

Newport-Mesa Unified School District
Office of Secondary Curriculum and Instruction
High School Course of Study

Course Title	<i>Construction Technology II AB Re-Write</i>	Course Code	<i>IT370-371</i>
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Transcript Title:	Constr Tech II		Grades Levels:	9-12	Board Adoption Date:	
Content Area:	CTE – Construction		GPA Scale:	4.00	Date Course Submitted:	3/29/18
Credential Required:	CTE	Graduation Subject Areas:		Applied Skill/Electives		
UC/CSU “A-G” Area Approvals:		No		School Site/person that wrote and submitted the course:	Mike Rafferty	
Recommend Skills:						
Next course(s):	Construction Technology III					

Construction Technology II

DATE: July 31, 2017

INDUSTRY SECTOR: Building and Construction Trades

PATHWAY: Residential and Commercial Construction (123)

CBEDS TITLE: Introduction to Residential and Commercial Construction

CBEDS Code: 7340

HOURS:

Total	Classroom	Laboratory/CC/CVE
180	60 hours	120 hours

JOB TITLE	ONET CODES	JOB TITLE	ONET CODES
First line Supervisor	47-1011.00	Electrician	47-2111.00
Construction Carpenters	47-1011.00	Plumber	47-2152.02
Repair Maintenance	49-9071.00	Energy Engineer	17-2199.03

COURSE DESCRIPTION: Construction II is an instructional program that prepares an individual for employment or continued education in the occupations of Carpentry. The course will include a continuation of the carpentry skills and techniques from Construction Technology I with added introductory components of electrical wiring, masonry, and plumbing. The standards focus on the manner in which residential and commercial structures are designed and built. The pathway includes instruction in the way in which these structures are built (Class B California License).

PREREQUISITES:

High School Name:	Site Prerequisite:
Estancia High School	Construction I

A – G APPROVAL: ☐ Yes ☒ No ☐ Desired

ARTICULATION:

High School Name:	College Name:	College Course Title:
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Estancia High School	N/A	
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LEVEL: ☒ Introductory ☐ Concentrator ☐ Capstone

CERTIFICATION:

High School Name:	Embedded/Leads to:	Description:
Estancia	Employment eligibility	NCCER, OSHA

METHOD OF STUDENT EVALUATION:

- ✓ Pre and Post test
- ✓ Student Projects
- ✓ Written work
- ✓ Observation record of student performance
- ✓ Completion of assignments and worksheets

METHOD OF INSTRUCTION:

- ✓ Lecture
- ✓ Group and individual applied projects
- ✓ Demonstration
- ✓ Field Trips
- ✓ Guest Speaker

RECOMMENDED TEXTS:

- 1) NCCER Core Curriculum: Introductory Craft Skills
ISBN: 97-0-13-412143-6; Fifth edition, 2015.
- 2) NCCER Construction Technology
ISBN: 978-0-13-413039-2; Fourth Edition, 2016.

CALIFORNIA CAREER TECHNICAL EDUCATION MODEL CURRICULUM STANDARDS

California Department of Education CTE Standards website:

<http://www.cde.ca.gov/ci/ct/sf/ctemcstandards.asp>

**Building and Construction Trades
KNOWLEDGE AND PERFORMANCE ANCHOR STANDARDS**

1.0 Academics

Analyze and apply appropriate academic standards required for successful industry sector pathway completion leading to postsecondary education and employment. Refer to the Building and Construction Trades academic alignment matrix for identification of standards.

2.0 Communications

Acquire and accurately use Building and Construction Trades sector terminology and protocols at the career and college readiness level for communicating effectively in oral, written, and multimedia formats. (Direct alignment with LS 9-10, 11-12.6)

- 2.1 Recognize the elements of communication using a sender–receiver model.
- 2.2 Identify barriers to accurate and appropriate communication.
- 2.3 Interpret verbal and nonverbal communications and respond appropriately.
- 2.4 Demonstrate elements of written and electronic communication such as accurate spelling, grammar, and format.
- 2.5 Communicate information and ideas effectively to multiple audiences using a variety of media and formats.
- 2.6 Advocate and practice safe, legal, and responsible use of digital media information and communications technologies.

