

Cocke County High School
Residential & Commercial Construction II

2025-2026 Syllabus

Part 1: Course Information

Instructor Information

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Course Description

Residential & Commercial Construction II is the third course in the Residential & Commercial Construction program of study intended to prepare students for careers in construction by developing an understanding of the different phases of a construction project from start to finish. Primary Career Cluster: Architecture & Construction
Program Manager: Candi Norwood, (615) 532-6248, Candi.Norwood@tn.gov
Course Code(s): 6163 Prerequisite(s): Residential & Commercial Construction I (6162) Credit: 1-2 credits (see Recommended Credit below) Grade Level: 11 Graduation Requirements: This course satisfies one of three credits required for an elective focus when taken in conjunction with other Architecture & Construction courses. Programs of Study and Sequence: This is the third course in the Residential & Commercial Construction program of study. Aligned Student Organization(s): SkillsUSA: <http://tnskillsusa.com> Tracy Whitehead, (615) 532-2804, Tracy.Whitehead@tn.gov
Coordinating WorkBased Learning: Teachers are encouraged to use embedded WBL activities such as informational interviewing, job shadowing, and career mentoring. For information, visit <https://www.tn.gov/content/tn/education/careerand-technical-education/work-based-learning.html>. Available Student Industry Certifications: Students completing the course through an NCCER accredited program may receive module credit for NCCER Construction Technology. Dual Credit or Dual Enrollment Opportunities: There are no known dual credit/dual enrollment opportunities for this course. If interested in developing, reach out to a local postsecondary institution to establish an articulation agreement. Teacher Endorsement(s): 580 OR a minimum of three of the following endorsements: 522, 523, 524, 527, 598, OR a minimum of three of the following endorsements: 701, 702, 703, 706, 707 Required Teacher Certifications/Training: None Teacher Resources: <https://www.tn.gov/education/career-and->

technical-education/careerclusters/cte-cluster-architecture-construction.html Page 2 1 Credit Option A: Exterior Content Standards Safety 1, 2, 3 Tools & Equipment 4 Construction Industry Principles 5, 6 Roofing Systems 7, 8, 9, 10, 11, 12 Exterior Finishing 13, 14, 15, 16 Basic Stair Framing Systems 17, 18 Introduction to Masonry Systems 19, 20 Construction Drawings & Specifications 32, 33 Business & Project Management 34, 35, 36 Portfolio 37 1 Credit Option B: Interior Content Standards Safety 1, 2, 3 Tools & Equipment 4 Construction Industry Principles 5, 6 Plumbing Systems 21, 22, 23, 24, 25, 26 Principles of Electrical Systems 27, 28, 29 Introduction to HVAC 30, 31 Construction Drawings & Specifications 32, 33 Business & Project Management 34, 35, 36 Portfolio 37 Upon completion of this course, proficient students will be able to demonstrate knowledge and skill in the later phases of building construction including roofing systems, exterior finishing, stair framing systems, masonry systems, and plumbing systems. Students will be able to perform masonry work; frame roofs; install shingles on roofs; apply exterior finishes; and install proper piping for plumbing systems while safely employing tools and interpreting construction drawings to complete projects. Emphasis is placed on demonstrating proper measurement and application of mathematical concepts. Standards in this course also include an introduction to heating, ventilation, and air conditioning systems, principles of the construction industry, and business and project management. Students will continue compiling artifacts for inclusion in their portfolios, which they will carry with them throughout the full sequence of courses in this program of study.

Prerequisite

Residential & Commercial Construction I (6162)

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Textbook & Course Materials**Required Text**

- [Moderen Carpentry](#)
- [Essential Skills for the building Trades](#)
- [11th Edition](#)
- [Wills H. Wagner](#)
- [Howard Bud Smith.](#)

Recommended Texts & Other Readings or Resources

- NCCER Curriculum: National Center for Construction Education and Research o Note: NCCER accreditation is required to offer NCCER credentials to students. Instructors trained through the NCCER Instructor Certification Training Program (ICTP) may use the NCCER curricula to teach the listed

standards. By doing so, their students will complete modules working toward a certificate of completion for NCCER Construction Technology and be placed in NCCER's National Registry Database. • P21: Partnership for 21st Century Skills Framework for 21st Century Learning o Note: While not all standards are specifically aligned, teachers will find the framework helpful for setting expectations for student behavior in their classroom and practicing specific career readiness skills.

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Course Structure

The course is a hands on teaching style with lots of shop time to develop hand skills in the construction industry.

