environmental Impact
Unit 3: Math & Measurement
Unit 4: Hand & Power Tools
Unit 5: Construction Management Planning & Estimating Related To the Industry
Unit 6: Blue Print Reading Building Code Regulations, Plans & Permits
Unit 7: Surveying & Layout
Unit 8: Site Prep Grading, Soil Compaction Engineering
Unit 9: Foundation Concrete & Masonry
Unit 10: Lumber & Framing
Unit 11: Steel Stud Framing
Unit 12: Plumbing
Unit 13: Electrical
Unit 14: All Aspects of Industry
Unit 15: Occupational Knowledge & Skills
Unit 16: Workplace Basics

Semester 2

Unit 1: Heating Ventilation & Air Conditioning
Unit 2: Insulation
Unit 3: Drywall & Exterior Wall Finish
Unit 4: Roofing
Unit 5: Doors & Windows
Unit 6: Floor Covering
Unit 7: Finish Carpentry & Cabinetry
Unit 8: Painting & Decorating
Unit 9: Green Construction Technologies
Unit 10: All Aspects of Industry
Unit 11: Occupational Knowledge & Skills
Unit 12: Workplace Basics
Unit 13: Job Acquisition Skills

Semester 1 - **Unit 1 – Introduction (5 hours)**			
Competencies	**Standards**	**Suggested Pacing**	**Resources/Materials**
1A – Demonstrates understanding of course outline **1B** - Demonstrates understanding of syllabus **1C** - Demonstrates understanding of student expectations **1D** - Demonstrates understanding of teacher and student assessments	**Career Technical Education:** ***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. **Core Academic:** ***BTC/C/2.4LS/LSSA/G8/** **(1.2)** Paraphrase a speaker's purpose and point of view and ask relevant questions concerning the speaker's content, delivery, and purpose.	**1A – 1 hour:** **1B – 1 hour:** **1C – 1.5 hours:** **1D - 1.5 hours:**	**Teacher Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith **Student Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith

Semester 1 - **Unit 2 – Safety, Hazardous Waste & Environmental Impact (20 hours)**			
Competencies	**Standards**	**Suggested Pacing**	**Resources/Materials**
2A - Received safety instruction in the proper use of tools and equipment used in the construction industry. **2B** - Identifies and uses properly power tools commonly used in the construction industry. **2C** - Assembles and uses scaffolding and staging safely. **2D** - Identifies the community, health, safety and environmental issues. **2E** - Identifies elements of storm water pollution prevention program (SWPPP). **2F -** Understands protocol with material that contains or may contain asbestos. **2G -** Received OSHA 10 training certificate. MSDS **2H -** Understands personal safety gear including harnesses. **2I -** Understands Tailgate Safety meetings	**Career Technical Education:** ***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.	**2A – 4 hours:** **2B – 2 hours:** **2C – 2 hours:** **2D – 2 hours:** **2E – 2 hours:** **2F – 2 hours:** **2G – 2 hours:** **2H – 2 hours:** **2I – 2 hours:**	**Teacher Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith **Student Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith

	<u>Core Academic:</u> ***BTC/A/1.2S/IE/G9-12/** **(1.d)** Formulate explanations by using logic and evidence. ***BTC/A/1.3HSS/WH/G10/** **(10.3.5)** Understand the connections among natural resources, entrepreneurship, labor, and capital in an industrial economy. ***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. **(2.5)** Deliver persuasive arguments (including evaluation and analysis of problems and solutions and causes and effects): a. Structure ideas and arguments in a coherent, logical fashion. **b.** Use rhetorical devices to support assertions (e.g., by appeal to logic through reasoning; by appeal to emotion or ethical belief; by use of personal anecdote, case study, or analogy). **c.** Clarify and defend positions with precise and relevant evidence, including facts, expert opinions, quotations, expressions of commonly accepted beliefs, and logical reasoning. **d.** Anticipate and address the listener's concerns and counterarguments.		

Semester 1 - **Unit 3 – Math & Measurement (10 hours)**			
Competencies	**Standards**	**Suggested Pacing**	**Resources/Materials**
3A - Measures and lays out materials using feet, inches, fractions, fraction conversions, geometry and metric measurements. **3B** - Demonstrates trade related math computations calculating cubic yards of concrete and square footage of buildings in order to cut lumber per blueprint dimensions.	**Career Technical Education:** ***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. **Core Academic:** ***BTC/A/1.1M/GM/G8-12/** **(8.0)** Students know, derive, and solve problems involving the perimeter, circumference, area, volume, lateral area, and surface area of common geometric figures. **(11.0)** Students determine how changes in dimensions affect the perimeter, area, and volume of common geometric figures and solids. ***BTC/A/1.2S/PH/G9-12/** **(3.a)** Students know heat flow and work are two forms of energy transfer between systems. **(3.g)** Students know how to solve problems involving heat flow, work, and efficiency in a heat engine and know that all real engines lose some heat to their surroundings. **(5.b)** Students know how to solve problems involving Ohm's law.	**3A – 5 hours:** **3B – 5 hours:**	**Teacher Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith **Student Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith