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. (Direct alignment with SLS 11-12.2)

- 3.1 Identify personal interests, aptitudes, information, and skills necessary for informed career decision making.
- 3.2 Evaluate personal character traits such as trust, respect, and responsibility and understand the impact they can have on career success.
- 3.3 Explore how information and communication technologies are used in career planning and decision making.
- 3.4 Research the scope of career opportunities available and the requirements for education, training, certification, and licensure.
- 3.5 Integrate changing employment trends, societal needs, and economic conditions into career planning.
- 3.6 Recognize the role and function of professional organizations, industry associations, and organized labor in a productive society.
- 3.7 Recognize the importance of small business in the California and global economies.
- 3.8 Understand how digital media are used by potential employers and postsecondary agencies to evaluate candidates.
- 3.9 Develop a career plan that reflects career interests, pathways, and postsecondary options.

4.0 Technology

Use existing and emerging technology to investigate, research, and produce products and services, including new information, as required in the Building and Construction Trades sector workplace environment. (Direct alignment with WS 11-12.6)

- 4.1 Use electronic reference materials to gather information and produce products and services.
- 4.2 Employ Web-based communications responsibly and effectively to explore complex systems and issues.

4.3 Use information and communication technologies to synthesize, summarize, compare, and contrast information from multiple sources.

4.4 Discern the quality and value of information collected using digital technologies, and recognize bias and intent of the associated sources.

4.5 Research past, present, and projected technological advances as they impact a particular pathway.

4.6 Assess the value of various information and communication technologies to interact with constituent populations as part of a search of the current literature or in relation to the information task.

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 Building and Construction Trades sector using critical and creative thinking, logical reasoning, analysis, inquiry, and problem-solving techniques. (Direct alignment with WS 11-12.7)

5.1 Identify and ask significant questions that clarify various points of view to solve problems.

5.2 Solve predictable and unpredictable work-related problems using various types of reasoning (inductive, deductive) as appropriate.

5.3 Use systems thinking to analyze how various components interact with each other to produce outcomes in a complex work environment.

5.4 Interpret information and draw conclusions, based on the best analysis, to make informed decisions.

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 Building and Construction Trades sector workplace environment. (Direct alignment with RSTS 9-10, 11-12.4)

6.1 Interpret policies, procedures, and regulations for the workplace environment, including employer and employee responsibilities.

6.2 Use health and safety practices for storing, cleaning, and maintaining tools, equipment, and supplies.

6.3 Set up a work area, or shop, to avoid potential health concerns and safety hazards, including but not limited to electrical (shock), wires (tripping), fumes (lung health), noise (hearing loss), fire (burns), and so forth, incorporating ergonomics.

6.4 Practice personal safety when lifting, bending, or moving equipment and supplies.

6.5 Demonstrate how to prevent and respond to work-related accidents or injuries; this includes demonstrating an understanding of ergonomics.

6.6 Maintain a safe and healthful working environment.

6.7 Be informed of laws/acts pertaining to the Occupational Safety and Health Administration (OSHA).

6.8 Report hazards found on the job site to supervisor/teacher.

6.9 Locate, and adhere to, Material Safety Data Sheet (MSDS) instructions.

6.10 Maintain proper use of safety apparel at all times, including but not limited to, eye protection, hearing protection, skin protection, head protection, footwear and protection from airborne particulate matter.

6.11 Comply with the safe handling, storage and disposal of chemicals, materials and adhesives in accordance with local, state, and federal safety and environmental regulations (OSHA, Environmental

Protection Agency [EPA], Hazard Communication [HazCom], Material Safety Data Sheets [MSDS], etc.).

6.12 Demonstrate the proper care and safe use of hand, portable and stationary power tools.

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 Building and Construction Trades sector workplace environment and community settings. (Direct alignment with SLS 9-10, 11-12.1)

7.1 Recognize how financial management impacts the economy, workforce, and community.

7.2 Explain the importance of accountability and responsibility in fulfilling personal, community, and workplace roles.

7.3 Understand the need to adapt to changing and varied roles and responsibilities.

7.4 Practice time management and efficiency to fulfill responsibilities.

7.5 Apply high-quality techniques to product or presentation design and development.

7.6 Demonstrate knowledge and practice of responsible financial management.

7.7 Demonstrate the qualities and behaviors that constitute a positive and professional work demeanor, including appropriate attire for the profession.

7.8 Explore issues of global significance and document the impact on the Building and Construction Trades sector.

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. (Direct alignment with SLS 11-12.1d)

8.1 Access, analyze, and implement quality assurance standards of practice.

8.2 Identify local, district, state, and federal regulatory agencies, entities, laws, and regulations related to the Building and Construction Trades industry sector.

