COLTON REDLANDS YUCAIPA
REGIONAL OCCUPATIONAL PROGRAM

2025-2026

Construction Technology 2

Course Outline

DESCRIPTION:

Construction Technology 2 is the capstone course in the Residential and Commercial Construction pathway designed to provide students with technical knowledge and practical shop experience for an entry level job in the building industry. Students will practice and master framing and roofing techniques, site preparation, blueprinting, measurements, and construction site safety. Activities in this course include project-based and work-based learning activities that connect students to industry and the local community. Students must successfully complete Construction Technology 1 and Construction Technology 2 for pathway completion and/or articulation.

INFORMATION:

PRE-REQUISITE:	Construction Technology 1
LENGTH:	One Year
SECTOR:	Building & Construction Trades
PATHWAY:	Residential and Commercial Construction
ARTICULATED:	Yes
UC A-G APPROVAL:	No

O*NET SOC CODES:

47-2031.01	Construction Carpenter
47-2031.02	Carpenter, Rough
47-3012.00	Carpenter, Helper

Orientation

A. Introduce the course and facilities.
B. Discuss the syllabus and major objectives.
C. Explain applicable classroom management procedures, and any operational guidelines.
D. Review instructor/student expectations.
E. Explain attendance requirements and procedures.
F. Review grading and student evaluation procedures.
G. Discuss the work-based learning aspect of the program, if applicable.
H. Discuss the “next steps” related to additional education, training, and employment.
I. Review classroom safety, emergency and disaster procedures.

1. Communication Skills

A. Demonstrate positive verbal communication skills using appropriate vocabulary, demeanor, and vocal tone in the classroom and/or worksite.
B. Read and interpret written information and directions.
C. Practice various forms of written communication appropriate to the occupation.
D. Practice positive body language skills.
E. Practice professional verbal skills for resolving a conflict.
F. Demonstrate active listening skills including techniques for checking for understanding, and for obtaining clarification of directions.

2. Interpersonal Skills

A. Demonstrate positive teamwork skills by contributing to a group effort.
B. Practice the importance of diversity awareness and sensitivity in the workplace.
C. Define sexual harassment in the workplace and identify the employee’s role and responsibility.
D. Practice participation skills.
E. Identify different personality types and demonstrate flexibility and adaptability working with diverse individuals.
F. Practice business and social etiquette skills appropriate to the occupation.
G. Evaluate and discuss the role of business and personal ethics in decision making based on various job-related scenarios.
H. Demonstrate the use of time management skills.

3. Employability Skills

A. Demonstrate appropriate attendance and punctuality practices for the classroom (and worksite, if applicable).
B. Prepare a resume, cover letter, and job application.
C. Demonstrate interviewing techniques in seeking employment, using appropriate tone, body language and professional dress and

grooming standards.
D. Identify strategies for employment retention.
E. Identify and analyze sources of job information, including electronic sources and the impact of social networking on employability.
F. Identify the need for continuing education, professional development, and professional growth in chosen field.
G. Identify appropriate procedures for leaving a job.
H. Review company policies and current trends in employee compatibility screening, drug screening, and background checks.

4. Leadership

A. Define leadership and identify the responsibilities, competencies, and behaviors of successful leaders.
B. Work with peers to promote divergent and creative perspectives.
C. Demonstrate how to organize and structure work, individually and in teams, for effective performance and the attainment of goals.
D. Explain multiple approaches to conflict resolution and their appropriateness for a variety of situations in the workplace.
E. Employ ethical behaviors and actions that positively influence others.
F. Analyze the short-term and long-term effects a leader's actions and attitudes can have on productivity, morale, and organizational culture.

5. Personal and Occupational Safety

A. Demonstrate procedures to be followed in case of emergencies.
B. Describe and discuss the procedure for reporting a work-related hazard or injury (worker's comp), including ways to report a potential safety hazard to a supervisor.
C. Identify and discuss cyber ethics, cyber safety, and cyber security.
D. Apply personal safety practices to and from the job.
E. Recognize the effects of substance abuse in the workplace.
F. Explain the importance of CAL-OSHA in the industry.

6. Careers in Construction

A. List personal characteristics valued in the construction industry.
B. Research careers within the construction trade.
C. Describe specific job classifications and corresponding responsibilities.
D. Research training and certification requirements.
E. Detail entry-level wages.
F. Identify formal and informal training and apprenticeship programs.
G. List the trade associations and trades unions within the construction industry.