Semester 1 - **Unit 4 – Hand & Power Tools (5 hours)**			
Competencies	**Standards**	**Suggested Pacing**	**Resources/Materials**
4A - Uses portable power saw. **4B** - Uses power miter saw. **4C** - Uses power nailing and stapling equipment and installs nail cartridges safely. **4D** - Uses concrete mixer. **4E** - Uses spray painting equipment. **4F** - Uses drill motors. **4G** - Uses portable power planes. **4H** - Uses radial arm and table saws. **4I** - Uses powder actuated tools (licensed to use). **4J** - Uses portable generators. **4K** - Uses concrete vibrators.	**Career Technical Education:** ***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. **Core Academic:** ***BTC/A/1.1M/GM/G8-12/** **(8.0)** Students know, derive, and solve problems involving the perimeter,	**4A - 30 minutes:** **4B -. 30 minutes:** **4C - 30 minute:** **4D - 30 minutes:** **4E - 30 minutes:** **4F - 30 minutes:** **4G - 30 minutes:** **4H – 30 minutes:** **4I - 30 minutes:** **4J - .15 minutes:** **4K - .15 minutes:**	**Teacher Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith **Student Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith

	circumference, area, volume, lateral area, and surface area of common geometric figures. **(11.0)** Students determine how changes in dimensions affect the perimeter, area, and volume of common geometric figures and solids. ***BTC/A/1.2S/PH/G9-12/** **(3.a)** Students know heat flow and work are two forms of energy transfer between systems. **(3.g)** Students know how to solve problems involving heat flow, work, and efficiency in a heat engine and know that all real engines lose some heat to their surroundings. **(5.b)** Students know how to solve problems involving Ohm's law.		

Semester 1 - **Unit 5 – Construction Management Planning & Estimating Related to the Industry (10 hours)**			
Competencies	**Standards**	**Suggested Pacing**	**Resources/Materials**
5A - Identifies key elements of Construction Management, Planning and Estimating.	**Career Technical Education:** ***BTC/RCCP/** **D6.1** Develop building plans and schedules by using processes common to residential and commercial construction. **Core Academic:** ***BTC/A/1.2S/IE/G9-12/** **(1.d)** Formulate explanations by using logic and evidence. ***BTC/A/1.3HSS/WH/G10/** (10.3.5) Understand the connections among natural resources, entrepreneurship, labor, and capital in an industrial economy. ***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. **(2.5)** Deliver persuasive arguments (including evaluation and analysis of problems and solutions and causes and effects): **a.** Structure ideas and arguments in a coherent, logical fashion. **b.** Use rhetorical devices to support assertions (e.g., by appeal to logic through reasoning; by appeal to emotion or ethical belief; by use of personal anecdote, case study, or analogy). **c.** Clarify and defend positions with precise and relevant evidence, including facts, expert opinions, quotations, expressions of commonly accepted beliefs, and logical reasoning. **d.** Anticipate and address the listener's concerns and counterarguments.	**5A - 10 hours:**	**Teacher Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith **Student Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith

Semester 1 - **Unit 6 – Blueprint Reading Building Code Regulations, Plans & Permits (5 hours)**			
Competencies	**Standards**	**Suggested Pacing**	**Resources/Materials**
6A - Reads and interprets drawings, blueprints and other standard plans used in the construction industry. **6B** - Reads and abides by building codes and other regulations pertaining to the construction industry as well as government officials and inspectors **6C** - Estimates and orders materials from blueprints. **6D** - Prepares bid packages from given specifications. **6E** - Schedules labor and materials as needed on various projects relating to the construction trade. **6F** - Demonstrates a basic understanding of cost control. **6G** - Budgets materials and labor in order to complete project under bid.	**Career Technical Education:** ***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/** **D4.2** Understand how to estimate materials from blueprints and specifications. **D4.3** Understand the sequencing of events for specific construction projects. **Core Academic:** ***BTC/A/1.2S/IE/G9-12/** **(1.d)** Formulate explanations by using logic and evidence. ***BTC/A/1.3HSS/WH/G10/** **(10.3.5)** Understand the connections among natural resources, entrepreneurship, labor, and capital in an industrial economy. ***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. **(2.5)** Deliver persuasive arguments (including evaluation and analysis of problems and solutions and causes and effects): **a.** Structure ideas and arguments in a coherent, logical fashion.	**6A – 30 minutes:** **6B – 30 minutes:** **6C – 1 hour:** **6D – 1 hour:** **6E – 1 hour:** **6F - 30 minutes:** **6G - 30 minutes:**	**Teacher Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith **Student Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith

	b. Use rhetorical devices to support assertions (e.g., by appeal to logic through reasoning; by appeal to emotion or ethical belief; by use of personal anecdote, case study, or analogy). **c.** Clarify and defend positions with precise and relevant evidence, including facts, expert opinions, quotations, expressions of commonly accepted beliefs, and logical reasoning. **d.** Anticipate and address the listener's concerns and counterarguments.		

Semester 1 - **Unit 7 – Surveying & Layout (5 hours)**			
Competencies	**Standards**	**Suggested Pacing**	**Resources/Materials**
7A - Surveys and does layout of building site using surveying equipment to assure compliance with property lines. **7B** - Understands vertical surveys and building site layouts.	**Career Technical Education:** ***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. **Core Academic:** ***BTC/A/1.1M/GM/G8-12/** **(8.0)** Students know, derive, and solve problems involving the perimeter, circumference, area, volume, lateral area, and surface area of common geometric figures. **(11.0)** Students determine how changes in dimensions affect the perimeter, area, and volume of common geometric figures and solids. **(12.0)** Students find and use measures of sides and of interior and exterior angles of triangles and polygons to classify figures and solve problems. **(15.0)** Students use the Pythagorean theorem to determine distance and find missing lengths of sides of right triangles. (16.0) Students perform basic constructions with a straightedge and compass, such as angle bisectors, perpendicular bisectors, and the line parallel to a given line through a point off the line. **(19.0)** Students use trigonometric functions to solve for an unknown length of a side of a right triangle, given an angle and a length of a side. ***BTC/A/1.2S/IE/G9-12/** **(1.d)** Formulate explanations by using logic and evidence.	**7A – 3 hours:** **7B – 2 hours:**	**Teacher Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith **Student Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith

