MASTER SYLLABUS

COURSE NUMBER – COURSE NAME
CONS 222 – Construction Estimating

Created by: J. Reilly

Updated by: A. Reiter

Canino School of Engineering Technology

Department: Civil and Environmental Technology

Semester/Year: Fall 2018
A. **TITLE:** Construction Estimating

B. **COURSE NUMBER:** CONS 222

C. **CREDIT HOURS:** (Hours of Lecture, Laboratory, Recitation, Tutorial, Activity)

- # Credit Hours: 2
- # Lecture Hours: 1 per week
- # Lab Hours: 2 per week
- Other: per week

Course Length: 15 Weeks

D. **WRITING INTENSIVE COURSE:** Yes ☐ No ☒

E. **GER CATEGORY:** None: ☐ Yes: GER

*If course satisfies more than one:* GER

F. **SEMESTER(S) OFFERED:** Fall ☒ Spring ☐ Fall & Spring ☐

G. **COURSE 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.

H. **PRE-REQUISITES:** None ☐ Yes ☒ If yes, list below:

MATH106 Intermediate Algebra or MATH135 Technical Math and SOET 101, or ENGS 101, or CITA 108; or permission of the instructor.

**CO-REQUISITES:** None ☐ Yes ☐ If yes, list below:
I. **STUDENT LEARNING OUTCOMES:** *(see key below)*

By the end of this course, the student will be able to:

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<th>Course Student Learning Outcome [SLO]</th>
<th>Program Student Learning Outcome [PSLO]</th>
<th>GER [If Applicable]</th>
<th>ISLO &amp; SUBSETS</th>
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| 1 | Communication Skills  
Oral [O], Written [W] |
| 2 | Critical Thinking  
Critical Analysis [CA], Inquiry & Analysis [IA], Problem Solving [PS] |
| 3 | Foundational Skills  
Information Management [IM], Quantitative Lit./Reasoning [QTR] |
| 4 | Social Responsibility  
Ethical Reasoning [ER], Global Learning [GL], Intercultural Knowledge [IK], Teamwork [T] |
| 5 | Industry, Professional, Discipline Specific Knowledge and Skills |

*Include program objectives if applicable. Please consult with Program Coordinator*
J. **APPLIED LEARNING COMPONENT:** Yes ☒ No ☐

If YES, select one or more of the following categories:

- ☒ Classroom/Lab
- ☐ Internship
- ☐ Clinical Placement
- ☐ Practicum
- ☐ Service Learning
- ☐ Community Service
- ☐ Civic Engagement
- ☐ Creative Works/Senior Project
- ☐ Research
- ☐ Entrepreneurship
- (program, class, project)

K. **TEXTS:**


L. **REFERENCES:**


M. **EQUIPMENT:** None ☐ Needed:

N. **GRADING METHOD:** A-F

O. **SUGGESTED MEASUREMENT CRITERIA/METHODS:**

Exams
Quizzes
projects
Homework

P. **DETAILED COURSE 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: None ☐ Yes ☑

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.