

**CEST 65 – Public Works Plans & Estimating**  
**COURSE SYLLABUS**  
**FALL 2019**

**Instructor:** Grant Bailey, PE

**Lecture Location:** 151 Kunde Hall

**Office:** 1476 Bussman

**Email:** gbailey@santarosa.edu

**Office Hours:** Monday, 5:00 PM – 5:50 PM

**Contact Number:** (707) 787-7928

**Course Web Page:** <https://canvas.santarosa.edu/courses/41423>

**Instructor Web Page:** <https://profiles.santarosa.edu/grant-bailey>

**Student Rights and Responsibilities:** <https://studentlife.santarosa.edu/rights-and-responsibilities>

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

**Textbook and Required Supplies:**

- Standard Specifications 2010, State of California, Department of Transportation
  - Available for download on the canvas course website
- Standard Plans 2010, State of California, Department of Transportation
  - Available for download on the canvas course website
- Three-ringed binder for class notes and assignments
- Scientific-Engineering Calculator
- Engineer Scale

**Additional Resources:**

- Construction Manual, State of California, Department of Transportation (Caltrans) available online at no cost
  - <https://dot.ca.gov/programs/construction/construction-manual>

**Course Content**

**Student Learning Outcomes:**

Upon completion of this course, the student 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:**

- Attendance is required for lecture hours and students are responsible for their own attendance. Excused absence only by contacting instructor prior to beginning of class.

### Assignments:

- All assignments are to be done per instructions and due at the beginning of class on the assigned due date. Late assignments will only be accepted with instructor's **prior** approval.
- Late assignments will receive an automatic **50% reduction** in credit.
- All assignments shall be done on 8 ½" x 11" paper, or the sheets provided to you by the instructor, unless directed otherwise.
- Put your name, course number, assignment parameters and due date on the first page. Staple multiple sheets together **prior** to turning in.
- 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.

### Projects:

- 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.
- The final exam for this course will be comprehensive and will be give on Monday, December 16, 2019,6:00 PM to 9:00 PM.
- The final exam is required. Failure to take this exam will result in a grade of **F** for the course.

### Grading:

- Your grade will be based on the total number of points you accumulate with respect to the total number of "top score" points. Assignments, Projects, and Exams are weighted accordingly:

Total ASSIGNMENT points multiplied by 30%  
Total PROJECT points multiplied by 30%  
Total ATTENDANCE points multiplied by 10%  
+Total TEST/EXAMS points multiplied by 30%

#### **Total Points Accumulated**

- Final grades are calculated as noted above and based on the following percentages of the total points accumulated by the top score in each category.

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**  
**FALL 2019**

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. You should allow yourself a minimum of six hours per week to complete the reading and homework assignments. 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 textbooks. 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 at course website.

<b>Date</b>	<b>Topic</b>	<b>Reading</b>	<b>Assignment</b>
8/19/19	Orientation and Course Introduction Overview of the Improvement Plan Process in Public Works Projects Final Project Introductions Math Review		Student Questionnaire <b>Due 8/26/19</b> Group Team Name <b>Due: By the end of class</b> Math Review <b>Due: 8/26/19</b>
8/26/19	General Provisions	Spec Sections: 1 – 9	Assignment 1 <b>Due 9/9/19</b>
<b>9/2/19</b>	<b>No Class</b>	No Reading	
9/9/19	Plan Reading and Interpretation	Plans: Table of Contents & Plan Sheets A10A-H	In Class Assignment <b>Due: By the end of class</b>
9/16/19	Construction Staking Review of Math Used in Plan Reading and Cost Estimating	Review Chapter 12 of CalTrans Survey Manual (Link on Course Web)	Assignment 2 <b>Due 9/23/19</b>
<b>9/23/19</b>	<b>Exam 1–General Provisions, Math, Reading Plans and Construction Staking</b>	No Reading	No Assignment
9/30/19	Earthwork and Grading	Spec Sections: 16 – 22 Plans Sheets: A62A-C	Assignment 3 <b>Due 10/7/19</b>
10/7/19	Subbases and Bases Surfacing and Pavement	Spec Sections: 24 – 29 Plan Sheets: A87B	Assignment 4 <b>Due 10/14/19</b>
10/14/19	Quality Control Testing: Guest Speaker Traffic Signals and Street Lights	Spec Section: 86 Plans Sheets ES-1A – 1C; Skim ES-2A – ES-16D	Work on Group Project
10/21/19	Structures – Retaining Walls and Box Culverts, Piles, 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	Assignment 5 <b>Due 10/28/19</b>
10/28/19	Underground – Storm Drains, Sanitary Sewer, Water Systems Review for Exam 2	Spec Sections: 61 – 70 Plans Sheets: Skim D71 – D102	Work on Group Project Review for Exam
11/4/19	<b>Exam 2 – Earthwork, Grading, Subbases, Surfacing, Structures, Underground Utilities, and Traffic Signals</b>	No Reading	No Assignment
11/11/19	Veteran’s Day Holiday	No Reading	Work on Group Project
11/18/19	Cost estimating and schedule – How an	No Reading	Work on Group Project

Date	Topic	Reading	Assignment
	Agency prepares an estimate		
11/25/19	Cost estimating and schedule – How a contractor prepares a cost estimate; industry software	No Reading Guest Speaker	Work on Group Project
12/2/19	Project Administration – How to put the specifications and estimate together to bid the project, addenda, request for information, bonds, insurance, bid and award. Overview of project administration during construction. Project records. Construction site safety. Closing out a project, reports and record drawings.	No Reading	Work on Group Project
12/9/19	<b>Final Project Presentations</b> and review for Final	No Reading	
12/16/19	<b>Final Exam</b>		