

**STATE UNIVERSITY OF NEW YORK  
COLLEGE OF TECHNOLOGY  
CANTON, NEW YORK**



**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:

<u>Course Student Learning Outcome</u> <u>[SLO]</u>	<u>Program Student Learning Outcome</u> <u>[PSLO]</u>	<u>GER</u> <i>[If Applicable]</i>	<u>ISLO &amp; SUBSETS</u>	
Accurately “take-off” material quantities from a construction plan.	2488: 1ab,2a 517: 162:		5-Ind, Prof, Disc, Know Skills ISLO ISLO	Subsets Subsets Subsets Subsets
Estimate labor hours required for construction work based on productivity and take off quantities.	2488: 1b 517: 162:		5-Ind, Prof, Disc, Know Skills ISLO ISLO	Subsets Subsets Subsets Subsets
Acquire unit prices from vendors or published data catalogues	2488: 1b,8b 517: 162:		5-Ind, Prof, Disc, Know Skills ISLO ISLO	Subsets Subsets Subsets Subsets
Perform an estimate “extension”.	2488: 1b 517: 162:		5-Ind, Prof, Disc, Know Skills ISLO ISLO	Subsets Subsets Subsets Subsets
Use a spreadsheet to assist in performing a cost estimate.	2488: 1b,7c 517: 162:		5-Ind, Prof, Disc, Know Skills ISLO ISLO	Subsets Subsets Subsets Subsets
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<b>KEY</b>	<b><u>Institutional Student Learning Outcomes [ISLO 1 – 5]</u></b>
<b>ISLO #</b>	<b>ISLO &amp; Subsets</b>
<b>1</b>	<b>Communication Skills</b> Oral [O], Written [W]
<b>2</b>	<b>Critical Thinking</b> <i>Critical Analysis [CA] , Inquiry &amp; Analysis [IA] , Problem Solving [PS]</i>
<b>3</b>	<b>Foundational Skills</b> <i>Information Management [IM], Quantitative Lit./Reasoning [QTR]</i>
<b>4</b>	<b>Social Responsibility</b> <i>Ethical Reasoning [ER], Global Learning [GL], Intercultural Knowledge [IK], Teamwork [T]</i>
<b>5</b>	<b>Industry, Professional, Discipline Specific Knowledge and Skills</b>

\*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:

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> Classroom/Lab | <input type="checkbox"/> Civic Engagement              |
| <input type="checkbox"/> Internship               | <input type="checkbox"/> Creative Works/Senior Project |
| <input type="checkbox"/> Clinical Placement       | <input type="checkbox"/> Research                      |
| <input type="checkbox"/> Practicum                | <input type="checkbox"/> Entrepreneurship              |
| <input type="checkbox"/> Service Learning         | (program, class, project)                              |
| <input type="checkbox"/> Community Service        |  |

K. **TEXTS:**

: RS Means Cost Data, Student edition, Wiley,2012

L. **REFERENCES:**

: Peterson, S.J., Construction Estimating using Excel, 2nd Edition, Pearson-Prentice Hall, 2012.

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, ie; do “take-offs” from construction drawings and extensions (either manually or using computer software) to agree with the material being covered in the lecture.