Subject:	WELD
Course Number:	28
Descriptive Title:	American Welding Society (AWS) D1.1 Certification Test Preparation
Division:	Industry and Technology
Department:	Welding
Course Disciplines:	Welding
Catalog Description:	This course prepares the student to pass the written examination of the Los Angeles City Department of Building and Safety Structural Steel American Welding Society (AWS) D1.1 examination. Both the midterm and final examinations will be administered under same testing conditions as the actual Los Angeles City written exam. Note: Letter grade or pass/no pass option.
Prerequisite:	Welding 10C or Welding 23 with a minimum grade of C in prerequisite or equivalent
Co-requisite:	
Recommended Preparation:	
Enrollment Limitation:	
Hours Lecture (per week):	3
Hours Laboratory (per week):	0
Outside Study Hours:	6
Total Hours:	54
Course Units:	3
Grading Method:	Letter Grade and Pass/No Pass
Credit Status:	Credit, degree applicable
Transfer CSU:	Yes
Effective Date:	03/13/2012
Transfer UC:	No
Effective Date:	
General Education: ECC	
Term:	
Other:	
CSU GE:	
Term:	
Other:	
IGETC:	
Term:	

Other:	
Student Learning Outcomes:	**SLO #1 Preparing for Certification Exams** Students will be able to locate and use charts, index and table of contents to answer open book questions to prepare for the exam. **SLO #2 D1.1 Written Exam Prep** At the completion of this course, students will be prepared to take the written exam for their LA City D1.1 Structural Steel certification. **SLO #3 Welding Procedure Specifications** Capability to process Welding Procedure Specifications (WPS), which provides direction to the welder or welding operators for making sound and quality production welds as per the code.
Course Objectives:	1. Demonstrate critical thinking to document source of answer by organizing background and code information for D1.1 examination. 2. Organize code book with tabs and highlighting. Assemble notes in code book and formulate plan for testing. 3. Using the code book, identify important tables and figures related to AWS structural steel. Distinguish differences between filler metals and evaluate joint configurations and required filler metal strength level. 4. Analyze welding codes and welding procedure specifications in the AWS structural steel code book. Assess weld defects, examine base metal chemistry and describe differences. 5. Arrange code book using index and table of contents to organize general categories. 6. Examine general requirements, evaluate questions to recognize welding reference points on joints, fit-up and acceptable electrodes. 7. Estimate allowable time to answer weld related questions using practice exams under timed conditions.
Major Topics	**I. D1.1 CERTIFICATION TEST PREPARATION OVERVIEW (2 hours, lecture)** A. Certified welder application B. Overview of City of Los Angeles Building and Safety (LADBS) open and closed book exams **II. GENERAL REQUIREMENTS OF THE D1.1 STRUCTURAL STEEL CODE BOOK EXAMS (8 hours, lecture)** A. Closed Book - 30 questions B. Open Book - 20 Questions **III. STRUCTURAL WELDING CODE INSTITUTES AND SOCIETIES (10 hours, lecture)** A. Base metal/filler metals classifications and

	specifications B. Joint configurations C. Approved process for prequalified Work Procedure Specifications (WPS) **IV. ELECTRODE SPECIFICATIONS AND PREQUALIFIED WPS REQUIREMENTS (7 hours, lecture)** A. Variables in electrode standard designation numbers, size, positions and current types according to AWS B. Classification of electrodes, Shielded Metal Arc Welding (SMAW), Gas Tungsten Arc Welding (GMAW), Society of Automotive Engineers (SAE), Flux Core Arc Welding (FCAW) **V. WELDING AND NON-DESTRUCTIVE TESTING SYMBOLS (10 hours, lecture)** A. Symbol identification standards found in AWS A2.4 B. Inspection Procedure Quality Requirement (PQR) variables **VI. PREQUALIFIED WPSs (7 hours, lecture)** A. Complete Joint Penetration (CJP) B. Partial Joint Penetration (PJP) **VII. AWS D1.1 CODE BOOK PREPARATION (10 hours, lecture)** A. Formulating plan for testing B. Tab, section and notation of code book to prepare for examination
Total Lecture Hours:	54
Total Laboratory Hours:	0
Total Hours:	54
Primary Method of Evaluation	Problem solving
Typical Assignment Using Primary Method of Evaluation:	In an open book format, assess the correct criteria needed to answer prequalified weld procedure specifications to distinguish what section or table will have the correct answer. A timed test will be given to navigate through 534 pages.

Critical Thinking Assignment 1:	Given a question regarding the design of weld connections, analyze whether it's a tubular or nontubular member, statically or cyclically loaded and what is the allowable stress. Find the correct chart within the D1.1 Structural Steel Code Book and document the location on an answer sheet and submit to the instructor.
Critical Thinking Assignment 2:	Given a question regarding electrode classification in the SMAW (Shielded Metal Arc Welding), pre-qualified for an ASTM A 53 base metal with minimum yield strength of 35KSI, find the appropriate electrode that meets the filler metal requirement. Analyze the question and use problem solving techniques, studying charts, tables or code specifications and document your findings on an answer sheet. Submit answer sheet to the instructor.
Other Evaluation Methods:	Class Performance Objective Exam Quizzes Written Homework
Instructional Methods:	Demonstration Discussion Lecture Other (specify), Role play/simulation
If other:	
Work Outside of Class:	Answer questions Observation of or participation in an activity related to course content (such as theatre event, museum, concert, debate, meeting) Problem solving activity
If Other:	
Up-To-Date Representative Textbooks:	American Welding Society, AWS D1.1 Structural Welding Code - Steel 24th edition, American Welding Society, 2020
Alternative Textbooks:	
Required Supplementary Readings:	
Other Required Materials:	
Requisite:	Prerequisite
Category:	sequential
Requisite course(s): List both prerequisites and corequisites in this box.	Welding 10C or Welding 23
Requisite and Matching skill(s):Bold the requisite skill. List the corresponding course objective under each skill(s).	**Ability to correctly use welding equipment.** WELD 10C -Set up and use various welding and cutting apparatus. WELD 10C - Correctly set up and use a constant current welding machine SMAW or constant voltage welding machine FCAW. WELD 10C - Operate welding equipment properly and safely. WELD 23 -Utilize safety procedures for safe operation of tools, machines and welding

	equipment found in a welding facility. WELD 23 - Utilize safety procedures for safe operation of tools, machines and welding equipment found in a welding facility**.** **Ability to select the proper current and electrode to be used for a welding procedure.** WELD 10C - Identify proper electrodes for material and joint fit up. WELD 23 - Select the proper current, polarity setting, and manipulation techniques for any given electrode.
Requisite:	or equivalent If students have taken the equivalent courses at another college or have advanced Shielded Metal Arc Welding (SMAW) skills, they are prepared to enroll in this course. Students must have advanced SMAW skills to succeed in this course.
Requisite and Matching Skill(s): Bold the requisite skill(s). If applicable	
Requisite course:	
Requisite and Matching skill(s):Bold the requisite skill. List the corresponding course objective under each skill(s).	
Requisite:	
Requisite and Matching skill(s): Bold the requisite skill. List the corresponding course objective under each skill(s). If applicable	
Enrollment Limitations and Category:	
Enrollment Limitations Impact:	
Course Created by:	Renee Newell
Date:	10/11/2011
Original Board Approval Date:	
Last Reviewed and/or Revised by:	Renee Newell
Date:	05/18/2021