Part 2: Student Learning Outcomes

The Residential & Commercial Construction program of study prepares students for the various disciplines of construction. Course content is arranged around three sequenced, progressive courses that provide students with the opportunity to develop a holistic understanding of the building systems and components required for a construction project. Students will be able to interpret construction drawings, perform basic math skills, demonstrate the construction crafts required for each phase of a construction project (including carpentry, masonry, electricity, plumbing and HVAC), and safely use and maintain appropriate tools, equipment, and resources to accomplish construction project goals. Course content covers industry specific business concepts and skills such as cost estimation, relationships among parties involved in the building process, testing and inspection procedures, scheduling practices, and project management. Students will understand career opportunities in the construction industry and the steps to achieve those careers (such as how to enter apprenticeships).

Residential & Commercial Construction I (6162)

fall 2023 Syllabus

Part 3: Topic Outline/Schedule

Residential & Commercial Construction II

Course Standards			
Safety		Week	Comments
1	Identify safety hazards on a jobsite and demonstrate practices for safe working conditions. Accurately read, interpret, and demonstrate adherence to safety rules, including but not limited to rules pertaining to electrical safety, Occupational Safety and Health Administration (OSHA) guidelines, and state and national code requirements. Be able to distinguish between the rules and explain why certain rules apply. Recognize and employ universal construction signs and symbols such as colors, flags, stakes, and hand signals that apply to construction workplace situations. Research and evaluate construction company safety plans from local industry. Explain the need for jobsite security to prevent liability. Drawing from examples, create and implement a jobsite safety program in the class to ensure safe practices and procedures including jobsite security procedures.	Week 1	
2	Maintain safety records and demonstrate adherence to industry-standard practices regarding general machine safety, tool safety, equipment safety, electrical safety, and fire safety to protect all personnel and equipment. For example, when operating tools and equipment, regularly inspect and carefully employ the appropriate personal protective equipment (PPE), as recommended by Occupational, Safety & Health Administration (OSHA) regulations. Incorporate safety procedures when operating tools and equipment, such as hand and power tools, ladders, scaffolding, and lifting equipment. Complete safety test with 100 percent accuracy.	Week 1.5	
3	Follow procedures to work safely around materials. Adhere to responsibilities for employees in material safety as outlined by the Hazard Communication Standard (HazCom), such as locating and interpreting material safety data sheets (MSDS). For example, obtain an MSDS for a given material from a supplier in the community. Demonstrate safe procedures to move materials by planning the movement, properly lifting, stacking, and storing materials, and selecting proper materials-handling equipment.	Week 2	
Tools & Equipment		Week	Comments
4	For each of the systems covered in this course, identify and select the proper tools and accessories, critique the readiness of the tools, use the tools to	Week 2.5	

	accomplish the desired tasks, and then return the tools and accessories to their proper storage. Research a new technology recently developed for the construction industry. Write persuasively to convince an employer how the use of the technology could benefit the company, citing evidence from resources. For example, describe how a new power tool could improve efficiency and reduce muscle fatigue for a construction team.		
Construction Industry Principles		Week	Comments
5	Locate and assess the Tennessee Contractor's Licensing Board's website and analyze the policies and requirements for construction work in Tennessee. Explain how such policies impact local construction businesses.	Week 2.5	
6	Consult a variety of sources to describe alternatives to traditional project delivery methods, such as the design-build and construction management-related methods, distinguishing among the roles and relationships of various construction personnel in each scenario. Examine the project delivery method of an actual company. Develop a company profile with supporting graphics the company could share with a client describing the services provided and explaining the building delivery method used by the company.	Week 3	
Roofing Systems		Week	Comments
7	Define and describe the framing components of gable and hip roofs such as the ridgeboard, plates, and types of rafters. For example, create a graphic illustration showing the roles of each component and how they work together in a roof framing system.	Week 3.5	
8	Read and interpret drawings to determine roof framing requirements, such as calculating the length of a rafter based on the desired pitch and estimating the materials needed to frame and sheath a roof. For example, use a speed square to lay out a common rafter on a piece of lumber.	Week 3.5	
9	Work in teams to construct a roof frame assembly by implementing required safety techniques, tools, and equipment to accurately measure, lay out, construct, and sheath a roof frame. For example, frame a gable roof with an opening.	Week 4	
10	Compare and contrast different procedures to frame a roof. For example, describe the benefits of using prefabricated trusses in place of framing with rafters on site. Outline the major similarities and differences in each and write persuasively to describe why using either prefabricated trusses or framing with rafters is more beneficial for a specific project.	Week 4.5	
11	Compare and contrast the materials, methods, and procedures for roofing with fiberglass shingles with other roofing materials such as wood shingles, metal roofing, and membranetype roofing systems. Perform a cost analysis for a client to help the client choose between two roofing materials for a specific project given the site location, project budget, environmental considerations, and other factors.	Week 5	
12	Apply the appropriate tools, equipment, and procedures to safely install shingles on a roof including strategies for watertight installation, using quantitative reasoning and geometric formulas where applicable. For example, interpret construction documents to estimate the roofing materials needed to install fiberglass shingles on a gable roof. After preparing the roof with underlayment, flashing, and other preparation materials, install fiberglass shingles	Week 5.5	
Exterior Finishing		Week	Comments