	***BTC/A/1.3HSS/WH/G10/** (10.3.5)Understand the connections among natural resources, entrepreneurship, labor, and capital in an industrial economy. ***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. **(2.5)** Deliver persuasive arguments (including evaluation and analysis of problems and solutions and causes and effects): **a.** Structure ideas and arguments in a coherent, logical fashion. **b.** Use rhetorical devices to support assertions (e.g., by appeal to logic through reasoning; by appeal to emotion or ethical belief; by use of personal anecdote, case study, or analogy). **c.** Clarify and defend positions with precise and relevant evidence, including facts, expert opinions, quotations, expressions of commonly accepted beliefs, and logical reasoning. **d.** Anticipate and address the listener's concerns and counterarguments.		

Semester 1 - **Unit 8 – Site Prep Grading, Soil Compaction Engineering (2 hours)**			
Competencies	**Standards**	**Suggested Pacing**	**Resources/Materials**
8A - Interprets and understands a soil report. **8B** - Understands proper procedures associated with soil compaction. **8B** - Understands all industry procedures and processes for excavation. **8D** - Understands and identifies all safety concerns and procedures associated with trenching.	**Career Technical Education:** ***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. **Core Academic:** ***BTC/A/1.2S/IE/G9-12/** **(1.d)** Formulate explanations by using logic and evidence. ***BTC/A/1.3HSS/WH/G10/** **(10.3.5)** Understand the connections among natural resources, entrepreneurship, labor, and capital in an industrial economy. ***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. **(2.5)** Deliver persuasive arguments (including evaluation and analysis of problems and solutions and causes and effects): **a.** Structure ideas and arguments in a coherent, logical fashion. **b.** Use rhetorical devices to support assertions (e.g., by appeal to logic through reasoning; by appeal to emotion or ethical belief; by use of personal anecdote, case study, or analogy). **c.** Clarify and defend positions with precise and relevant evidence, including facts, expert opinions, quotations, expressions of commonly accepted beliefs, and logical reasoning. **d.** Anticipate and address the listener's concerns and counterarguments.	**8A – 30 minutes:** **8B - 30 minutes:** **8C - 30 minutes:** **8D - 30 minutes:**	**Teacher Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith **Student Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith

Semester 1 - **Unit 9 – Foundation Concrete & Masonry (5 hours)**			
Competencies	**Standards**	**Suggested Pacing**	**Resources/Materials**
9A - Forms, reinforces, pours and finishes concrete foundations and slabs per blueprint specifications. **9B** - Builds and repairs masonry walls and structures.	**Career Technical Education:** ***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. **Core Academic:** **8BTC/A/1.2S/IE/G9-12/** **(1.d)** Formulate explanations by using logic and evidence. ***BTC/A/1.3HSS/WH/G10/** **(10.3.5)** Understand the connections among natural resources, entrepreneurship, labor, and capital in an industrial economy. ***BTC/A/1.1M/GM/G8-12/** **(8.0)** Students know, derive, and solve problems involving the perimeter, circumference, area, volume, lateral area, and surface area of common geometric figures. **(11.0)** Students determine how changes in dimensions affect the perimeter, area, and volume of common geometric figures and solids. ***BTC/A/1.2S/PH/G9-12/** **(3.a)** Students know heat flow and work are two forms of energy transfer between systems.	**9A – 3 hours:** **9B – 2 hours:**	**Teacher Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith **Student Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith

Semester 1 - **Unit 10 – Lumber & Framing (10 hours)**			
Competencies	**Standards**	**Suggested Pacing**	**Resources/Materials**
10A - Builds and repairs common wood and chain link fences. **10B** - Frames basic wooden structures using procedures and techniques accepted by the construction industry. **10C** - Identifies and properly selects fasteners, hardware and adhesives for proper application as needed on construction job site. **10D** - Identifies, by characteristics and size, wood commonly used in the construction industry.	**Career Technical Education:** ***BTC/RCCP/** **D4.1** Interpret and use residential construction blueprints and specifications. **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. **Core Academic:** ***BTC/A/1.2S/IE/G9-12/** **(1.d)** Formulate explanations by using logic and evidence. ***BTC/A/1.3HSS/WH/G10/** **(10.3.5)** Understand the connections among natural resources, entrepreneurship, labor, and capital in an industrial economy. ***BTC/A/1.1M/GM/G8-12/** **(8.0)** Students know, derive, and solve problems involving the perimeter, circumference, area, volume, lateral area, and surface area of common geometric figures. **(11.0)** Students determine how changes in dimensions affect the perimeter, area, and volume of common geometric figures and solids.	**10A – 4 hours:** **10B – 4 hours:** **10C – 1 hour:** **10D – 1 hour:**	**Teacher Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith **Student Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith

Semester 1 - **Unit 11 – Steel Stud Framing (4 hours)**			
Competencies	**Standards**	**Suggested Pacing**	**Resources/Materials**
11A - Installs metal studs as per construction industry standards. **11B -** Demonstrates welding applications used in the construction industry.	**Career Technical Education:** ***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. **Core Academic:** ***BTC/A/1.2S/IE/G9-12/** **(1.d)** Formulate explanations by using logic and evidence. ***BTC/A/1.3HSS/WH/G10/** **(10.3.5)** Understand the connections among natural resources, entrepreneurship, labor, and capital in an industrial economy. ***BTC/A/1.1M/GM/G8-12/** **(8.0)** Students know, derive, and solve problems involving the perimeter, circumference, area, volume, lateral area, and surface area of common geometric figures. **(11.0)** Students determine how changes in dimensions affect the perimeter, area, and volume of common geometric figures and solids.	**11A – 2 hour:** **11B – 2 hour:**	**Teacher Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith **Student Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith

Semester 1 - **Unit 12 – Plumbing (4 hours)**			
Competencies	**Standards**	**Suggested Pacing**	**Resources/Materials**
12A - Installs repairs and replaces plumbing fixtures. **12B** - Installs (rough-In) waste and water supply.	**Career Technical Education:** ***BTC/MCP/** **C5.2** Use appropriate safety procedures and practices in various work environment settings pertaining to mechanical construction (e.g., plumbing, electrical, HVAC). **Core Academic:** ***BTC/A/1.2S/IE/G9-12/** **(1.d)** Formulate explanations by using logic and evidence. ***BTC/A/1.3HSS/WH/G10/** **(10.3.5)** Understand the connections among natural resources, entrepreneurship, labor, and capital in an industrial economy. ***BTC/A/1.1M/GM/G8-12/** **(8.0)** Students know, derive, and solve problems involving the perimeter, circumference, area, volume, lateral area, and surface area of common geometric figures. **(11.0)** Students determine how changes in dimensions affect the perimeter, area, and volume of common geometric figures and solids.	**12A – 2 hours:** **12B – 2 hours:**	**Teacher Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith **Student Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith

Semester 1 - **Unit 13 – Electrical (5 hours)**			
Competencies	**Standards**	**Suggested Pacing**	**Resources/Materials**
13A - Performs basic electrical installations using Romex cable and complies with proper wiring gauge sizes. **13A** - Has general knowledge of electrical power generation and distribution from the power plant to the receptacle. **13C** - Demonstrates basic electrical theory and has an understanding of Ohms law.	**Career Technical Education:** ***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. **Core Academic:** ***BTC/A/1.2S/IE/G9-12/** **(1.d)** Formulate explanations by using logic and evidence. ***BTC/A/1.3HSS/WH/G10/** **(10.3.5)** Understand the connections among natural resources, entrepreneurship, labor, and capital in an industrial economy. ***BTC/A/1.1M/GM/G8-12/** **(8.0)** Students know, derive, and solve problems involving the perimeter, circumference, area, volume, lateral area, and surface area of common geometric figures. **(11.0)** Students determine how changes in dimensions affect the perimeter, area, and volume of common geometric figures and solids. ***BTC/A/1.2S/PH/G9-12/** **(3.a)** Students know heat flow and work are two forms of energy transfer between systems. **(3.g)** Students know how to solve problems involving heat flow, work, and efficiency in a heat engine and know that all real engines lose some heat to their surroundings. **(5.b)** Students know how to solve problems	**13A – 2 hours:** **13B – 2 hours:** **13C – 1 hour:**	**Teacher Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith **Student Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith

	involving Ohm’s law.		

Semester 1 - **Unit 14 – All Aspects of Industry (Ongoing)**			
Competencies	**Standards**	**Suggested Pacing**	**Resources/Materials**
23A - Identifies key elements of industry planning. **23B** - Identifies key elements of management. **23C** - Understands industry finance. **23D** - Understands the underlying principles of technology. **23E** - Identifies the labor and regulatory issues. **23F** - Understands the community, health, safety and environmental issues. **23G** - Allocates resources (i.e., time, money, materials, space and staff). **23H** - Works on teams, teaches others, serve customers, lead, negotiate and works well with people from culturally diverse background. **23I** - Acquires and evaluate data, organize and maintains files, interprets and communicates information as well as use computer to process information. **23J** - Understands social, organizational, and technical systems, monitors correct performance and improves systems. **23K** - Selects equipment and	**Career Technical Education:** ***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/** **D4.5** Understand industry conventions for the creation and maintenance of construction logs. **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. **D5.2** Know the safety procedures and practices in various work environment settings pertaining to residential and commercial construction. **D7.2** Develop financial plans for construction projects. **Core Academic:** ***BTC/A/1.2S/IE/G9-12/**	**23A – 23M – Ongoing:**	**Teacher Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith **Student Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith

tools, applies technology to specific tasks and maintains and troubleshoots equipment. **23L** - Follow safety procedures and practices. **23M** - Demonstrates understanding of ethics and confidentiality.	**(1.d)** Formulate explanations by using logic and evidence. ***BTC/A/1.3HSS/WH/G10/** **(10.3.5)** Understand the connections among natural resources, entrepreneurship, labor, and capital in an industrial economy. ***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. **(2.5)** Deliver persuasive arguments (including evaluation and analysis of problems and solutions and causes and effects): **a.** Structure ideas and arguments in a coherent, logical fashion. **b.** Use rhetorical devices to support assertions (e.g., by appeal to logic through reasoning; by appeal to emotion or ethical belief; by use of personal anecdote, case study, or analogy). **c.** Clarify and defend positions with precise and relevant evidence, including facts, expert opinions, quotations, expressions of commonly accepted beliefs, and logical reasoning. **d.** Anticipate and address the listener's concerns and counterarguments.		

