

Career Technical Education (CTE) Course Outline

Course Title:	Introduction to Construction Trades
Course Number:	71-35-45
Date:	June 2025
Industry Sector:	Building and Construction Trades
Pathway:	Residential and Commercial Construction
CBEDS Title:	Introduction to Building and Construction Trades
CBEDS Code:	5501
CalPADS	7340
Credits:	5

Hours:

Total
80

Course Description:

This competency-based course is designed for high school students to be introduced to apprenticeships in the construction industry. Instruction includes an introduction, safety, overview of the construction industry, tools and equipment, trade mathematics, introduction to building and construction trades, employability skills and resume introduction. The competencies in this course are aligned with the California Common Core Standards and the California Career Technical Education Model Curriculum Standards.

Prerequisites:	Enrollment requires a 9 th grade reading level as measured by the CASAS GOALS test.
NOTE:	<p>For Perkins purposes this course has been designated as an introductory course.</p> <p>This course cannot be repeated once a student receives a Certificate of Completion.</p>
A-G Approval	N/A

Methods of Instruction:	Lecture and discussion, guest lecturers, multimedia presentations, visual aids, projects, individualized instruction, field trips to apprenticeship training centers.
Student Evaluation:	Summative: End of section assessments
Industry Certification:	none
Recommended Texts:	Jones, Jack R., Wagner, Willis, Smith, Howard B., & Huth, Mark. <u>Modern Carpentry, 13th Edition</u> . G-W Publishing, 2022.
Link to Resource Folder	https://bit.ly/introtoconstradesresources

COMPETENCY AREAS AND STATEMENTS	MINIMAL COMPETENCIES	STANDARDS
<p>A. INTRODUCTION</p> <p>Understand, apply, and evaluate classroom and workplace procedures.</p> <p>(1 hour)</p>	<ol style="list-style-type: none"> 1. Discuss the scope and purpose of the course. 2. Discuss the classroom policies and procedures. 3. Discuss opportunities available for promoting gender equity and the representation of non-traditional populations in the construction industry. 4. Explain how the skills of construction workers and different groups involved in building all connect and affect how a construction project is done. 5. Explain how different trades connect to moving a construction job forward. 6. Explain and recognize the importance of customer-oriented service, ethics, teamwork, respecting individual and cultural differences, and diversity in the workplace. 	<p>Career Ready Practice: 1, 2, 8, 9</p> <p>CTE Anchor: Academics: 1.0 Communications: 2.1, 2.3 Ethics & Legal Responsibility: 8.4 Leadership & Teamwork: 9.3, 9.6 Technical Knowledge & Skills: 10.1, 10.2</p> <p>CTE Pathway: DI.1</p>
<p>B. SAFETY – GENERAL</p> <p>Understand safety procedures and techniques in the construction trade.</p>	<ol style="list-style-type: none"> 1. Discuss classroom and workplace first aid, emergency procedures, accidents, and injury prevention. 2. Describe and demonstrate proper handling, storage, and disposal of chemicals and materials used in the building trades and construction industry sector. 3. Define and discuss the California Occupational Safety and health Administration (Cal/OSHA) workplace requirements to maintain a safe and healthy working environment. 	<p>Career Ready Practice: 1, 2, 4, 5, 10, 12</p> <p>CTE Anchor: Academics: 1.0 Communications: 2.1, 2.3, 2.5 Technology: 4.2</p>

