COLTON REDLANDS YUCAIPA
REGIONAL OCCUPATIONAL PROGRAM
Inspiring Possibilities

2025-2026

Construction & Facilities Maintenance

COURSE OUTLINE

DESCRIPTION:

Construction & Facilities Maintenance provides introductory skills in construction math, construction vocabulary, blueprint reading, and the real-world use of tools, equipment, and materials in construction projects while practicing pre-employment skills. Topics in this course include personal health & safety, physical agility, historical overview of the construction industry, industry regulations & standards, proper use of hand tools/power tools, site preparation, electrical basics, drywall installation, solar technology, asbestos identification, introduction to cutting tools and effective use of technology. Connections and collaborations will be made with local apprentice programs. Activities in the program include work-based learning that connects students to industry and the local community. Students will have the opportunity to create a professional portfolio and earn industry validated certifications upon successful completion of in-class instruction and work-based, hands-on training. (180 hours classroom and 120 hours Work-Based Learning (WBL) =300 hours)

INFORMATION

A. Pre-requisites – Student must:
- Be an Adult Student; not required to have a high school diploma.
- Have a current social security card or right to work document and legal valid I.D. at time of Work-Based Learning
- Have reliable transportation for work-based learning participation.
- Be able to perform the required essential functions of a construction worker including carrying out required safety standards, be in good physical health and able to lift 100lbs.
- Attend class sessions as scheduled.

B. Length: 180 classroom hours and 120 hours of Work-Based Learning equals 300 total class hours.

C. Certificates Earned in Program (with an 80% or better on each related exam):
- S/P 2-Construction Safety & Hazardous Materials
- S/P 2- Soft Skills Training for Career Technical Education
- OSHA
- First Aid/CPR/AED American Heart Association
- Target Solutions: Anti-Harassment Training
- Southwest Carpenters Union Pre-Apprentice Certifications (Level I-III)
- Masonry Industry Training Association (MITA masonry certificates)

D. Sector: Building & Construction Trades

E. Pathway: Residential & Commercial Construction

O*Net SOC Codes	
Code #	**Title**
47-2013.01	Construction Carpenter
47-2031.02	Carpenter, Rough
47-3012.00	Carpenter, Helper
49-9071.00	General Maintenance Mechanic

1. Orientation

A. Introduce the program and facilities (i.e., class, shop).
B. Discuss the syllabus and major objectives.
C. Explain applicable classroom management procedures including the ROP Student Rules of Conduct, Student Computer User Agreement and operational guidelines.
D. Review instructor/student expectations.
E. Explain enrollment and attendance requirements and procedures.
F. Review grading and student evaluation procedures.
G. Discuss the industry aspect of the program.
H. Discuss the “next steps” related to additional education, training, and employment.
I. Review classroom safety, emergency, and disaster procedures**.**

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 anti-harassment in the workplace and identify the employee’s role and responsibility.
D. Complete Target Solutions: Anti-Harassment Training and score 80% or better to earn certification.
E. Identify different personality types and strategies for working effectively with each type.
F. Display customer service, social etiquette skills and problem solving appropriate to the occupation.
G. Discuss the importance of ethical decision-making.
H. Demonstrate flexibility and adaptability in working with others.
I. Demonstrate the use of time management skills.
J. Explain the ethical implications of internal theft and inventory loss.
K. Complete S/P2 Soft Skills Training for Career Technical Education and earn certification.

3. Employability Skills

A. Demonstrate appropriate attendance and punctuality practices for the classroom and worksite.
B. Prepare a resume, cover letter, and job application forms.
C. Demonstrate interviewing techniques using appropriate tone, dress and body language.
D. Analyze the impact of social networking on employability.
E. Understand appropriate procedures for leaving a job when ending employment.
F. Explore physical and digital sources of job information.
G. Review company policies and current trends in employee compatibility screening, drug screening, and background checks.
H. Participate in a Mock Interview demonstrating success in the construction industry.
I. Demonstrate appropriate job site arrival, assessing the job, signing in/out at the worksite.

4. First Aid/CPR & AED

A. Demonstrate critical First Aid skills necessary to stabilize someone in an emergency.
B. Recognize the five primary objectives of First Aid training (preserving life, preventing injury from getting worse, relieving pain, aiding recovery, and protecting the unconscious) and how they apply to injuries in this industry.
C. Demonstrate choking relief in adults, children, and infants.
D. Practice the appropriate response to a sudden cardiac arrest incident in adults, children, and infants.
E. Pass a First Aid/CPR/AED exam with an 80% or higher.