7. Construction Site Safety

A. Describe and apply construction site safety rules.
B. Properly use, maintain, and store construction tools and equipment.

C. Adhere to rules for preventing electric shock and managing electrical hazards.
D. Demonstrate safety procedures for handling common hazards on worksites including noise, hazardous substances, and chemicals.
E. Demonstrate first aid skills for minor injuries.
F. Simulate workplace conditions.

8. Blueprint Reading and Drawing

A. Read and interpret construction documents and drawings.
B. Read and review building codes.
C. Use an architect's scale to measure scale drawings.
D. Draw a 2-point perspective drawing.
E. Interpret 2-point perspective drawings.
F. Interpret a finish schedule.
G. Read and interpret written specifications, symbols, and abbreviations used in construction.

9. Regulatory Constraints and Standards

A. Discuss the function of the Americans with Disabilities Act.
B. Identify the purposes of zoning ordinances and building codes.
C. Describe the local building codes.
D. Identify the California Building Code.
E. Discuss the electrical and plumbing codes.

10. Site Preparation

A. Lay out a simple building.
B. Identify ground hazards common to preparing a site.
C. Read a blueprint and interpret site requirements.
D. Describe the types of heavy and light equipment commonly used in site preparation and discuss related safety issues.
E. Describe steps for preparing the plot.
F. Describe the materials used for layout.
G. Explain notification procedures for underground alert.

11. Introduction to Framing

A. Explain the influence codes and ordinances have on the design of light frame buildings.
B. Use framing terminology correctly.
C. Identify the methods used to construct light frame buildings.
D. Using plans and tape measures, square the building.

E. Describe the importance of careful and correct framing.
F. Describe structural design concepts.

12. Floor Framing

A. Describe and demonstrate the application and installation of sub-flooring.
B. Compare and contrast different framing systems.
C. Demonstrate steps in floor construction, including sill joists, bridgings, and openings.
D. Identify materials needed and estimate costs for a job.

13. Wall Framing

A. Lay out walls, studs, headers, cripples, and frames.
B. Identify causes and effects of wood shrinkage.
C. Define exterior walls and describe the process for their construction.
D. Explain how to frame window openings.
E. Explain the uses of bracing.
F. Describe the importance of fire stops and fire caulking.
G. Lay outdoors, window openings, fire- blocks and diagonal braces.
H. Raise a brace and plumb wall.
I. Estimate time and material costs.
J. Describe fire ratings for walls.

14. Roof Framing

A. Demonstrate safety practices and procedures associated with roofing.
B. Describe safe climbing and use of various types of ladders.
C. Describe equipment and methods for fall arrest/prevention including harnessing.
D. Demonstrate safe techniques for use of framing square, hammers, saws, and other related roofing tools.
E. Develop a materials list according to the specifications.
F. Define common terms used in roofing.
G. Illustrate roof designs and describe their functions.
H. Discuss the following roof covering materials and their functions: tile, fiberglass, asphalt, composition shingles, and hot mop.
I. Determine appropriate underlayment for roof covering using specifications.
J. Cut ridge length to plans.
K. Cut and install gable studs and frieze blocks.
L. Brace ridge and rafters.
M. Install underlayment per building codes and specifications.

N. Cut overhangs, roof vents, and install fascia.

15. Certification

A. Build a model scale house that meets standards for Carpenters International Training Fund (CITF).

16. Portfolio Design

A. Develop personal marketing and computer skills by refining your digital portfolio for post-secondary and employment acceptance.
B. Compile best samples of original works and documents for a variety of purposes, which shows a progression in the acquisition of knowledge and/or skills.
C. Demonstrate knowledge of competencies through journaling or summary of selected works or documents.
D. Revise professional resume and cover letter to align with skills and objective statements of the relevant industry.
E. Dress professionally and practice interviewing techniques using portfolio materials.
F. Assemble industry and employability documents (resume, cover letter, certifications, recommendation letters, etc.).
G. Create a “leave behind” book or folder.
H. Display portfolio materials during a fair, community event, competition, or professional panel review.
I. Evaluate and utilize feedback to improve portfolio.