13	Examine a wall section drawing for a specific building. Identify, define, and explain the function of each component including wall insulation, flashing, and the structure of the cornice. Draw from textbooks and other resources to annotate the wall section drawing with notes explaining the purpose of each component.	Week 5.5	
14	Interpret wall section drawings to safely construct a cornice. For example, accurately measure materials, employ tools, and follow procedures to build a box cornice, checking for accuracy in each step	Week 6	
15	Analyze various finish systems used to sheath a building, including but not limited to wood siding, fiber-cement siding, vinyl siding, metal siding, stucco, and masonry veneer finishes. Perform a case study of three different buildings in the community which are sheathed in different ways, hypothesizing why the different materials and methods were selected for each.	Week 6.5	
16	Estimate the siding materials needed to cover a building utilizing mathematical principles such as area formulas and quantitative reasoning. Utilize the appropriate procedures, tools, and materials to install various types of siding. For example, identify three siding methods that are commonly used in the area and demonstrate the ability to plan the installation of and install each.	Week 7	
Basic Stair Framing Systems		Week	Comments
17	Analyze the components of a stair system. Read and interpret construction drawings to determine stair system requirements such as the total rise, number and size of risers, and number and size of treads. Based on stated requirements, estimate the amount of material needed to frame a stair assembly.	Week 7.5	
18	Apply the appropriate tools, equipment, and procedures to safely build a small stair unit, demonstrating proper procedures for laying out and cutting stringers, risers, and treads.	Week 8	
Introduction to Masonry Systems		Week	Comments
19	Describe the materials and methods used in modern masonry. Distinguish between masonry units made of clay products (i.e. brick) and masonry units made of concrete (i.e. block), analyzing the composition and structure of common units. Differentiate between the types of masonry construction, such as solid masonry walls, cavity walls, and veneer walls, citing examples of when each is used. Apply the knowledge to examine two different masonry constructions found in the school or community. Create a visual display with supporting text comparing the composition and construction methods of each.	Week 8.5	
20	Describe and demonstrate the procedures and techniques of basic bricklaying, including preparing mortar, laying a mortar bed, and laying bricks. Apply the appropriate tools, equipment, and procedures to safely mix mortar and properly use a trowel to spread and furrow bed joints and butter head joints.	Week 9	
Plumbing Systems		Week	Comments
21	Study a schematic plan of a typical community sewer system. Citing evidence from a technical description or actual observation of a system, explain how	Week 9.5	

