

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

Course Title	<i>Construction Technology IV</i>	Course Code	<i>IT394-IT395</i>
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Transcript Title:	<i>Constr Tech 4</i>	Grades Levels:	<i>12</i>	Board Adoption Date:	<i>05/22/18</i>
Content Area:	CTE – Construction	GPA Scale:	<i>4.00</i>	Date Course Submitted:	<i>3/29/18</i>
Credential Required:	<i>CTE</i>	Graduation Subject Areas:	<i>Applied Skill</i>	<i>Electives</i>	
UC/CSU "A-G" Area Approvals:	<i>No</i>		School Site/person that wrote and submitted the course:	<i>Mike Rafferty</i>	
Recommend Skills:	<i>Pre-Requisite = Construction Technology III</i>				
Next course(s):					

Construction Technology IV

DATE: January 5, 2018

INDUSTRY SECTOR: Building and Construction Trades

PATHWAY: Residential and Commercial Construction (123)

CBEDS TITLE: Advanced Residential and Commercial Construction (Capstone)

CBEDS Code: 7342

HOURS:

Total	Classroom	Laboratory/CC/CVE
180	85	95

JOB TITLE	ONET CODES	JOB TITLE	ONET CODES
Carpenters	47-2031.00	Construction Laborers	47-2061.00
Construction Carpenters	47-1011.00	Construction and Related Workers, All Other	47-4099.00
Repair Maintenance	49-9071.00	Helpers--Carpenters	47-3012.00

COURSE DESCRIPTION:

Construction IV course will employ the skills learned in previous courses such as interpreting technical drawings, mathematical calculations, layout, and fabrication. Students will learn some of the more refined aspects of wood-based construction, primarily cabinetmaking. Other advanced skills learned in this course will be the manufacturing and installation of baseboard, wainscot, chair rail, crown molding, and other various interior installation details. This will be the capstone class where students will be able to employ the skills they have accumulated from the previous levels and complete their competency in basic carpentry and other closely associated work.

PREREQUISITES:

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

A – G APPROVAL: ☐ Yes ☒ No ☐ Desired

ARTICULATION: (PROPOSED/IN PROCESS)

High School Name:	College Name:	College Course Title:
Estancia High School	Orange Coast College	Construction 114

COURSE LEVEL: **Introductory** **Concentrator** **X** **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 Cabinetmaking**
ISBN: 978-0-13-4428857-4; Third Edition, 2015.

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.

CR = Classroom LAB/CC = Laboratory/Shop/Community Classroom

I.	Introduction to Construction IV Review Construction I, II, and III	CR	LAB/ CC	STANDARDS
	A. Rules and Regulations B. Shop Tour 1. Emergency Waste 2. Fire Extinguishers 3. Chemicals Storage 4. Tools Storage 5. Machine Location	5	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 A. Accident Causes B. Good Housekeeping C. OSHA regulations D. Hazard Recognition E. Job Safety Analysis (JSA) F. Task Safety Analysis(TSA) G. Electrical Hazards H. Protective Clothing and Gear I. Job Site Hazards	40	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.	CABINET WOODS	CR	LAB/ CC	STANDARDS
	In alignment with NCCER curriculum standards, students will	5	5	Academic: LS 11-12.6

	have the ability to: 1. Identify and describe the types of wood commonly used to construct cabinets. 2. Identify and describe solid woods 3. Identify and describe various types of plywood. 4. Identify and describe particleboard.			RSIT 11-12.2 WHSST 11-12.7, 12.9 RLST 11-12.2, 12.3, 12.4 CC 3 SEP 1, 4, 8 ETS 1.A, 1.B, CTE Anchor: 3.5, 3.6 4.4 5.4 7.2, 7.3, 7.6 8.1, 8.4 CTE Pathway: D1.1, 1.2, D2.3, 2.1
IV	SHOP TOOLS IN CABINETMAKING	CR	LAB/ CC	STANDARDS
	In alignment with NCCER standards, students will have the ability to: 1. Identify and describe the safe use of various cabinetmaking power tools. 2. Identify and describe the safe use of various types of saws. 3. Identify and describe the safe use of jointers, planers, shapers, and routers. 4. Identify and describe the safe use of sanders, drill presses, and brad guns.	10	5	Academic: LS 11-12.6 RSIT 11-12.2 WHSST 11-12.7, 12.9 RLST 11-12.2, 12.3, 12.4 CC 3 SEP 1, 4, 8 ETS 1.A, 1.B, CTE Anchor: 2.3 3.2 5.0 6.0 7.2 8.4 9.3 10.4, 10.5 CTE Pathway: D1.1, 1.2
V.	CABINET CONSTRUCTION FEATURES AND HARDWARE	CR	LAB/ CC	STANDARDS
	In alignment with NCCER standards, students will have the ability to: 1. Identify and describe joints and other construction	10	10	Academic: LS 11-12.6 RSIT 11-12.2 WHSST 11-12.7, 12.9

	features of cabinet components and their related hardware and fasteners. - Identify and describe the common wood joints used in cabinetmaking. - Identify and describe the construction features of cabinet doors, drawers, and shelves. - Identify and describe various types of cabinet hardware and fasteners.			RLST 11-12.2, 12.3, 12.4 F-TF 1.1 (CA Standard Trig 1.0) G-SRT 8.1 CC 3 SEP 1, 4, 8 ETS 1.A, 1.B, CTE Anchor: 2.3 4.1, 4.3, 5.0 6.0 9.2, 9.3 10.3, 10.5 11.1 CTE Pathway: D1.1, 1.2 D2.3 D3.5
VI.	CABINET ASSEMBLY AND FINISHING	CR	LAB/ CC	STANDARDS
	In alignment with NCCER standards, students will have the ability to: - Describe how to assemble, sand, and finish cabinets. - Describe the process of cabinet assembly. - Describe how to properly sand cabinets. - Describe how to apply sealers, wood fillers, and stains.	10	50	Academic: LS 11-12.6 RSIT 11-12.2 WHSST 11-12.7, 12.9 RLST 11-12.2, 12.3, 12.4 F-TF 1.1 (CA Standard Trig 1.0) G-SRT 8.1 CC 3 SEP 1, 4, 8 ETS 1.A, 1.B, CTE Anchor: 2.2, 2.3 5.0 6.0 7.3, 7.5, 7.8 8.2, 8.3, 8.4, 9.5 10.1, 10.4, 10.5 CTE Pathway: D1.2, 1.2 D2.1, 2.3 D3.1, 3.3, 3.5 D4.1

VII.	EMPLOYMENT PORTFOLIO	CR	LAB/ CC	STANDARDS
	I. Students will prepare an update to their professional portfolio started in Construction I, II, and III. A. Portfolio showcases best professional level work B. Portfolio is organized C. Job application D. Resume E. References	5	10	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