(4 hours)	<ol style="list-style-type: none"> Discuss, understand, practice using and being responsible for the Safety Data Sheet (SDS) for the building trades and construction industry field. Discuss the importance of proper personal hygiene in the classroom and shop. Describe and discuss historical trends, and demonstrate standards regarding proper use of protective equipment to include: <ol style="list-style-type: none"> vests gloves safety glasses hard hat work boots proper use of tools and equipment Practice personal safety when lifting, bending, or moving equipment and supplies. Pass the Safety Test with 100% accuracy. 	<p>Problem Solving & Critical Thinking: 5.1, 5.4</p> <p>Health & Safety: 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.8, 6.9, 6.10, 6.11, 6.12</p> <p>Technical Knowledge & Skills: 10.1, 10.2, 10.5</p> <p>Demonstration & Application: 11.1</p> <p>CTE Pathway: D1.1</p>
<p>C. CONSTRUCTION INDUSTRY OVERVIEW</p> <p>Understand, apply, and evaluate governmental roles, careers, demographics, and organization-union relationships.</p>	<ol style="list-style-type: none"> Discuss the roles of governmental agencies of interest in building trades. Describe the demographics of the construction trade. Describe and research construction careers after apprenticeship and the roles of principal occupations, including: <ol style="list-style-type: none"> journey person careers in each craft union and management leadership roles continuing education responsibilities roles of principal occupations in specific trades Explain the Union's relationship with: <ol style="list-style-type: none"> contractor organizations and their roles collective bargaining processes benefits and obligations of union membership Pass an assessment with an 80% score or higher. 	<p>Career Ready Practice: 1, 2, 3, 4, 5, 11</p> <p>CTE Anchor:</p> <p>Academics: 1.0</p> <p>Communications: 2.1, 2.3, 2.5</p> <p>Career Planning & Management: 3.3, 3.4, 3.6</p> <p>Technology: 4.2, 4.5</p> <p>Problem Solving & Critical Thinking: 5.4</p> <p>Technical Knowledge & Skills: 10.1</p>

(1 hour)		CTE Pathway: D1.1
D. TOOLS AND EQUIPMENT Understand, apply, and evaluate the use, maintenance, and storage techniques.	<ol style="list-style-type: none"> Define, discuss, and demonstrate the proper use, maintenance, and storage techniques for the following specialty tools and equipment: <ol style="list-style-type: none"> brushes rollers paint flammable materials wrenches pipes valves plumbing fixtures pliers cutting tools electrical connectors electrical switches electrical receptacles Understand, explain and demonstrate the following: <ol style="list-style-type: none"> selection of the appropriate hand, power tools, and equipment by job procedures for checking out hand, power tools, and equipment from the tool room the operation of hand and power tools and point out the most common mistakes made when operating power tools. safe use of the most common hand, power tools and equipment in the shop the role and importance of everyone in the workplace regarding tool safety Practice in teams using personal safety when lifting, bending, or moving equipment and supplies. Pass a Tools and Equipment assessment with an 80% score or higher. 	Career Ready Practice: 1, 2, 4, 5, 9, 10 CTE Anchor: Academics: 1.0 Communications: 2.1, 2.3, 2.5 Technology: 4.2 Problem Solving & Critical Thinking: 5.1, 5.3 Health & Safety: 6.2, 6.3, 6.4, 6.5, 6.6 Leadership & Teamwork: 9.7 Technical Knowledge & Skills: 10.1, 10.3 Demonstration & Application: 11.1 CTE Pathway: D1.1
(3 hours)		
E. TRADE MATHEMATICS Understand, apply, and evaluate the	<ol style="list-style-type: none"> Describe the practical applications of math in construction work. Define, describe, and demonstrate problem-solving techniques involving: 	Career Ready Practice: 1, 2, 5, 9, 10

<p>mathematical requirements used in the construction trades.</p> <p>(4 hours)</p>	<ol style="list-style-type: none"> whole number problems multiplication area square footage perimeter linear measurements measuring objects using the tools of the trade using a calculator volume <ol style="list-style-type: none"> Demonstrate and practice in teams the usage of a measuring tape. Pass a Trade Mathematics assessment with an 80% score or higher. 	<p>CTE Anchor:</p> <p>Academics: 1.0</p> <p>Communications: 2.1, 2.3</p> <p>Problem Solving & Critical Thinking: 5.1, 5.2, 5.4</p> <p>Leadership & Teamwork: 9.7</p> <p>Technical Knowledge & Skills: 10.1, 10.3</p> <p>Demonstration & Application: 11.1</p> <p>CTE Pathway: D2.1, D2.3</p>
<p>F. PAINTING FUNDAMENTALS</p> <p>Understand, apply, and evaluate techniques, tools, and materials used for basic painting.</p>	<ol style="list-style-type: none"> Provide an introduction to the painting industry including job descriptions, duties, pay, and related trades. Provide an overview of the history of painting pertaining to residential, commercial, and industrial. Cover the basics of the painting union apprenticeship program. Explain the purpose of surface preparation. Explain the various types of paints and coatings commonly used. Discuss trade tools and equipment and proper maintenance. Estimate material cost and labor of a specific job. 	<p>Career Ready Practice: 1, 2, 4, 5, 9, 10</p> <p>CTE Anchor:</p> <p>Academics: 1.0</p> <p>Communications: 2.1, 2.3, 2.5</p> <p>Technology: 4.1, 4.2</p> <p>Problem Solving & Critical Thinking: 5.1, 5.3</p> <p>Health & Safety:</p>