8.3 Demonstrate ethical and legal practices consistent with Building and Construction Trades sector workplace standards.

8.4 Explain the importance of personal integrity, confidentiality, and ethical behavior in the workplace.

8.5 Analyze organizational culture and practices within the workplace environment.

8.6 Adhere to copyright and intellectual property laws and regulations, and use and appropriately cite proprietary information.

8.7 Conform to rules and regulations regarding sharing of confidential information, as determined by Building and Construction Trades sector laws and practices.

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 as practiced in the SkillsUSA career technical student organization. (Direct alignment with SLS 11-12.1b)

9.1 Define leadership and identify the responsibilities, competencies, and behaviors of successful leaders.

9.2 Identify the characteristics of successful teams, including leadership, cooperation, collaboration, and effective decision-making skills as applied in groups, teams, and career technical student organization activities.

9.3 Understand the characteristics and benefits of teamwork, leadership, and citizenship in the school, community, and workplace setting.

9.4 Explain how professional associations and organizations and associated leadership development and competitive career development activities enhance academic preparation, promote career choices, and contribute to employment opportunities.

9.5 Understand that the modern world is an international community and requires an expanded global view.

9.6 Respect individual and cultural differences and recognize the importance of diversity in the workplace.

9.7 Participate in interactive teamwork to solve real Building and Construction Trades sector issues and problems.

10.0 Technical Knowledge and Skills

Apply essential technical knowledge and skills common to all pathways in the Building and Construction Trades sector, following procedures when carrying out experiments or performing technical tasks. (Direct alignment with WS 11-12.6)

10.1 Interpret and explain terminology and practices specific to the Building and Construction Trades sector.

10.2 Comply with the rules, regulations, and expectations of all aspects of the Building and Construction Trades sector.

10.3 Construct projects and products specific to the Building and Construction Trades sector requirements and expectations.

10.4 Collaborate with industry experts for specific technical knowledge and skills.

10.5 Demonstrate the basic care, proper maintenance, and use of hand, portable, and stationary tools related to the Building and Construction trades.

11.0 Demonstration and Application

Demonstrate and apply the knowledge and skills contained in the Building and Construction Trades anchor standards, pathway standards, and performance indicators in classroom, laboratory, and workplace settings, and through the career technical student organizations.

11.1 Utilize work-based/workplace learning experiences to demonstrate and expand upon knowledge and skills gained during classroom instruction and laboratory practices specific to the Building and Construction Trades sector program of study.

11.2 Demonstrate proficiency in a career technical pathway that leads to certification, licensure, and/or continued learning at the postsecondary level.

11.3 Demonstrate entrepreneurship skills and knowledge of self-employment options and innovative ventures.

11.4 Employ entrepreneurial practices and behaviors appropriate to Building and Construction Trades sector opportunities.

11.5 Create a portfolio, or similar collection of work, that offers evidence through assessment and evaluation of

skills and knowledge competency as contained in the anchor standards, pathway standards, and performance indicators.

I.	Introduction to Construction II Review Construction I	CR	LAB/ CC	STANDARDS
	A. Rules and Regulations B. Shop Tour - Emergency Waste - Fire Extinguishers - Chemicals Storage - Tools Storage - Machine Location	5		Academic: LS 11-12.6 RSIT 11.12.2 WS 11-12.7 AD 12.7 CC 3 SEP 8 CTE Anchor: 1.0 6.0 8.0 CTE Pathway: D1.3 D7.0 D8.0
II.	Safety	CR	LAB/ CC	STANDARDS
	All Students will Pass a written and multiple choice Safety test that cover the followings topics - Accident Causes - Good Housekeeping - OSHA regulations - Hazard Recognition - Job Safety Analysis (JSA) - Task Safety Analysis(TSA) - Electrical Hazards - Protective Clothing and Gear - Job Site Hazards	10		Academic: LS 11-12.6 RSIT 11.12.2 WS 11-12.7 AD 12.7 CC 3 SEP 8 CTE Anchor: 1.0 6.0 11.0 CTE Pathway: D1.3 D6.0
III.	Blueprint reading	CR	LAB/ CC	STANDARDS
	A Students are required to draw out a complete floor plan of a residential home and diagram the following systems. 1, Weight Bearing Walls and wet walls	10		Academic: LS 11-12.6 WHSST 11-12.7 RLST 11-12.3