Semester 1 - **Unit 15 – Occupational Knowledge & Skills (Ongoing)**			
Competencies	**Standards**	**Suggested Pacing**	**Resources/Materials**
24A - Accessing and utilizing technology and information **24B** - Practicing occupational safety standards **24C** - Thinking critically and solves problems effectively **24D** - Using basic skills in reading, writing, mathematics, listening and speaking as they relate to occupation specific skills **24E** - Attaining a comprehensive understanding of all aspects of industry the individual is preparing to enter **24F** - Applying knowledge to real world problems and situations	**Career Technical Education:** ***BTC/CWP/** **A9.1** Understand the careers that are available in cabinetmaking and wood products manufacturing and related occupations (e.g., custom crafts, furniture making, marketing). ***BTC/RCCP/** **D1.1** Identify design solutions for residential construction problems. **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. **D5.1** Understand the safe use of electrical connection methods and electrical wiring procedures. **D5.2** Know the safety procedures and practices in various work environment settings pertaining to residential and commercial construction. **Core Academic:** ***BTC/A/1.2S/IE/G9-12/** **(1.d)** Formulate explanations by using logic and evidence. ***BTC/A/1.3HSS/WH/G10/** **(10.3.5)** Understand the connections among natural resources, entrepreneurship, labor, and capital in an industrial economy. ***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. **(2.5)** Deliver persuasive arguments (including	**24A – 24F – Ongoing:**	**Teacher Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith **Student Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith

	evaluation and analysis of problems and solutions and causes and effects): **a.** Structure ideas and arguments in a coherent, logical fashion. **b.** Use rhetorical devices to support assertions (e.g., by appeal to logic through reasoning; by appeal to emotion or ethical belief; by use of personal anecdote, case study, or analogy). **c.** Clarify and defend positions with precise and relevant evidence, including facts, expert opinions, quotations, expressions of commonly accepted beliefs, and logical reasoning. **d.** Anticipate and address the listener's concerns and counterarguments.		

Semester 1 - **Unit 16 – Workplace Basics (Ongoing)**			
Competencies	**Standards**	**Suggested Pacing**	**Resources/Materials**
25A - Works independently and collaboratively **25B** - Communicates effectively and appropriately **25C** - Performs reliably and responsibly **25D** - Working with diverse populations effectively and respectfully **25E** - Is punctual **25F** - Follows directions **25G** - Works well with minimum supervision **25H** - Is cooperative **25I** - Takes initiative by working beyond minimum requirements **25J** - Demonstrates ability to solve problems	**Career Technical Education:** ***BTC/CWP/** **A9.1** Understand the careers that are available in cabinetmaking and wood products manufacturing and related occupations (e.g., custom crafts, furniture making, marketing). **Core Academic:** ***BTC/A/1.2S/IE/G9-12/** **(1.d)** Formulate explanations by using logic and evidence. ***BTC/A/1.3HSS/WH/G10/** **(10.3.5)** Understand the connections among natural resources, entrepreneurship, labor, and capital in an industrial economy. ***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. **(2.5)** Deliver persuasive arguments (including evaluation and analysis of problems and solutions and causes and effects): **a.** Structure ideas and arguments in a coherent, logical fashion. **b.** Use rhetorical devices to support assertions (e.g., by appeal to logic through reasoning; by appeal to emotion or ethical belief; by use of personal anecdote, case study, or analogy). **c.** Clarify and defend positions with precise and relevant evidence, including facts, expert opinions, quotations, expressions of commonly accepted beliefs, and logical reasoning. **d.** Anticipate and address the listener's concerns and counterarguments.	**25A – 25J – Ongoing:**	**Teacher Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith **Student Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith

Semester 2 - **Unit 1 – Heating Ventilation & Air Conditioning (10 hours)**			
Competencies	**Standards**	**Suggested Pacing**	**Resources/Materials**
14A - Identifies and explains all the components of an HVAC system. **14B** - Identifies basic mechanical systems used in the construction industry. MEPHS **14C** - Understands associated building codes related to HVAC and operations systems. **14D** - Understands and identifies various types of flashing procedures used with HVAC systems.	**Career Technical Education:** ***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. **Core Academic:** ***BTC/A/1.1M/GM/G8-12/** **(8.0)** Students know, derive, and solve problems involving the perimeter, circumference, area, volume, lateral area, and surface area of common geometric figures. **(11.0)** Students determine how changes in dimensions affect the perimeter, area, and volume of common geometric figures and solids. ***BTC/A/1.2S/PH/G9-12/** **(3.a)** Students know heat flow and work are two forms of energy transfer between systems. **(3.g)** Students know how to solve problems involving heat flow, work, and efficiency in a heat engine and know that all real engines lose some heat to their surroundings. **(5.b)** Students know how to solve problems	**14A - 4 hours:** **14B - 2 hours:** **14C - 2 hours:** **14D - 2 hours:**	**Teacher Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith **Student Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith

	involving Ohm’s law.		