Key Assignments

Assignment	Competencies	Career Ready Practices	Anchor Standards	Pathway Standards	CCSS
1. Students will participate in mock interviews that represent current industry practices (e.g., skills demonstrations, resumes, applications, portfolios, personal websites, etc.).	1A-D 2D, F 3A-D, E, H 6A-F 16A-I	1 2 3 4 7 10	2 3 4 7 10		LS 11-12.6 SLS 11-12.2 WS 11-12.6
2. Students will participate in a workplace safety and conditions simulation. Following the simulation, teams of students will create a presentation (using google slides) of safe work protocols and practices to prevent injury and maintain a clean work area.	1A, B, D 2D 3B, C, D 5A, D, F 7A-F	1 2 6 8 9 10 11	2 4 5 6 7 9 10	D1.0 D4.0	LS 11-12.6 SLS 11-12.1 SLS 11-12.1b WS 11-12.6 WS 11-12.7
3. Students will create 2D drawings with detailed measurements and draw a scaled layout sheet to build a model scale house.	1A-F 2A, D, H 3A, D 5A-E, G 8A-G	1 2 4 5 10 11	2 4 5 7 9 10	D2.0 D3.0 D4.0	LS 11-12.6 RSIT 11-12.2 RLST 11-12.4 SLS 11-12.1 SLS 11-12.1b WS 11-12.6 WS 11-12.7 CC 3, 6 ETS 1B SEP 4, 5, 8
4. Design a model scale house taking after reviewing building codes including the earthquake codes.	1A-F 2A, D, H	1	2	D1.0	RSIT 11-12.2 RLST 11-12.4

Assignment	Competencies	Career Ready Practices	Anchor Standards	Pathway Standards	CCSS
	3A, D 5A, D 9A-E	2 4 5 8 10 11	4 5 7 8 9 10	D3.0 D4.0 D5.0 D9.0	SLS 11-12.1 SLS 11-12.1b WS 11-12.6 WS 11-12.7 CC 3, 6 ETS 1B SEP 4, 5, 8
5. In teams, students will build a model scale house that has rooms/partitions and present the model scale house to the class. Students will present their work product to an independent panel (their classmates) for critique, then reflect on the critique in their journal. (Students will use journal entries as a resource to document critiques from classmates, comprehend how far they have progressed and reflect on teamwork and leadership skills, personal work ethics, values, attitudes, beliefs, and motivations.)	1A, B, C, E, F 2D 3A, D 5A, D 7A-F 10A-G 11A-F 12A-D 13A-J 14A-N 15A	1 2 5 7 8 9 10 11 12	2 3 4 5 6 7 9 10	A3.0 A4.0 D1.0 D2.0 D3.0 D4.0 D6.0 D7.0 D8.0 D9.0	RSIT 11-12.2 RLST 11-12.4 WS 11-12.6 WS 11-12.7 CC 3, 6 ETS 1B SEP 1, 3, 4, 5, 8 PE 12.1

Standards Assessed in this Program

Career Ready Practices

1. **Apply appropriate technical skills and academic knowledge.**
2. **Communicate clearly, effectively, and with reason.**
3. **Develop an education and career plan aligned to personal goals.**
4. **Apply technology to enhance productivity.**
5. **Utilize critical thinking to make sense of problems and persevere in solving them.**
6. **Practice personal health and understand financial well-being.**
7. **Act as a responsible citizen in the workplace and the community.**
8. **Model integrity, ethical leadership, and effective management.**
9. **Work productively in teams while integrating cultural/global competence.**
10. **Demonstrate creativity and innovation.**
11. **Employ valid and reliable research strategies.**
12. **Understand the environmental, social, and economic impacts of decisions.**

Anchor Standards

2.0 Communications

- Acquire and use accurately sector terminology and protocols at the career and college readiness level for communicating effectively in oral, written, and multimedia formats.

3.0 Career Planning and Management

- Integrate multiple sources of career information from diverse formats to make informed career decisions, solve problems, and manage personal career plans.

4.0 Technology

- Use existing and emerging technology, to investigate, research, and produce products and services, including new information, as required in the sector workplace environment.

5.0 Problem Solving and Critical Thinking

- Conduct short, as well as more sustained, research to create alternative solutions to answer a question or solve a problem unique to the sector using critical and creative thinking, logical reasoning, analysis, inquiry, and problem-solving techniques.

6.0 Health and Safety

- Demonstrate health and safety procedures, regulations, and personal health practices and determine the meaning of symbols, key terms, and domain-specific words and phrases as related to the sector workplace environment.