	waste moves through a drain, waste, and vent system from the fixture to the environment. Create a graphic illustration to represent the movement of waste from one component to the others in the system. For example, create a basic diagram of how the waste generated by a clean-up sink in the classroom travels to the local sewage treatment plant.		
22	Demonstrate understanding of the specific roles of various plumbing components in a drain, waste, and vent system by sketching a system model. Label the components, and include a written description of the function of each. Be able to describe the physical principles involved such as gravity and pressure.	Week 10	
23	Analyze the function of a trap by examining a drain, waste, and vent system whose trap has lost its seal. Diagnose and explain the cause and determine the appropriate solution, citing evidence from textbooks or technical manuals in order to justify why the chosen solution is preferable or more effective than another.	Week 10.5	
24	Determine common requirements found in plumbing codes and explain why the codes are necessary; include the importance of proper plumbing on human health. Examine a case in which poor plumbing contributed to the outbreak of disease in a community. Write an explanatory text to illustrate the problem and describe how it could have been prevented with proper plumbing applications.	Week 11	
25	Compare and contrast the material properties and uses of the various types of plastic and copper piping, including storing and handling, safety issues, and types of fitting and hanging equipment. Describe the factors influencing the decision to use plastic or copper piping in a residence. Demonstrate the ability to select the correct materials, tools, and PPE to complete both plastic and copper piping projects by creating a list of the items needed for a specific installation. For example, for a residential bathroom sink drain, create a list of the materials, tools, and equipment needed to install the drain.	Week 11.5	
26	Employ tools and procedures to safely measure, cut, ream, and join plastic and copper piping and fittings. For example, accurately measure PVC pipe, use a miter box and handsaw to cut pieces of pipe, ream and chamfer the ends, and join the pipe using solvent cement.	Week 12	
Principles of Electrical Systems		Week	Comments
27	Evaluate and recommend proper electrical hardware for a residential building. For example, for a residential dwelling with a given floor plan and schedule of major appliances, determine the size of the electrical service by referring to the National Electrical Code to select the service-entrance equipment, such as conductors, panelboard, and protective devices. Steps should include: calculating the load for lighting, small appliances, and large appliances; and determining the number of branch circuits required. Describe the installation rules pertaining to dedicated circuits as applied to various equipment such as ranges, dryers, and HVAC systems.	Week 12.5	
28	Utilize the proper tools, equipment, and procedures to select and safely perform basic installation of device boxes according to drawings, specifications, and code requirements.	Week 13	
29	Utilizing test equipment such as a voltmeter, inspect and test an electrical wiring system for compliance according to drawings, specifications, and code requirements.	Week 13.5	
Introduction to Heating, Ventilation, and Air Conditioning Systems (HVAC)		Week	Comments

30	Demonstrate understanding of the principles of heating, ventilation and air conditioning systems. Use graphic illustrations and supporting text to describe the structure and function of each system.	Week 14	
31	Examine the regulations which impact the work of HVAC technicians, such as the Clean Air Act and EPA guidelines. Create a brochure to inform an individual contemplating beginning an HVAC business of these regulations, explaining key considerations and citing resources. (TN Reading 1, 2, 4; TN Writing 2, 4, 9; NCCER 68114-09)	Week 14.5	
Construction Drawings & Specifications		Week	Comments
32	Explain the relationship between construction drawings and specifications. For example, describe how both the construction drawings and specifications provide information about the exterior sheathing indicated for a building. Examine construction drawings and specifications to determine the requirements of the sheathing for a given part of a building, and verify with measurements and other sources as needed.	Week 15	
33	Describe processes by which construction professionals obtain clarification from architects regarding construction documents, such as by the use of requests for information (RFI's). Write a request for information (RFI), as would a construction professional to an architect to request clarification for a detail of the construction documents, such as the selection of a product.	Week 15.5	
Business & Project Management		Week	Comments
34	Establish and implement specific goals to manage project assignments in a timely manner, including organizing teams to effectively manage assignments, monitoring and reporting on project progress, and evaluating a completed project according to client requirements. For example, inspect and critique a team member's work, providing constructive feedback for improvement. Similarly, respond to constructive feedback from a team member to improve project outcomes and meet project goals.	Week 16	
35	Perform estimating and scheduling techniques for a long-term project, including calculating material quantities and cost (including tax) and labor cost to complete a bid sheet; scheduling construction activities using a flow chart; and determining amounts to be charged to the client at various intervals throughout the project.	Week 16.5	
36	Utilize technology to write and share periodical reports (weekly, monthly, etc.) to provide others with information about progress during construction activities as would a project manager to a supervisor. Summarize activities in a narrative form including overall progress in relationship to a previously planned schedule.	Week 17	
Portfolio		Week	Comments
37	Update materials from coursework to add to the portfolio started in Fundamentals of Construction and Residential & Commercial Construction I. Continually reflect on coursework experiences and revise and refine the career plan generated in prior courses, using technology where appropriate. Include photographs or illustrations and written descriptions of sequential progress in construction projects.	Week 18	

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Viewing Grades in ASPEN (optional)

Points you receive for graded activities will be posted to the ASPEN Grade Book. Click on the My Grades link on the left navigation to view your points.

*Include a statement about the timeframe of when to look for grades.

Example: Your instructor will update the online grades each time a grading session has been complete—typically X days following the completion of an activity. You will see a visual indication of new grades posted on your ASPEN home page under the link to this course.

Letter Grade Assignment

*Include an explanation between the relationship of points earned and final letter grade. **Example:** Final grades assigned for this course will be based on the percentage of total points earned and are assigned as follows:

This can be modified, but must match the district scale.