Semester 2 - **Unit 2 – Insulation (8 hours)**			
Competencies	**Standards**	**Suggested Pacing**	**Resources/Materials**
15A - Installs insulation according to construction industry standards. **15B** - Understands specific R-value and proper installation and application. Acoustics and sound control	**Career Technical Education:** ***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. **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. **Core Academic:** ***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.	**15A - 4 hours:** **15B – 4 hours:**	**Teacher Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith **Student Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith

Semester 2 - **Unit 3 – Drywall & Exterior Wall Finish (26 hours)**			
Competencies	**Standards**	**Suggested Pacing**	**Resources/Materials**
16A - Installs repairs and finishes drywall as per construction industry standards. **16B** - Installs paneling according to construction industry standards. **16C** - Identifies various exterior finishes, including a variety of sheet metal components. **16D** - Applies ceiling tiles according to construction industry standards. **16E** - Installs exterior lath and applies exterior stucco **16F** - Installs interior lath and applies interior plaster **16G** - Applies horizontal metal or vinyl exterior siding **16H** - Applies clap board / wood shingle/ or cement siding **16I** - Applies brick siding **16J** - Applies stone siding	**Career Technical Education:** ***BTC/RCCP/** **D4.3** Understand the sequencing of events for specific construction projects. **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. **Core Academic:** ***BTC/A/1.1M/GM/G8-12/** **(8.0)** Students know, derive, and solve problems involving the perimeter, circumference, area, volume, lateral area, and surface area of common geometric figures. **(11.0)** Students determine how changes in dimensions affect the perimeter, area, and volume of common geometric figures and solids. **(12.0)** Students find and use measures of sides and of interior and exterior angles of triangles and polygons to classify figures and solve problems. **(15.0)** Students use the Pythagorean theorem to determine distance and find missing lengths of sides of right triangles. **(16.0)** Students perform basic constructions with a straightedge and compass, such as angle bisectors, perpendicular bisectors, and the line parallel to a given line through a point	**16A – 5 hours:** **16B – 2 hours:** **16C – 2 hours:** **16D – 2 hours:** **16E – 5 hours:** **16F – 2 hours:** **16G – 2 hours:** **16H – 2 hours:** **16I - 2 hours:** **16J – 2 hours:**	**Teacher Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith **Student Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith

	off the line. ***BTC/A/1.2S/IE/G9-12/** **(1.a)** Select and use appropriate tools and technology (such as computer-linked probes, spreadsheets, and graphing calculators) to perform tests, collect data, analyze relationships, and display data. **(1.d)** Formulate explanations by using logic and evidence. ***BTC/A/1.3HSS/WH/G10/** **(10.3.5)** Understand the connections among natural resources, entrepreneurship, labor, and capital in an industrial economy. ***BTC/A/1.3HSS/USH/G11/** **(11.5.7)** Discuss the rise of mass production techniques, the growth of cities, the impact of new technologies (e.g., the automobile, electricity), and the resulting prosperity and effect on the American landscape		

Semester 2 - **Unit 4 – Roofing (5 hours)**			
Competencies	**Standards**	**Suggested Pacing**	**Resources/Materials**
17A - Understands various types of roofing systems. **17B** - Installs and repairs various types of roofs with a variety of roofing materials, including flashing and gutters.	**Career Technical Education:** ***BTC/EHCP/** **B6.1** Understand the development of building plans and schedules using processes common to engineering and heavy construction. ***BTC/RCCP/** **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. **Core Academic:** ***BTC/A/1.1M/GM/G8-12/** **(8.0)** Students know, derive, and solve problems involving the perimeter, circumference, area, volume, lateral area, and surface area of common geometric figures. **(11.0)** Students determine how changes in dimensions affect the perimeter, area, and volume of common geometric figures and solids. **(12.0)** Students find and use measures of sides and of interior and exterior angles of triangles and polygons to classify figures and solve problems. **(15.0)** Students use the Pythagorean theorem to determine distance and find missing lengths of sides of right triangles. ***BTC/A/1.3HSS/ECON/G12/** **(12.1.1)** Examine the causal relationship between scarcity and the need for choices	**17A - 2 hours:** **17B - 3 hours:**	**Teacher Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith **Student Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith

Semester 2 - **Unit 5 – Doors & Windows (10 hours)**			
Competencies	**Standards**	**Suggested Pacing**	**Resources/Materials**
18A - Installs and repairs doors and door hardware per construction industry standards. **18B** - Understands various types of door and window systems. **18C** - Applies window flashing and casing	**Career Technical Education:** ***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. **Core Academic:** ***BTC/A/1.1M/GM/G8-12/** **(15.0)** Students use the Pythagorean theorem to determine distance and find missing lengths of sides of right triangles. ***BTC/A/1.2S/PH/G9-12/** **(3.a)** Students know heat flow and work are two forms of energy transfer between systems.	**18A – 5 hours:** **18B – 2.5 hours:** **18C – 2.5 hours:**	**Teacher Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith **Student Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith

Semester 2 - **Unit 6 – Floor Covering (2 hours)**			
Competencies	**Standards**	**Suggested Pacing**	**Resources/Materials**
19A - Installs and repairs various floor coverings.	**Career Technical Education:** ***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. **Core Academic:** ***BTC/A/1.1M/GM/G8-12/** **(15.0)** Students use the Pythagorean theorem to determine distance and find missing lengths of sides of right triangles. ***BTC/A/1.2S/PH/G9-12/** **(3.a)** Students know heat flow and work are two forms of energy transfer between systems.	**19A – 2 hours:**	**Teacher Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith **Student Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith

Semester 2 - **Unit 7 – Finish Carpentry & Cabinetry (10 hours)**			
Competencies	**Standards**	**Suggested Pacing**	**Resources/Materials**
20A - Applies trim and molding according to construction industry standards. **20B** - Understands trim and molding systems. **20C** - Identifies cabinet systems and performs basic installation. **20D** - Identifies basic casework and trim.	**Career Technical Education:** ***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. **A7.6** Use installation tools and understand the processes for the installation of cabinets, millwork, and wood products. **Core Academic:** ***BTC/A/1.1M/GM/G8-12/** **(15.0)** Students use the Pythagorean theorem to determine distance and find missing lengths of sides of right triangles. ***BTC/A/1.2S/PH/G9-12/** **(3.a)** Students know heat flow and work are two forms of energy transfer between systems. ***BTC/A/1.3HSS/ECON/G12/** **(12.1.1)** Examine the causal relationship between scarcity and the need for choices **(12.2.5)** Understand the process by which competition among buyers and sellers determines a market price.	**20A – 4 hours:** **20B – 2 hours:** **20C – 3 hours:** **20D – 1 hour:**	**Teacher Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith **Student Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith

Semester 2 - **Unit 8 – Painting & Decorating (6 hours)**			
Competencies	**Standards**	**Suggested Pacing**	**Resources/Materials**
21A - Prepares surfaces and applies various paints and stains. **21B** - Applies wall surface texture	**Career Technical Education:** ***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. **Core Academic:** ***BTC/A/1.1M/GM/G8-12/** **(15.0)** Students use the Pythagorean theorem to determine distance and find missing lengths of sides of right triangles. ***BTC/A/1.2S/PH/G9-12/** **(3.a)** Students know heat flow and work are two forms of energy transfer between systems. ***BTC/A/1.3HSS/ECON/G12/** **(12.2.5)** Understand the process by which competition among buyers and sellers determines a market price. ***BTC/A/1.4VAPA/VA/PR/G9-2/** **(1.4)** Analyze and describe how the composition of a work of art is affected by the use of a particular principle of design. **(1.5)** Analyze the material used by a given artist and describe how its use influences the meaning of the work.	**21A – 3 hours:** **21B – 3 hours:**	**Teacher Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith **Student Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith

Semester 2 - **Unit 9 – Green Construction Technologies (5 hours)**			
Competencies	**Standards**	**Suggested Pacing**	**Resources/Materials**
22A - Water **22B** - Energy **22C** - Practices and Materials **22D** - Indoor Environmental quality **22E** - Furniture	**Career Technical Education:** ***BTC/CWP/** **A2.0** Students understand the safe and appropriate use of hand tools common to the cabinetmaking and wood products industry: **A5.0** Students understand procedures and processes as they occur in the cabinetmaking and wood products industry: **Core Academic:** ***BTC/A/1.2S/PH/G9-12/** **(3.a)** Students know heat flow and work are two forms of energy transfer between systems. **(3.g)** Students know how to solve problems involving heat flow, work, and efficiency in a heat engine and know that all real engines lose some heat to their surroundings. ***BTC/A/1.2S/IE/G9-12/** **(1.d)** Formulate explanations by using logic and evidence. ***BTC/A/1.3HSS/WH/G10/** **(10.3.5)** Understand the connections among natural resources, entrepreneurship, labor, and capital in an industrial economy. ***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. **(2.5)** Deliver persuasive arguments (including evaluation and analysis of problems and solutions and causes and effects): **a.** Structure ideas and arguments in a coherent, logical fashion. **b.** Use rhetorical devices to support assertions	**22A – 1 hour:** **22B – 1 hour:** **22C – 1 hour:** **22D – 1 hour:** **22E – 1 hour:**	**Teacher Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith **Student Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith

	(e.g., by appeal to logic through reasoning; by appeal to emotion or ethical belief; by use of personal anecdote, case study, or analogy). **c.** Clarify and defend positions with precise and relevant evidence, including facts, expert opinions, quotations, expressions of commonly accepted beliefs, and logical reasoning. **d.** Anticipate and address the listener's concerns and counterarguments.		

Semester 2 - **Unit 10 – All Aspects of Industry (Ongoing)**			
Competencies	**Standards**	**Suggested Pacing**	**Resources/Materials**
23A - Identifies key elements of industry planning. **23B** - Identifies key elements of management. **23C** - Understands industry finance. **23D** - Understands the underlying principles of technology. **23E** - Identifies the labor and regulatory issues. **23F** - Understands the community, health, safety and environmental issues. **23G** - Allocates resources (i.e., time, money, materials, space and staff). **23H** - Works on teams, teaches others, serve customers, lead, negotiate and works well with people from culturally diverse background. **23I** - Acquires and evaluate data, organize and maintains files, interprets and communicates information as well as use computer to process information. **23J** - Understands social, organizational, and technical systems, monitors correct performance and improves systems.	**Career Technical Education:** ***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/** **D4.5** Understand industry conventions for the creation and maintenance of construction logs. **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. **D5.2** Know the safety procedures and practices in various work environment settings pertaining to residential and commercial construction. **D7.2** Develop financial plans for construction projects. **Core Academic:**	**23A – 23M – Ongoing:**	**Teacher Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith **Student Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith

23K - Selects equipment and tools, applies technology to specific tasks and maintains and troubleshoots equipment. **23L** - Follow safety procedures and practices. **23M** - Demonstrates understanding of ethics and confidentiality.	***BTC/A/1.2S/IE/G9-12/** **(1.d)** Formulate explanations by using logic and evidence. ***BTC/A/1.3HSS/WH/G10/** **(10.3.5)** Understand the connections among natural resources, entrepreneurship, labor, and capital in an industrial economy. ***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. **(2.5)** Deliver persuasive arguments (including evaluation and analysis of problems and solutions and causes and effects): **a.** Structure ideas and arguments in a coherent, logical fashion. **b.** Use rhetorical devices to support assertions (e.g., by appeal to logic through reasoning; by appeal to emotion or ethical belief; by use of personal anecdote, case study, or analogy). **c.** Clarify and defend positions with precise and relevant evidence, including facts, expert opinions, quotations, expressions of commonly accepted beliefs, and logical reasoning. **d.** Anticipate and address the listener's concerns and counterarguments.		

