

CEST 65 – Public Works Plans & Estimating

Instructor: Ian Carpenter, PE

Email: icarpenter@santarosa.edu

Lecture Location: Online (Zoom)

Lecture Time: Mondays, 6:00PM – 9:00PM

Live Lectures Zoom Meeting Link: <https://santarosa-edu.zoom.us/j/88622817210>

Office Hours: Monday, 9:00 PM – 9:30 PM, or as individually scheduled

Office Hours Zoom Link: <https://santarosa-edu.zoom.us/j/4154926181>

Course Web Page (Canvas Modules): [\\$CANVAS COURSE REFERENCE\\$/modules](#)

Student Rights and Responsibilities: <https://rightsresponsibilities.santarosa.edu/>

Student Conduct Expectations: <https://student-conduct.santarosa.edu/>

Text and Required Supplies:

- *Standard Specifications 2023*, State of California, Department of Transportation
 - Available for download on the Canvas course website (Module 1)
 - https://dot.ca.gov/-/media/dot-media/programs/design/documents/2023_stdspecs-a11y.pdf
- *Standard Plans 2023*, State of California, Department of Transportation
 - Available for download on the Canvas course website (Module 1)
 - <https://dot.ca.gov/-/media/dot-media/programs/design/documents/locked-2023-std-plans-dor-a11y.pdf>
- Scientific-Engineering Calculator (consistent with NCEES calculator requirements)
- Engineer Scale
- Three-ringed binder for class notes and assignments (optional)

Additional Text Resources:

- *Construction Manual 2023*, State of California, Department of Transportation (Caltrans) available online and available for download on the Canvas course website (Module 1)
 - <https://dot.ca.gov/-/media/dot-media/programs/construction/documents/policies-procedures-publications/construction-manual/cmsearchabledoc.pdf>

Student Learning Outcomes:

Upon completion of this course, students will be able to:

1. Read and interpret contract plans, specifications and standards.
2. Prepare public works bid documents, records and reports.
3. Prepare appropriate diagrams and reports for the layout, construction and maintenance of public works projects.

Objectives:

Upon completion of this course, the student will be able to:

1. Determine take off quantities from engineering drawings.
2. Determine time, labor and materials needed to construct public works projects.
3. Prepare layout documents to maintain and rehabilitate public works projects.
4. Calculate slope, grade and location of engineering features on public works projects.
5. Identify and describe proper safety procedures on a construction site.

Attendance:

- Lecture material will be delivered live during the class time of Mondays from 6:00 PM to 9:00 PM.
- Students are expected to attend live lectures to obtain all relevant and current course information (i.e. updates on the group project) and have the ability to ask real time questions.

- 3 or more class absences will affect your final grade in the course and will result in the instructor arranging a meeting to discuss. Officially excused absences require **prior** approval from the instructor.
- Attendance of office hours to ask questions and clarify course material is encouraged, but not required.
- Internet assignments are due on a regular basis.
- Participation in the group project, as judged by your team through the confidential team member evaluation factors into your final grade.

Online Content Delivery & Student Expectations:

- Students who wish to join the online Zoom meeting shall identify both first and last name prior to entering the meeting. Participants not identified by first and last name will not be admitted to the lecture.
- Participants not shown on the course roster (including wait list) will not be admitted to lectures. Waiting room feature is being used.
- Participants are expected to have video and audio capabilities through the duration of all live lectures, when live lectures occur.
- This is not an asynchronous course and lecture material will be delivered live during the course meeting time.

Assignments:

- All assignments are to be done per instructions and due by the beginning of class on the assigned due date. Late assignments will only be accepted with instructor's **prior** approval.
- Assignments shall only be submitted through Canvas website – please do not email assignments.
- Electronic file naming convention: 'Assignment Name – Student Name' i.e. 'Lecture 1 Assignment – Jane Doe'
- Late assignments will receive an automatic **50% reduction** in credit unless **prior** arrangements have been made with the instructor.
- Late assignments will not be accepted if more than 1 week late.
- Any written reports, essays, or term papers shall be typed as instructed.

- Assignments are the responsibility of each student. Failure to observe these conditions will result in papers being returned without credit.