(20 hours)	<ol style="list-style-type: none"> 8. Define and demonstrate the techniques using safety practices (i.e., lifting, bending, or moving equipment, and supplies) during: <ol style="list-style-type: none"> a. finishing sanding b. using brushes and rollers c. priming and sealing d. applying paint e. staining f. storing flammable materials 9. Define leadership, and identify the responsibilities, competencies, and behaviors of successful leaders. 10. Work in teams for preparation and cleanup on painting projects. 11. Describe Product Safety Data Sheets (PSD). 12. Pass a Painting Fundamentals assessment with an 80% score or higher. 	<p>6.2, 6.4, 6.12 Leadership & Teamwork: 9.1, 9.7 Technical Knowledge & Skills: 10.1, 10.3, 10.5 Demonstration & Application: 11.1</p> <p>CTE Pathway: D1.1, D2.3, D7.1, D7.4, D7.5</p>
<p>G. PLUMBING FUNDAMENTALS</p> <p>Understand, apply, and evaluate techniques, tools, and materials used for basic plumbing and minor repairs.</p>	<ol style="list-style-type: none"> 1. Provide an introduction to the plumbing industry including job descriptions, duties, pay, and related trades. 2. Cover the basics on the plumbers/fitters/fire sprinkler apprenticeship programs. 3. Describe the safety issues specific to plumbing. 4. Define and identify the following trade tools and equipment and their proper maintenance: <ol style="list-style-type: none"> a. wrenches used in plumbing repair b. pipes c. valves d. plumbing fixtures 5. Describe and demonstrate the uses for different types of sizes of pipes. 6. Demonstrate the proper technique in threading a pipe to include: <ol style="list-style-type: none"> a. perform pressure test b. install angle stops c. install plumbing fixtures 7. Describe and demonstrate the techniques for repairing and/or replacing various types of pipes. 8. Estimate material cost and labor of a specific job. 9. Create teams to install pipefitting projects to include: 	<p>Career Ready Practice: 1, 2, 4, 5, 9, 10</p> <p>CTE Anchor: Academics: 1.0 Communications: 2.1, 2.3, 2.5 Technology: 4.1, 4.2 Problem Solving & Critical Thinking: 5.1, 5.2, 5.3, 5.4 Health & Safety: 6.2, 6.12 Leadership & Teamwork: 9.7 Technical Knowledge & Skills: 10.1, 10.3, 10.5</p>

