COURSE OUTLINE

CONS 222 Construction Estimating

Prepared By: J. Reilly
Revised By: P. Nasados
CONS 222 – CONSTRUCTION ESTIMATING

A. **TITLE:** CONSTRUCTION ESTIMATING

B. **COURSE NUMBER:** CONS 222

C. **CREDIT HOURS:** 2

D. **WRITING INTENSIVE COURSE:** (OPTIONAL): No

E. **COURSE LENGTH:** 15 weeks

F. **SEMESTER(S) OFFERED:** Fall

G. **HOURS OF LECTURE, LABORATORY, RECITATION, TUTORIAL, ACTIVITY:**
   1 hours lecture, 1 – two hour lab per week

H. **CATALOGUE DESCRIPTION:**
   An introduction to estimating the costs of construction. Includes quantity take-off from construction plans, unit pricing of labor, material, and equipment, and extensions based on unit prices derived from industry accepted resources. The CSI Masterformat is introduced as a method of approach and organization.

I. **PRE-REQUISITES:** MATH106 Intermediate Algebra or MATH135 Technical Math and SOET 101, or ENGS 101, or CITA 108; or permission of the instructor.

J. **GOALS (STUDENT LEARNING OUTCOMES):**
   By the end of this course, the student will be able to:

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<tr>
<th>Course Objective</th>
<th>Institutional SLO</th>
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<td>a. Accurately “take-off” material quantities from a construction plan.</td>
<td>3. Professional Competence</td>
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<td>b. Estimate labor hours required for construction work based on productivity and take off quantities.</td>
<td>3. Professional Competence</td>
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<td>c. Acquire unit prices from vendors or published data catalogues.</td>
<td>3. Professional Competence</td>
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<td>d. Perform an estimate “extension”.</td>
<td>3. Professional Competence</td>
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<td>e. Use a spreadsheet to assist in performing a cost estimate.</td>
<td>3. Professional Competence</td>
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K. **TEXTS:**
L. REFERENCES:
- Online Construction Cost Data

M. EQUIPMENT: Student will work in a computer lab requiring portable storage media,

N. GRADING METHOD: (P/F, A-F, etc.): A-F

O. MEASUREMENT CRITERIA/METHODS: Exams, quizzes, projects

P. DETAILED TOPICAL OUTLINE:

I. Introduction to the Estimating and the Bid Process
II. CSI Format
III. Estimating Quantities (Take-off)
   i. General
   ii. Sitework
      1. Materials
      2. Equipment
      3. Labor
   iii. Concrete and Formwork
      1. Materials
      2. Equipment
      3. Labor
   iv. Masonry
      1. Materials
      2. Equipment
      3. Labor
   v. Metals and Structural Steel
      1. Materials
      2. Equipment
      3. Labor
   vi. Rough and Finished Carpentry
      1. Materials
      2. Equipment
      3. Labor
IV. Pricing the Estimate
   i. Basic Principles
   ii. Obtaining Unit Prices
V. Closing the Bid.
VI. Computer Estimating.
Q. LABORATORY OUTLINE:

The lab outline will follow the topical outline. During the lab, students will perform estimating activities, i.e., do "take-offs" from construction drawings and extensions (either manually or using computer software) to agree with the material being covered in the lecture.