

**CATALOG INFORMATION**

Dept and Nbr: CEST 65

Title: PW PLANS & ESTIMATING

Full Title: Public Works Plans and Estimating

Last Reviewed: 1/24/2022

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	3.00	Lecture Scheduled	3.00	17.5	Lecture Scheduled	52.50
Minimum	3.00	Lab Scheduled	0	17.5	Lab Scheduled	0
		Contact DHR	0		Contact DHR	0
		Contact Total	3.00		Contact Total	52.50
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 105.00

Total Student Learning Hours: 157.50

Title 5 Category: AA Degree Applicable

Grading: Grade Only

Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP

Also Listed As:

Formerly:

**Catalog Description:**  
Reading and interpreting plans, and estimating time, material, labor and equipment needed for public works projects. Concepts include quantity take offs, construction lay-out, rehabilitation, maintenance, inspection and testing with material cost estimating of public works improvements. Proper use of basic survey methods, symbols, mathematical conversions, determination of slope, grade, location and quantities are covered.

**Prerequisites/Corequisites:**

**Recommended Preparation:**

**Limits on Enrollment:**

**Schedule of Classes Information:**  
Description: Reading and interpreting plans, and estimating time, material, labor and equipment needed for public works projects. Concepts include quantity take offs, construction lay-out, rehabilitation, maintenance, inspection and testing with material cost estimating of public works improvements. Proper use of basic survey methods, symbols, mathematical conversions,

determination of slope, grade, location and quantities are covered. (Grade Only)

Prerequisites/Corequisites:

Recommended:

Limits on Enrollment:

Transfer Credit: CSU;

Repeatability: Two Repeats if Grade was D, F, NC, or NP

## **ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:**

<b>AS Degree:</b>	<b>Area</b>	Effective:	Inactive:
<b>CSU GE:</b>	<b>Transfer Area</b>	Effective:	Inactive:
<b>IGETC:</b>	<b>Transfer Area</b>	Effective:	Inactive:
<b>CSU Transfer:</b>	Transferable	Effective: Spring 2010	Inactive:
<b>UC Transfer:</b>		Effective:	Inactive:

**CID:**

**Certificate/Major Applicable:**

Both Certificate and Major Applicable

## **COURSE CONTENT**

### **Outcomes and Objectives:**

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

1. Determine take off quantities from engineer's drawings
2. Determine time, labor and materials needed to construct public works projects
3. Prepare lay-out 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

### **Topics and Scope:**

1. Public works plan interpretation and implementation
  - a. Improvement Plans-plan, profile, cross section views
  - b. Engineering design standards and details
  - c. Contracts and specifications
  - d. Project administration
  - e. Scheduling and management
2. Engineering construction quantities
  - a. Clearing and grading
  - b. Underground piping systems
  - c. Roadway structural sections
  - d. Landscaping
  - e. Street lighting and traffic signal construction
3. Preparing bid documents
  - a. Engineer's estimate
  - b. Quantity pricing
  - c. Contract specifications

4. Records and reports
  - a. Progress payments
  - b. Contract change orders
  - c. Project acceptance and closing reports
  - d. Record drawings
5. Layout construction features
  - a. Compute locations
  - b. Surveying requests
  - c. Layout diagrams
6. Spread sheets for estimating
7. Construction site safety

### Assignment:

1. Read approximately one chapter of the textbook per week
2. Weekly homework assignments consisting of 5 to 10 problems and/or Excel spreadsheets
3. 5-7 written papers and reports
4. 1 semester project
5. 3 midterms
6. 1 final exam

### Methods of Evaluation/Basis of Grade:

**Writing:** Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

Reports, papers

Writing  
20 - 30%

**Problem Solving:** Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Homework problems, project, Excel spreadsheets

Problem solving  
20 - 30%

**Skill Demonstrations:** All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

Performance exams, project

Skill Demonstrations  
30 - 40%

**Exams:** All forms of formal testing, other than skill performance exams.

Midterms, Final Exam: Essays, Matching items, Completion

Exams  
20 - 30%

**Other:** Includes any assessment tools that do not logically fit into the above categories.

Class Participation

Other Category  
0 - 10%

**Representative Textbooks and Materials:**

Construction Estimating Using Excel

by Steven J. Peterson, Prentice Hall 2006

Fundamentals of Construction Estimating

by David Pratt, Delmar Cengage Learning; 2nd Edition 2003

Chapters from various State, County and Local Agency Design and Construction Manuals