Semester 2 - **Unit 11 – Occupational Knowledge & Skills (Ongoing)**			
Competencies	**Standards**	**Suggested Pacing**	**Resources/Materials**
24A - Accessing and utilizing technology and information **24B** - Practicing occupational safety standards **24C** - Thinking critically and solves problems effectively **24D** - Using basic skills in reading, writing, mathematics, listening and speaking as they relate to occupation specific skills **24E** - Attaining a comprehensive understanding of all aspects of industry the individual is preparing to enter **24F** - Applying knowledge to real world problems and situations	**Career Technical Education:** ***BTC/CWP/** **A9.1** Understand the careers that are available in cabinetmaking and wood products manufacturing and related occupations (e.g., custom crafts, furniture making, marketing). ***BTC/RCCP/** **D1.1** Identify design solutions for residential construction problems. **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. **D5.1** Understand the safe use of electrical connection methods and electrical wiring procedures. **D5.2** Know the safety procedures and practices in various work environment settings pertaining to residential and commercial construction. **Core Academic:** ***BTC/A/1.2S/IE/G9-12/** **(1.d)** Formulate explanations by using logic and evidence. ***BTC/A/1.3HSS/WH/G10/** **(10.3.5)** Understand the connections among natural resources, entrepreneurship, labor, and capital in an industrial economy. ***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. **(2.5)** Deliver persuasive arguments (including evaluation and analysis of problems and	**24A – 24F – Ongoing:**	**Teacher Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith **Student Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith

	solutions and causes and effects): **a.** Structure ideas and arguments in a coherent, logical fashion. **b.** Use rhetorical devices to support assertions (e.g., by appeal to logic through reasoning; by appeal to emotion or ethical belief; by use of personal anecdote, case study, or analogy). **c.** Clarify and defend positions with precise and relevant evidence, including facts, expert opinions, quotations, expressions of commonly accepted beliefs, and logical reasoning. **d.** Anticipate and address the listener's concerns and counterarguments.		

Semester 2 - **Unit 12 – Workplace Basics (Ongoing)**			
Competencies	**Standards**	**Suggested Pacing**	**Resources/Materials**
25A - Works independently and collaboratively **25B** - Communicates effectively and appropriately **25C** - Performs reliably and responsibly **25D** - Working with diverse populations effectively and respectfully **25E** - Is punctual **25F** - Follows directions **25G** - Works well with minimum supervision **25H** - Is cooperative **25I** - Takes initiative by working beyond minimum requirements **25J** - Demonstrates ability to solve problems	**Career Technical Education:** ***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. **9.6** Communicate ideas to justify positions, persuade and convince others, confirm responsibility, and evaluate existing policies and procedures. **Core Academic:** ***BTC/A/1.2S/IE/G9-12/** **(1.d)** Formulate explanations by using logic and evidence. ***BTC/A/1.3HSS/WH/G10/** **(10.3.5)** Understand the connections among natural resources, entrepreneurship, labor, and capital in an industrial economy. ***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. **(2.5)** Deliver persuasive arguments (including evaluation and analysis of problems and solutions and causes and effects): **a.** Structure ideas and arguments in a coherent, logical fashion. **b.** Use rhetorical devices to support assertions (e.g., by appeal to logic through reasoning; by appeal to emotion or ethical belief; by use of personal anecdote, case study, or analogy). **c.** Clarify and defend positions with precise	**25A – 25J – Ongoing:**	**Teacher Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith **Student Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith

	and relevant evidence, including facts, expert opinions, quotations, expressions of commonly accepted beliefs, and logical reasoning. **d.** Anticipate and address the listener's concerns and counterarguments.		

Semester 2 - **Unit 13 – Job Acquisition Skills (8 hours)**			
Competencies	**Standards**	**Suggested Pacing**	**Resources/Materials**
26A - Completing an appropriate resume and job application **26B** - Acquiring job interview techniques **26C** - Attaining awareness of advanced career and educational opportunities	**Career Technical Education:** ***BTC/EHCP/** **B8.1** Understand the careers that are available in the heavy construction industry, including careers in concrete masonry, ironworks, sheet metal sales and installation, plumbing, and construction technology. ***BTC/CWP/** **A9.1** Understand the careers that are available in cabinetmaking and wood products manufacturing and related occupations (e.g., custom crafts, furniture making, marketing). **A9.2** Understand the need for professional growth across all aspects of the industry, including financial, leadership, and advancement elements. **Core Academic:** ***BTC/A/1.2S/IE/G9-12/** **(1.d)** Formulate explanations by using logic and evidence. ***BTC/A/1.3HSS/WH/G10/** **(10.3.5)** Understand the connections among natural resources, entrepreneurship, labor, and capital in an industrial economy. ***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. **(2.5)** Deliver persuasive arguments (including evaluation and analysis of problems and solutions and causes and effects): **a.** Structure ideas and arguments in a coherent, logical fashion. **b.** Use rhetorical devices to support assertions (e.g., by appeal to logic through reasoning; by	**26A – 4 hours:** **26B – 2 hours:** **27C – 2 hours:**	**Teacher Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith **Student Resources:** **Textbook:* Modern Carpentry 11th Edition by Wagner and Smith

	appeal to emotion or ethical belief; by use of personal anecdote, case study, or analogy). **c.** Clarify and defend positions with precise and relevant evidence, including facts, expert opinions, quotations, expressions of commonly accepted beliefs, and logical reasoning. **d.** Anticipate and address the listener's concerns and counterarguments.		