

COURSE OUTLINE

Electrical Estimating

Course Title

ET 221

Dept & Course No.

I. COURSE DESCRIPTION

This course provides comprehensive approach to preparation of accurate competitive electrical estimates for building trades. It includes take off procedure using electrical, mechanical and architectural prints, lighting design, labor and material cost, evaluation techniques and specifications. Appropriate CAI will be used.

II. SEMESTER CREDIT: 3

III. CONTACT HOURS PER WEEK:

<u>2</u>	<u>3</u>	<u>5</u>
Lecture	Lab	Total

IV. PREREQUISITE: ET 122

V. STUDENT LEARNING OUTCOMES:

Upon completion of the course, the students will be able to, with 65% accuracy to:

1. Apply best practices in electrical estimating.
2. Develop labor unit through previous data, trends and experiences.
3. Perform electrical estimate in accordance with the given electrical plan.

VI. COURSE CONTENT

- A. Electrical estimating
 - 1) Estimating and bidding
 - 2) Good estimating system
 - 3) Job management
 - 4) Qualities of a good estimator
 - 5) Duties and responsibilities of estimator
- B. Labor units
 - 1) Used of labor units
 - 2) knowing competitor's labor unit
 - 3) Developing labor units
 - 4) Variables that impact labor unit
 - 5) Labor unit summary
- C. Summary and bid process
 - 1) Estimate summary
 - 2) Bid process
 - 3) Unit pricing
- D. Electrical estimating
 - 1) Scope of work
 - 2) Preparing the estimate
 - 3) Bill of materials
 - 4) Pricing
 - 5) Laboring
 - 6) Extending
 - 7) Totaling

- E. Estimate and bid summary
 - 1) Bid accuracy and analysis
 - 2) Proposal
 - 3) Estimating residential wiring
 - 4) Estimating commercial wiring
 - 5) Estimating industrial wiring Bid accuracy and analysis.

VII. MATERIALS AND EQUIPMENT

- A. Sets of blueprints
- B. Calculator
- C. Personal computer
- D. Estimating software
- E. Standard classroom materials
- F. Scale
- G. Set of electrical plans

VIII. TEXT AND REFERENCES

- A. *Required Text:*
 Mike Holt. **ELECTRICAL ESTIMATING**, Delmar Publishers Inc: A division of Thomson Learning Inc. 1997.

IX. METHOD OF INSTRUCTION

- A. Lecture-discussion
- B. Demonstration
- C. Video Presentation
- D. Self-pace learning
- E. Laboratory Performance/Field activities

X. METHOD OF EVALUATION

- A. Knowledge will be evaluated using the following methods:
 - 1. Written test
 - 2. Graded recitation/Oral presentation
 - 3. Instructor's Interview
- B. Skills will be evaluated using the following criteria:
 - 1. Accuracy
 - 2. Quality of work
 - 3. Safety
 - 4. Timeliness/Completion
- C. Final grade is computed and weighted using the following criteria:

Class participation.....	15%
Quizzes/Short Tests.....	20%
Midterm/Final Exams.....	25%
Projects.....	40%
TOTAL	100%
- D. Transmutation of total percent to letter grade:

90-100%.....	A
80-89%.....	B
70-79%.....	C
65-69%.....	D
00-64%.....	F

TASK LISTING

ET 221	Credits:	2	1	48
Course No. Title		Lec	Lab	Total Lab Hrs

COURSE LEARNING OUTCOMES	Allotted Hours
1. Apply best practices in electrical estimating. a. Demonstrate how to manage job to control the cost of project. b. Demonstrate good estimating qualities through the used of best practices in electrical estimating.	4
2. Develop labor unit through previous data, trends and experiences. a. Demonstrate how to determine labor units and how to use them. b. Compare labor units to other competitor. c. Develop labor units. d. Determine variables that impact labor units. e. Prepare labor unit summary.	8
3. Perform electrical estimate in accordance with the given electrical plan. a. Identify scope of work according to plans and specification. b. Determine bill of materials. c. Prepare estimate and bid summary d. Review and finalize bid accuracy and analysis e. Prepare bid proposal. f. Identify labor cost, labor hours and labor burden. g. Determine total material cost according to current market prices. h. Prepare estimate summary i. Organize documents for bid processes j. Prepare unit pricing	36
	48

Palau Community College
ET 221 Electrical Estimating
Course Learning Outcomes

During the course experience, the **course learning outcomes** (CLOs) will be assessed through the use of signature assignments. A rating scale will be used to determine the students' proficiency level of each CLO using specifically aligned assignments. The numerical ratings of 3, 2, and 1 are not intended to represent the traditional school grading system of A, B, C, D, and F. The descriptions associated with each of the numbers focus on the level of student performance of each of the course learning outcomes listed below:

Rating Scale:	5	Excellent
	4	Above average
	3	Average
	2	Below Average
	1	Unacceptable

CLO 1: Apply best practices in electrical estimating

5	The student is able to apply best practices in electrical estimating without any supervision and instruction.
4	The student is able to apply best practices in electrical estimating with limited supervision but no instruction.
3	The student is able to apply best practices in electrical estimating with limited supervision and limited instruction.
2	The student has difficulty to apply best practices in electrical estimating and requires considerable supervision and instruction.
1	The student is unable to apply best practices in electrical estimating even with supervision and instruction.

CLO 2: Develop labor unit through previous data, trends and experiences

5	The student is able to develop labor unit through previous data, trends and experiences without any supervision and instruction.
4	The student is able to develop labor unit through previous data, trends and experiences with limited supervision but no instruction.
3	The student is able to develop labor unit through previous data, trends and experiences with limited supervision and limited instruction.
2	The student has difficulty to develop labor unit through previous data, trends and experiences and requires considerable supervision and instruction.
1	The student is unable to develop labor unit through previous data, trends and experiences even with supervision and instruction.

CLO 3: Perform electrical estimate in accordance with the given electrical plan.

5	The student is able to perform electrical estimate in accordance with the given electrical plan without any supervision and instruction.
4	The student is able to perform electrical estimate in accordance with the given electrical plan with limited supervision but no instruction.
3	The student is able to perform electrical estimate in accordance with the given electrical plan limited supervision and limited instruction.
2	The student has difficulty to perform electrical estimate in accordance with the given electrical plan and requires considerable supervision and instruction.
1	The student is unable to perform electrical estimate in accordance with the given electrical plan even with supervision and instruction.