5. Personal and Occupational Safety / OSHA-10 Training

A. Apply personal safety practices while in class and on an industry site.
B. Analyze the effects of substance abuse including the use of alcohol and drugs in the workplace.
C. Explain the importance of CAL-OSHA, OSHA cooling standards and basic safety standards.
D. Identify worker's rights and employer responsibilities.
E. Understand NFPA-7OE standards for electrical safety in the workplace.
F. Locate and demonstrate fire safety equipment including varying types of fire extinguishers and their purpose.
G. Exhibit the appropriate use of PPE and industry standard dress codes during construction and maintenance activities.
H. Demonstrate a working knowledge of how to use a first aid kit, eye-wash station, and manage blood borne pathogens.
I. Demonstrate proper safety rules, signs/signals, evacuation routes and procedures.
J. Identify safety hazards commonly found at the worksite and construction worksite/environment.
K. Utilize proper ventilation procedures for working within the shop/worksite.
L. Identify types of hazardous waste, discuss safety related issues and demonstrate proper handling and disposal procedures.
M. Recognize Safety Data Sheets (SDS) and potential hazards.
N. Discuss Women's Health and Safety.
O. Demonstrate emergency preparedness by following posted evacuation routes and Emergency Action Plan (EAP).
P. Complete S/P 2-Construction Industry Safety & Hazardous Waste training.
Q. Complete OSHA-10 training to earn certification.

6. Physical Agility

A. Analyze the importance of maintaining good health and wellness.
B. Utilize proper stretch and flex warm-up exercises prior to physical activities.
C. Demonstrate proper body mechanics and lifting techniques in relation to the worksite/environment.
D. Lift and carry five sandbags (94lbs) one at a time for 50 feet.
E. Lift and carry eight 12-foot planks, one at a time, for 25 feet. Return two planks at a time to complete four stacks.
F. Stack blocks (8"X 6" X16") and form a square of 6 feet by 6 feet.
G. Use a shovel to fill a wheel barrel demonstrating proper lifting techniques and posture.
H. Wheelbarrow dirt or sand to fill an area of stacked blocks.

7. Overview of Construction Industry

A. Identify trends in the construction industry.
B. Discuss the role that labor unions play in the construction industry.
C. Discuss roles, worker trends and the history of American Heritage.
D. Identify pre-construction activities.
E. Explain the role of contractors and sub-contractors.
F. Complete Southwest Carpenters Union Pre-Apprentice Certification (Level I-III).

8. Regulatory Constraints, Standards and Sustainability

A. Discuss the function of the Americans with Disabilities Act.
B. Identify the purposes of zoning ordinances and building codes relevant to their region.
C. Identify sustainable building certification systems.
D. Identify sustainable development and construction concepts.

9. Construction Math and Architecture

A. Measure accurately using a tape measure and/or a carpenter ruler up to increments of sixteenths.
B. Use 3-4-5 method to layout interior partitions and to the perimeter of a building slab.
C. Accurately compute linear, square and board feet.
D. Practice reading and taking measurements in standard units and decimals.
E. Add, subtract, multiply, and divide fractions.
F. Convert between fractions, decimals, and percentages.
G. Accurately use a decimal equivalent table/chart/app.
H. Read and interpret written specifications including blueprint drawings, multi-view drawings and finish schedules.
I. Measure scale drawings using an architect scale.
J. Identify lines, symbols and abbreviations used on blueprints.

10. Materials: Nails, Fasteners and Adhesives

A. Distinguish different types of nails and demonstrate their uses.
B. Distinguish different types of screws and demonstrate their uses.
C. Identify staples and demonstrate their uses.
D. Distinguish types of adhesives and their appropriate and safe use.
E. Discuss requirements of galvanized fasteners for pressure treated materials.
F. Explain the effects of moisture to galvanize and pressure treated materials.

11. Materials: Wood

A. Identify engineered wood products and other alternatives and understand their uses.
B. Distinguish grades of woods.
C. Correctly read grading stamps on wood.
D. Discuss the manufacturing and grading of plywood.
E. Identify soft woods and their characteristics.
F. Identify hard woods and their characteristics.
G. Recognize imperfections in wood and describe their effects.
H. Describe the advantages and disadvantages of treating wood, e.g. protection from termites, moisture, and fire.
I. Describe the causes and effects of shrinkage.
J. Demonstrate proper care and handling of wood on job sites.
K. Estimate material costs.
L. Identify standard inch lumber sizes.
M. Locate grades of wood identified in the structural requirements of the blueprints.