(20 hours)	<ul style="list-style-type: none"> a. ask signification questions when solving problems b. use various types of reasoning as appropriate c. analyze how various components interact d. interpret information and draw conclusions to make informed decisions <p>10. Pass a Plumbing Fundamentals assessment with an 80% score or higher.</p>	<p>Demonstration & Application: 11.1</p> <p>CTE Pathway: D1.1, D2.3, D10.3, D10.8, D10.9</p>
<p>H. ELECTRICAL FUNDAMENTALS</p> <p>Understand, apply, and evaluate techniques, tools, and materials used for electrical fundamentals.</p>	<ul style="list-style-type: none"> 1. Provide an introduction to the electrical industry including job descriptions, duties, pay, and related trades. 2. Cover the basics of the electrical union apprenticeship program. 3. Provide a brief history of electrical usage, types of drawings, and changes in industry. 4. Identify and describe the safe usage of electrical tools. 5. Describe safety issues specific to the wiring system. 6. Define, identify, describe, and demonstrate the different types of: <ul style="list-style-type: none"> a. pliers used in electrical repair b. cutting tools c. electrical connectors d. electrical switches e. electrical receptacles 7. Differentiate between the use of conduit and non-metallic sheathed cables. 8. Describe the functions of main switches, circuit breakers, and fuses. 9. Work in teams in preparation of electrical boards to include: <ul style="list-style-type: none"> a. solving predictable and unpredictable problems b. analyzing how various components interact 10. Describe and demonstrate the techniques for wiring a receptacle, a switch, and light fixtures. 11. Describe electrical troubleshooting techniques. 	<p>Career Ready Practice: 1, 2, 4, 5, 9, 10</p> <p>CTE Anchor: Academics: 1.0 Communications: 2.1, 2.3, 2.5 Technology: 4.1, 4.2 Problem Solving & Critical Thinking: 5.2, 5.3 Health & Safety: 6.6, 6.12 Leadership & Teamwork: 9.7 Technical Knowledge & Skills: 10.1, 10.3, 10.5 Demonstration & Application: 11.1</p> <p>CTE Pathway:</p>

(20 hours)	12. Differentiate between main panel and sub panel. 13. Pass an Electrical Fundamentals assessment with an 80% score or higher.	D1.1, D3.3, D11.1, D11.6, D11.7, D11.9, D11.11
<p>I. EMPLOYABILITY SKILLS, RESUME & INTERVIEW INTRODUCTION</p> <p>Understand, apply, and evaluate the employability skills, résumé, and interview introduction.</p>	1. Understand and define employer's requirements for soft skills and form teams to discuss: <ul style="list-style-type: none"> a. attitude toward work b. communication and collaboration c. critical thinking, problem solving, and decision-making d. customer service e. flexibility and adaptability f. interpersonal skills g. leadership and responsibility h. punctuality and attendance i. quality of work j. respect, cultural and diversity differences k. teamwork l. time management m. trust and ethical behavior n. work ethics o. motivation p. code of conduct 2. Discuss how a career plan reflects career interests, pathways, and post-secondary options.	<p>Career Ready Practice:</p> <p>1, 2, 3, 4, 5, 7, 8, 9, 10, 11</p> <p>CTE Anchor:</p> <p>Academics: 1.0</p> <p>Communications: 2.1, 2.3, 2.5</p> <p>Career Planning & Management: 3.2, 3.3, 3.6, 3.8,</p> <p>Technology: 4.1, 4.2</p> <p>Problem Solving & Critical Thinking: 5.1, 5.4</p> <p>Responsibility & Flexibility: 7.2, 7.3, 7.4, 7.7</p> <p>Ethics & Legal Responsibilities: 8.4, 8.5</p> <p>Leadership & Teamwork: 9.1, 9.2, 9.3, 9.4, 9.6, 9.7</p> <p>Technical Knowledge & Skills: 10.1, 10.3</p> <p>Demonstration & Application: 11.1, 11.2</p>
	3. Review samples of a résumé, cover letter, and/or portfolio.	
	4. Discuss and demonstrate the role of online job searching platforms and career websites to make informed decisions.	
	5. Understand the importance of assessing social media account content for professionalism.	
	6. Explain the importance of interviews to include: <ul style="list-style-type: none"> a. Interview process b. the application and hiring process 	

(7 hours)	<ul style="list-style-type: none"> c. expectations d. response to interview questions e. positive body language and non-verbal behavior f. interview questions that may not be legal g. interview dress attire <p>7. Understand the importance of the continuous upgrading of job skills as it relates to:</p> <ul style="list-style-type: none"> a. certification, licensure, and/or renewal b. professional organizations/events c. industry associations and/or organized labor 	CTE Pathway: D1.1
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ACKNOWLEDGEMENTS

Thanks to the following individuals for their contributions in developing and editing this curriculum:

Ana Martinez, Ben Garcia, Sharell Matthews

Approved by: Renny L. Neyra, Executive Director