Letter Grade	Percentage	Performance
A	93-100%	Excellent Work
A-	90-92%	Nearly Excellent Work
B+	87-89%	Very Good Work
B	83-86%	Good Work
B-	80-82%	Mostly Good Work
C+	77-79%	Above Average Work
C	73-76%	Average Work
C-	70-72%	Mostly Average Work
D+	67-69%	Below Average Work
D	60-66%	Poor Work
F	0-59%	Failing Work

Important note: For more information about grading at Channel Islands, visit the academic policies and grading section of the university catalog.

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Cocke County High School

Residential & Commercial Construction II

Fall 2023Semester Syllabus

Part 5: Course Policies

Attend Class

Students are expected to attend all class sessions as listed on the course calendar.

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Build Rapport

If you find that you have any trouble keeping up with assignments or other aspects of the course, make sure you let your instructor know as early as possible. As you will find, building rapport and effective relationships are key to becoming an effective professional. Make sure that you are proactive in informing your instructor when difficulties arise during the semester so that they can help you find a solution.

Complete Assignments

Assignments must be submitted by the given deadline or special permission must be requested from instructor *before the due date*. Extensions will not be given beyond the next assignment except under extreme circumstances.

All discussion assignments must be completed by the assignment due date and time. Late or missing discussion assignments will effect the student's grade.

Incomplete Policy

Under emergency/special circumstances, students may petition for an incomplete grade. An incomplete will only be assigned if [*insert condition here]. All incomplete course assignments must be completed within [*insert timeframe here].

Academic Dishonesty Policy

This is an example:

1. Academic dishonesty includes such things as cheating, inventing

false information or citations, plagiarism and helping someone else commit an act of academic dishonesty. It usually involves an attempt by a student to show possession of a level of knowledge or skill that he/she does not possess.

2. Course instructors have the initial responsibility for detecting and dealing with academic dishonesty. Instructors who believe that an act of academic dishonesty has occurred are obligated to discuss the matter with the student(s) involved. Instructors should possess reasonable evidence of academic dishonesty. However, if circumstances prevent consultation with student(s), instructors may take whatever action (subject to student appeal) they deem appropriate.

3. Instructors who are convinced by the evidence that a student is guilty of academic dishonesty shall assign an appropriate academic penalty. If the instructors believe that the academic dishonesty reflects on the student's academic performance or the academic integrity in a course, the student's grade should be adversely affected. Suggested guidelines for appropriate actions are: an oral reprimand in cases where there is reasonable doubt that the student knew his/her action constituted academic dishonesty; a failing grade on the particular paper, project or examination where the act of dishonesty was unpremeditated, or where there were significant mitigating circumstances; a failing grade in the course where the dishonesty was premeditated or planned. The instructors will file incident reports with the Vice Presidents for Academic Affairs and for Student Affairs or their designees. These reports shall include a description of the alleged incident of academic dishonesty, any relevant documentation, and any recommendations for action that he/she deems appropriate.

Student Testing Code of Ethics and Security

It is important for you as a student to know that the following guidelines are to be strictly followed. This year the TNReady EOC test will count at least 15% of your final semester grade. Your work on this test is very important and it deserves your best effort. I understand that during testing on the days of the assessment, I am responsible for:

- Not having any electronic devices on me or in my purse/backpack/pockets
 - Including but not limited to cell phones, smart phones, smart watches, etc. **during testing or during breaks.**
 - Best practice is for students to leave devices at home or in their lockers on the day of testing.
 - If I am caught with a device during testing or during breaks, my test may be nullified, resulting in a zero as at least 15% of my semester grade, and any school level disciplinary action as deemed appropriate by the administration.
- Trying my best on the test
 - If I do not attempt to test (I give **no answers or randomly answer** questions) my test score may be nullified, resulting in a zero as at least 15% of my semester grade, and any school level disciplinary action as deemed appropriate by the administration.
 - The testing administrators and proctors in the testing environment will determine if no answers or random answering is taking place.
 - I will focus and put forth effort on the test .
- Being honest and not cheating
 - If I am caught cheating (taking pictures of the test, writing down and passing answers, talking to other students, looking on other computers, using software outside the testing platform), my test may be nullified, resulting in a zero as at least 15% of my semester grade, and any school level

disciplinary action as deemed appropriate by the administration.

Important Note: Any form of academic dishonesty, including cheating and plagiarism, may be reported to the office of student affairs.

Course policies are subject to change. It is the student's responsibility to check for corrections or updates to the syllabus. Any changes will be posted in the classroom.