12. Hand Tools

A. Demonstrate the correct and safe use of measuring instruments, including measuring tapes, levels, and squares, and architect's scale.
B. Demonstrate proper maintenance of tools.
C. Identify correctly, and safely use and care for the following hand tools: hammers, wire cutters, socket and torque wrenches, pry bars/CATS paw, saws, clamps, plumb bob, screwdrivers, pliers, chisels, demolition tools, punches, chalk line, and drill bits.
D. Explain and demonstrate safety procedures while working with hand tools.
E. Discuss the importance of investing in quality tools (cost vs. quality).
F. Identify the proper use of chain pulleys & come-along chains.

13. Introduction to Cutting and Shaping Tools

A. Identify multiple types of cutting and shaping tools.
B. Demonstrate the ability to safely use the following tools: hand saw, utility knife & file.
C. Identify and demonstrate use of a backsaw, coping saw, drywall saw, handsaw & hacksaw.
D. Explain proper maintenance and demonstrate cutting and shaping tool safety on the job site.

14. Stationary and Portable Power Tools

A. Describe the special safety precautions necessary in using power tools.
B. Identify correctly, and safely use and care for the following power tools: portable power saw, portable electric drill, reciprocating saw, portable power sander, stationary radial arm saw, stationary table saw, stationary drill press, pneumatic nailer, pneumatic stapler.
C. Demonstrate proper maintenance of tools and analyze the hazards and degrading associated with tool modifications.
D. Discuss the importance of investing in quality tools (cost vs. quality).

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

16. 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. Using plans and tape measures, square the building on site.
G. Describe the materials used for layout.
H. Explain notification procedures for underground alert.

17. Electrical

A. Define circuit breakers and explain their purpose.
B. Describe an electrical current and the difference between AC and DC current.
C. Explain secure grounding using GFCI requirements and uses.
D. Identify electrical design concepts.
E. Practice safety procedures when working with or around electrical sources.
F. Identify and explain installation of switches and outlet boxes.
G. Identify and explain installation of cable.
H. Identify the various sources of electrical power and how it is distributed.

18. Drywall and Insulation

A. Understand codes and ratings for installation of drywall.
B. Cut and measure accurately.
C. Tape, mud, and prep for finishes.
D. Install corner beads.
E. Identify appropriate types of insulation for various applications in the design of a building.
F. Discuss heat transfer and how insulation can be used to control it.
G. Describe problems caused by moisture penetrating insulation.

19. Solar Technology and Green Construction

A. Explain the difference between active and passive systems.
B. List the advantages and disadvantages of various PV system configurations.
C. Explain the difference between direct, indirect, and isolated passive solar systems within buildings.
D. Identify various forms of energy.
E. Explain Solar Thermal Systems.
F. Identify the key differences between AC and DC power.
G. Describe passive solar cooling and ways to incorporate solar systems into facilities.
H. Determine the location of the sun throughout the year for a given site.
I. Discuss the factors affecting solar cell efficiency.
J. List the advantages and disadvantages of various types of solar panels.

20. Asbestos

A. Identify the multiple types of asbestos.
B. Discuss proper procedures for asbestos removal and the industry certifications required for removal.
C. Discuss how to report and safely secure areas containing asbestos.
D. Understand how to dispose materials containing asbestos.
E. Identify current products that contain asbestos.

21. Demonstrates Effective Use of Technology

A. Identify and discuss online ethics, safety, and security.
B. Identify and investigate emerging technologies/tools/materials for successful completion of job tasks.
C. Uses technology resources for solving problems and making informed decisions.

22. Portfolio

A. Create a professional (digital or binder) portfolio reflecting employability skills in the relevant industry to include an “About Me” page.
B. Collect original works (in photographs and videos) and/or documents that demonstrate technical skills and knowledge in the industry.
C. Demonstrate knowledge of competencies by accompanying each selected document or work with a journal entry or summary.
D. Write a brief resume and cover letter to be included in portfolio.
E. Develop interviewing techniques using portfolio materials.
F. Display portfolio materials for critique by a professional panel (industry partners and classmates).
G. Gather feedback and update portfolio.