	2. Window and door schedules 3 Plumbing System 4 Electrical Circuits and Outlet 5 HVAC Duct or Heating System 6 . Basic Roof layout B Students will Calculate psi , pressure, rise and fall, and basic Electrical Loads			A-CED 1.1 (CA Standard Alg II 11.2) G-SRT 8.1 CC 3 SEP 1, 4, 8 CTE Anchor: 1.0 2.0 5.0 10.0 11.0 CTE Pathway: D2.0 D2,9 D2.1 D3.0
IV	Carpentry. - Wall framing	CR	LAB/ CC	STANDARDS
	I. Students are to follow the blueprint from Unit III a perform the following activities safely and Accurately A. Properly Select Wood Stock for job B. Cut Boards to length with miter saw C. Layout Walls , Window and Doors D. Nail Walls together and identify 1. Bottom Plate 2. Top Plate 3. King Studs 4 .Header/s 5. Rough Sill 6. Cripple Studs 7. Trimmer Studs 8.Jack Studs E. Work in groups to "raise " Walls safely and Accurately F. Select and build a roof truss.	5	40	Academic: LS 11-12.6 RLST 11-12.3, 11-12.7 A-CED 1.1 (CA Standard Algebra II 11.2) G-SRT 8.1 CC 3 CTE Anchor: 1.0 2.0 4.0 5.0 6.0 9.0 11.0 CTE Pathway: D2.0 D6.0
V.	Plumbing	CR	LAB/ CC	STANDARDS
	Students are to complete the following Plumbing Tasks using task appropriate hand and power tools	5	40	Academic: LS 11-12.6

	A. From a Blueprint prepare Drain, Vent and Intake system for plumbing system. Locate Sinks , Toilet, Water Heaters, Bathtubs, Showers and Sewer Drain B. Pipe identification PVC ABS PEX Copper, CPVC C. Measure , Layout and Cut ABS Pipes for Draining System D. Measure, Layout and cut cold and hot water feed to house E. Install a sink, Lines and Faucet F. Install a Toilet G. Calculate rise and fall of drainage and waste system			RLST 11-12.2 11-12.3 11-12.7 A-CED 1.1 (CA Standard Algebra II 11.2) G-SRT 8.1 CC 3 CTE Anchor: 1.0 2.0 4.0 5.0 6.0 11.0 CTE Pathway: D2.7 D6.0, D6.1, D6.2 D6.4 D6.5 D10.0 D10.2 D10.3 D10.8 D10.9
VI.	Electrical.	CR	LAB/ CC	STANDARDS
	I. Using the Blueprint from Unit III, students are to complete the following tasks within an accuracy of 98% A. Establish outlet , switch and light locations on floor plan B. Install Panel C. Establish Multiple outlet circuits and Designated ones D. Establish AFCI arc fault circuit interrupt E. Establish GFCI arc fault circuit interrupt F. Install designated Romex 4/3 3/2 G. Select and install proper larger gauge circuits H. Student will wire an outlet, a switch and lights I. Student will wire the complete panel	5	40	Academic: LS 11-12.6 RLST 11-12.2 11-12.3 11-12.7 A-CED 1.1 (CA Standard Alg II 11.2) G-SRT 8.1 CC 3 CTE Anchor: 1.0 2.0 4.0 5.0 6.0 11.0 CTE Pathway: D2.0 D2.1 D2.2 D6.0 D6.1 D6.2

				D6.3 D6.4 D6.7 D6.9
VII	INDUSTRY STANDARD CODES	CR	Lab	STANDARDS
	I. Through lecture and demonstration students will display acquisition of modern building codes II. Through problem identification in the lab students will learn to act as an inspector identifying issues and better understanding the purpose of building codes III. Students complete a written exams identifying building Codes for the entire building process.	10	5	Academic: LS 11-12.6 RSIT 11.12.2 WS 11-12.7 AD 12.7 CC 3 SEP 8 CTE Anchor: 5.0 6.0 8.0 10.0 11.0 CTE Pathway: D1.3 D6.0
VII.	EMPLOYMENT PORTFOLIO	CR	LAB/ CC	STANDARDS
	I. Students will prepare an update to their professional portfolio started in Construction 1. A. Portfolio showcases best professional level work B. Portfolio is organized C. Job application D. Resume E. References	5		Academic: LS11-12.6 RSIT 11-12.6 RLST 11-12.7 WS 11-12.7 WHSST 11-12.7 PE 12.1 CTE Anchor: 1.0 2.0 3.0 110 CTE Pathway: D1.3 D7.0, D8.0