Evaluating Assignments Rubric:

90-100: All items are present, complete and organized. Answers to questions show thought and attention to detail. Work requiring calculations includes the formulas, organized substitutions, and a final answer with appropriate units. Important concepts are addressed thoroughly and clearly for each assigned item

80-89: All items are present, generally complete, and organized. Answers to questions show thought and attention to detail, though a few isolated questions may be missing an important detail or lack clarity. Work requiring calculations generally includes the formulas, organized substitutions, and a final answer with appropriate units.

70-79: Nearly all items are present, generally complete, and organized. A limited number of items may be missing or incomplete. Most written work is complete and thoughtful. Work requiring calculations may not include the formulas, organized substitutions, or a final answer with appropriate units. Important concepts need additional attention, but most key ideas are adequately covered.

60-69: Several important assignment components are missing, though most elements are present. Work may be out of order or poorly organized. Assignments may be present, but are incomplete, and questions requiring thoughtful, careful work are too brief or left unfinished. Work requiring calculations tends not to include the formulas, organized substitutions, and a final answer with appropriate units.

50-59: Assignment is missing a significant number of important components and is noticeably incomplete. Questions that are present are incomplete or lack important details. Work that is present may not show any evidence of organization or attention to detail consistently throughout the assignment.

Term Project:

- Students will work in groups to complete a public works bid package based on a given set of plans and specifications. The bid package will include an Engineer's Estimate, working day estimate, project description, and risk evaluation. Students will turn in their completed bid package and present their work during the last class

lecture. Details on the project will be given during lecture hours throughout the course.

Tests and Exams:

- **NO MAKE-UP EXAMS WILL BE GIVEN!**
- **Prior** instructor approval is necessary to reschedule an exam.
- Exams will be given on specific areas covered throughout the semester. Sufficient notice will be given prior to the scheduled exam.
- Exams will be administered in an online format via the course website and available for a specific period, to be determined by the instructor, to allow for flexibility and ‘real world’ problem solving under a deadline.
- Exams will be curved with the highest score representing 100%, and other scores adjusted accordingly.
- The final exam for this course will be comprehensive (with an emphasis on the latest material) and **due no later than the time and date listed on the Canvas Module**. However, this is subject to change.
- The final exam is required. Failure to take this exam will result in a grade of **F** for the course.

Grading:

- Assignments, Projects, and Exams are weighted accordingly:

ASSIGNMENTS - 30%

GROUP PROJECT - 30%

EXAMS - 40%

- Final grades are calculated as noted above:

90% to 100%A

80% to 89%B

70% to 79%C

60% to 69% D

Below 60%F

- An incomplete grade “I” will only be given as prescribed by college rules and regulations. **Prior** approval of the instructor is required.

CEST 65 – Public Works Plans and Estimating

COURSE OUTLINE / SCHEDULE & ZOOM LINK

The objective of this outline is to assist you in planning your schedule. Every effort will be made to stay on schedule. However, the instructor may find it necessary to make appropriate changes to meet the learning objectives for the entire class. You should be familiar with the reading assignment **prior** to the class lecture. Instructor may change the homework problems listed below. See the Course Syllabus for guidelines and specific information on course objectives, homework, exams and grading.

There are no problems in the assigned text (Caltrans Standard Plans and Specifications). Instructor will provide homework assignments in online or handout form. Where no reading assignment is shown the instructor may provide instructions to access online materials or on course website (Canvas).

Date	Topic	Reading (Complete Prior to Lecture)	Assignment
8/18/25	Lecture 1: Orientation and Course Introduction Overview of the Improvement Plan Process in Public Works Projects Math Review		Student Questionnaire Due 8/25/25 Lecture Assignment 1 – Math Review Due: 8/25/25
8/25/25	Lecture 2: General Provisions	Spec Sections: 1 – 9	Lecture 2 Assignment Due: 9/8/2025