7.0 Responsibility and Flexibility

- Initiate, and participate in, a range of collaborations demonstrating behaviors that reflect personal and professional responsibility, flexibility, and respect in the sector workplace environment and community settings.

8.0 Ethics and Legal Responsibilities

- Practice professional, ethical, and legal behavior, responding thoughtfully to diverse perspectives and resolving contradictions when possible, consistent with applicable laws, regulations, and organizational norms.

9.0 Leadership and Teamwork

- Work with peers to promote divergent and creative perspectives, effective leadership, group dynamics, team and individual decision making, benefits of workforce diversity, and conflict resolution.

10.0 Technical Knowledge and Skills

- Apply essential technical knowledge and skills common to all pathways in the sector following procedures when carrying out experiments or performing technical tasks.

Pathway Standards

Building and Construction Trades- Cabinetry, Millwork, and Woodworking Pathway

A3.0: Interpret and apply information to develop a bill of materials, estimate the cost of materials, and develop a plan of procedures to complete a project.
A4.0: Demonstrate proper selection and use of woodworking tools.
A5.0: Identify wood products and materials used in the furniture and cabinetmaking industry and describe their characteristics and uses.
A9.0: Understand finishes and when to apply paint, stains, sealers, varnishes, and catalyzed finishes, including water and oil based finishes.

Building and Construction Trades- Residential and Commercial Construction Pathway

D1.0: Recognize the impact of financial, technical, environmental, and labor trends on the past and future of the construction industry.
D2.0: Apply the appropriate mathematical calculations used in the construction trades.
D3.0: Interpret and apply information from technical drawings, schedules, and specifications used in the construction trades.
D4.0: Demonstrate techniques for proper site preparation.
D5.0: Demonstrate foundation layout techniques to include setting forms, placing reinforcements, and placing concrete according to construction drawings, specifications, and building codes.
D6.0: Demonstrate carpentry techniques for the construction of a single-family residence.
D7.0: Demonstrate proper installation techniques of interior finish materials and protective finishes.
D8.0: Demonstrate the application of exterior finish materials and protective finishes in building construction.
D9.0: Understand, integrate, and employ sustainable construction practices in the building trades.
D10.0: Demonstrate skills necessary to complete a plumbing system in a single-family residence in accordance with accepted industry standards.
D11.0: Demonstrate skills necessary to complete an electrical system in a single-family residence in accordance with accepted industry standards.

Common Core State Standards

ENGLISH LANGUAGE ARTS

Language Standards

LS 11-12.6: Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and

listening at the (career and college) readiness level, demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

Reading Standards for Literacy in Science and Technical Subjects

RLST 11-12.2: Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.
RLST 11-12.3: Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.
RLST 11-12.4: Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11-12 texts and topics.
RLST 11-12.9: Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.

Reading Standards for Information Text

RSIT 11-12.2: Determine two or more central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to provide a complex analysis; provide an objective summary of the text.

Speaking and Listening Standards

SLS 11-12.1: Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners, building on others ideas and expressing their own clearly and persuasively.
SLS 11-12.1b: Work with peers to promote civil, democratic discussions and decision-making, set clear goals and deadlines, and establish individual roles as needed.
SLS 11-12.1d: Respond thoughtfully to diverse perspectives, synthesize comments, claims and evidence made on all sides of an issue, resolve contradictions when possible, and determine what additional information or research is required to deepen the investigation or complete the work.
SLS 11-12.2: Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions, and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.

Writing Standards

WS 11-12.6: Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback including new arguments and information.
WS 11-12.7: Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem, narrow or broaden the inquiry when appropriate, synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

MATHEMATICS

Geometry – Similarity, Right Triangles and Trigonometry

GSRT 8: Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.

SCIENCE

Crosscutting Concept

CC3: Scale, proportion, and quantity
CC6: Structure and function

Engineering, Technology, and the Applications of Science

ETS 1B: Developing Possible Solutions

Scientific and Engineering Practices

SEP 1: Asking questions (for science) and defining problems (for engineering)
SEP 2: Developing and using models
SEP 3: Planning and carrying out investigations
SEP 4: Analyzing and interpreting data
SEP 5: Using mathematics and computational thinking
SEP 6: Constructing explanations (for science) and designing solutions (for engineering)
SEP 7: Engaging in argument from evidence
SEP 8: Obtaining, evaluating, and communicating information

HISTORY/ SOCIAL SCIENCE

Principles of Economics

PE 12.1: Students understand common economic terms and concepts and economic reasoning.