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

MASTER SYLLABUS

CIVL 330 – Construction Management, Estimating, and Scheduling

CIP Code: 14.0801

Created by: Adrienne C. Rygel
Updated by:

School: Canino School of Engineering Technology
Department: Civil and Construction Technology
Implementation Semester/Year: Fall 2026

A. TITLE: Construction Management, Estimating, and Scheduling

B. COURSE NUMBER: CIVL 330

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

# Credit Hours per Week	**3**
# Lecture Hours per Week	**2**
# Lab Hours per Week	**2**
Other per Week	

D. WRITING INTENSIVE COURSE:

Yes	
No	x

E. GER CATEGORY:

Does course satisfy a GER category(ies)? If so, please select all that apply.

[1-2] Communication	
[3] Diversity: Equity, Inclusion & Social Justice	
[4] Mathematics & Quantitative Reasoning	
[5] Natural Science & Scientific Reasoning	
[6] Humanities	
[7] Social Sciences	
[8] Arts	
[9] US History & Civic Engagement	
[10] World History & Global Awareness	
[11] World Languages	

F. SEMESTER(S) OFFERED:

Fall	
Spring	x
Fall and Spring	

G. COURSE DESCRIPTION:

Construction engineering fundamentals that relate to civil engineering are studied in this course. Topics include: construction management practices, estimating for construction projects, and planning and CPM (critical path method) scheduling methods and field operations. Blueprint reading will be incorporated to better familiarize civil engineering students with building layout and materials. Estimating the costs of construction will be introduced, focusing on quantity take-off from construction plans and introducing unit pricing of labor, materials, and assemblies. Case studies are employed to assist students

with understanding complex problems that arise during the management and administration of complex projects.

H. PRE-REQUISITES: ENGS 101 Introduction to Engineering, or permission of the Instructor
CO-REQUISITES:

I. STUDENT LEARNING OUTCOMES:

Course Student Learning Outcome [SLO]	Program Student Learning Outcome [PSLO]	GER	ISLO & Subsets
a. Demonstrate and understanding of and discuss the different types of contracts along with their advantages and disadvantages.	SO7		ISLO 5
b. Demonstrate an understanding of the ethical issues and social implications associated with construction contracts and project delivery.	SO4		ISLO 4 (ER)
c. Use professional-related literature to report on current practice and techniques associated with civil engineering and construction projects.	SO7		ISLO 5
d. Create a CPM network diagram manually and determine ES, EF, LS, LF and total float.	SO7		ISLO 5
e. Utilize software applications (eg., MS Project, Primavera, Suretrack) to produce and display a construction project schedule.	SO7		ISLO 5
f. Accurately "take-off" material quantities from a construction plan.	SO1		ISLO 5
g. Estimate labor hours required for construction work based on productivity and take-off quantities.	SO1		ISLO 5
h. Acquire unit prices from vendors or published data catalogues or electronic databases.	SO7		ISLO 5

KEY	Institutional Student Learning Outcomes [ISLO 1 – 5]
ISLO #	ISLO & Subsets
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**

J. APPLIED LEARNING COMPONENT:

Yes	x
No	

If yes, select [X] one or more of the following categories:

Classroom / Lab	x	Community Service	
Internship		Civic Engagement	
Clinical Practicum		Creative Works/Senior Project	
Practicum		Research	
Service Learning		Entrepreneurship [program, class, project]	

K. TEXTS:

Construction Management Fundamentals, 2nd edition, by Knutson, Schexnayder, Fiori, Mayo. McGraw Hill, ISBN-13: 978-0-07-340104

L. REFERENCES:

Construction Estimating 2nd Edition by Leonard P. Toenjes ISBN-13: 978-0826905451 ISBN-10: 0826905455

Estimating in Building Construction, 8th edition Steven J Peterson, PE, ISBN:013343110X, ISBN-13:9780133431100

RS Means Cost Data, Student edition, Wiley, 2012

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

M. EQUIPMENT:

computer, flash drive, calculator

N. GRADING METHOD:

A-F

O. SUGGESTED MEASUREMENT CRITERIA/METHODS:

Exams and Quizzes
Homework Assignments
Lab Assignments

P. DETAILED COURSE OUTLINE:

I. Construction Management history
- evolution of management through time
- where we are today (popular methods of management)
- labor and unions

II. Project delivery
- Participants
- contract types
- delivery methods

III. Scheduling techniques
- CPM
- linear
- logic networks
- Gantt charts

IV. Construction contract administration
- Essential contract dcuments
- contractural relationships
- the bid and award
- insurance
- bonding

VI. Equipment selection and cost
- ownership cost vs. renting and leasing
- choosing and sizing equipment for the project
    - cranes
    - loaders
    - trucks and hauling equipment

VII. Estimating
- CSI Format
- Quantitiy Take-offs from construction plans for different materials (e.g. concrete, timber, steel, masonry)
- Material pricing
- Equipment and labor costs for different materials and construction phases
- Estimate bids

VII. Quality, productivity and safety
- quality assurance
- owner and jobsite effects on productivity

Q. LABORATORY OUTLINE:

The 2 hour lab session will be used to engage the student in lengthy problem solutions and case studies associated with current lecture topics.

a. Contract development
b. Ethics project related to construction management
c. Print reading
d. Scheduling projects using different formats and software.
e. Estimating project – over the course of several labs perform quantity take-offs for different building materials using related estimating software. Evaluate and apply unit pricing of materials, equipment, and labor to prepare a bid for a project.