8/31/25	Last Day to Drop Classes w/refund		
9/1/25	No Class – Labor Day Holiday		
9/7/25	Last Day to Drop Classes w/o “W” symbol		
9/8/25	Lecture 3: Intro to Plan Reading and Interpretation	Plans: Table of Contents & Plan Sheets A3A-A3C; A10A-H	Lecture 3 Assignment Due: 9/15/25
9/15/25	Lecture 4: Construction Staking Review of Math Used in Plan Reading and Cost Estimating, Review for Exam 1	Review Chapter 12 of Caltrans Survey Manual (Link on Course Web)	Lecture 4 Assignment Due 9/22/25
9/22/25	EXAM 1 (NO CLASS)	EXAM ADMINISTERED VIA CANVAS	Exam due by 9:00 PM on 9/28/25 (subject to change)
9/29/25	Lecture 5: Group Project & Earthwork and Grading	Spec Sections: 16 – 22 Plan Sheets: A62A-C	Lecture 5 Assignment Group Team Name Due 10/6/25
10/6/25	Lecture 6: Subbases and Bases Surfacing and Pavement	Spec Sections: 24 – 29 Plan Sheets: A87B	Lecture 6 Assignment Due 10/13/25

10/13/25	Lecture 7: Structures – Retaining Walls and Box Culverts, Bridges and Guardrails	Spec Sections: 49; 51 – 52; 83 Plan Sheets: B2-3 – B2-11; B3-1 – B3-8; B7-5; B7-10; B11-54; B15-1 – B15-15; D81 – D86A; A77H1 – A77K2	Lecture 7 Assignment Due 10/27/25 by 6:00 PM
10/20/25	Lecture 8: Storm Drains, Sanitary Sewer, Water Systems & Review for Exam 2	Spec Sections: 61 – 70 Plans Sheets: D71 – D102	
10/27/25	EXAM 2 (NO CLASS)	EXAM ADMINISTERED VIA CANVAS	Exam due by 9:00 PM on 11/2/25 (subject to change)
11/3/25	Lecture 9: Traffic Signals and Street Lights (Electrical Systems)	Spec Section: 86 Plans Sheets ES-1A – 1C; ES-2A – ES-16D	Work on Group Project - Progress Group Project Materials Due 11/10
11/10/25	Time allotted for Group Project (subject to change)		Work on Group Project
11/17/25	Lecture 10: Cost estimating and schedule – How an Agency prepares an estimate		Work on Group Project
11/24/25	Lecture 11: Project Administration, closing out a project AND time for Groups to meet in breakout groups		Work on Group Project / Come prepared with a question(s) for Guest Speaker

12/1/25	Potential Guest Speaker / Extended Office Hours / Final Exam Review (time permitting)		Work on Group Project
12/8/25	Group Project Presentations		
12/15/24	FINAL EXAM WEEK / End of the year survey (class still meets at 6:00 PM!)		Exam due by 9:00 PM Friday of Finals Week (subject to change)

Zoom Lecture Meeting Invite:

Ian Carpenter is inviting you to a scheduled Zoom meeting.

Topic: Ian Carpenter's Zoom Meeting

Time: Aug 18, 2025 06:00 PM Pacific Time (US and Canada)

Every week on Mon, until Dec 15, 2025, 18 occurrence(s)

Join Zoom Meeting

<https://santarosa-edu.zoom.us/j/88622817210>

Meeting ID: 886 2281 7210

Changed occurrence(s):

Sep 1, 2025 06:00 PM (canceled)

Sep 22, 2025 06:00 PM (canceled)

Oct 27, 2025 06:00 PM (canceled)

Please download and import the following iCalendar (.ics) files to your calendar system.

Weekly: https://santarosa-edu.zoom.us/meeting/tZwrdeugrzwG9Sm_yRK9SftbxABCZ9EGDSu/ics?icsToken=DAi6KZTdNVnHRN998gAALAAAAOJLOW03WIXLIuTz0lvdPDKCYF_csSfQj30vwZkbrD-k-

9R86oKisYVl6pgbNVcnyRyO84-wO0tEpSR7gTAwMDAwMQ&meetingMasterEventId=341Dt-HDQ_GgPd-0bW2WOQ

Join Zoom Meeting

<https://santarosa-edu.zoom.us/j/88622817210>

Meeting ID: 886 2281 7210

One tap mobile

+16699006833,,88622817210# US (San Jose)

Join instructions

<https://santarosa-edu.zoom.us/join/88622817210?signature=I72H2KMbW9HzHATBmwrOHb74FPJ4Z5QsgePIpYong0M>