

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



MASTER SYLLABUS

**COURSE NUMBER – COURSE NAME
CMGT 304 – Light Construction**

Created by: Joe Reilly

Updated by:

Canino School of Engineering Technology

Department: Civil and Construction Technology

Semester/Year: Fall 2020

- A. **TITLE:** Light Construction
- B. **COURSE NUMBER:** CMGT 304
- C. **CREDIT HOURS:** (Hours of Lecture, Laboratory, Recitation, Tutorial, Activity)

Credit Hours: 3
Lecture Hours: 3 per week
Lab Hours: 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:**

This course introduces the materials, construction and design considerations typically employed in residential and commercial buildings. Topics include: site considerations, foundations, wall systems, roof systems and finish systems. Materials include soils, concrete, masonry, wood and steel. The course is intended for students who did not take CONS 111 and CONS 112.

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

ENGS 101 Intro to Engineering or CMGT 100 Intro to Construction Management or CMGT 300 Construction Management, 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> <u>[If Applicable]</u>	<u>ISLO & SUBSETS</u>	
1. Describe the impact of various soil conditions on selection of foundation types.	SO 5		5-Ind, Prof, Disc, Know Skills ISLO ISLO	Subsets Subsets Subsets Subsets
2. Differentiate between shallow and deep foundations.	SO 5		5-Ind, Prof, Disc, Know Skills ISLO ISLO	Subsets Subsets Subsets Subsets
3. Describe construction techniques for floor, wall and roof systems in light frame wood construction.	SO 5		5-Ind, Prof, Disc, Know Skills ISLO ISLO	Subsets Subsets Subsets Subsets
4. Describe construction techniques used in masonry wall construction.	SO 5		5-Ind, Prof, Disc, Know Skills ISLO ISLO	Subsets Subsets Subsets Subsets
5. Describe the construction methods employed to enhance the thermal performance of residential and commercial structures.	SO 5		5-Ind, Prof, Disc, Know Skills ISLO ISLO	Subsets Subsets Subsets Subsets
6. Describe and discuss the use of light gauge steel framing.	SO 5		5-Ind, Prof, Disc, Know Skills ISLO ISLO	Subsets Subsets Subsets Subsets
7. Describe timber framing and explain alternatives to enclosing the building envelope.	SO 5		5-Ind, Prof, Disc, Know Skills ISLO ISLO	Subsets Subsets Subsets Subsets
8. Describe and discuss the methods used to form, place and finish site cast concrete building elements.	SO 5		5-Ind, Prof, Disc, Know Skills ISLO ISLO	Subsets Subsets Subsets Subsets
9. Describe steel frame construction.	SO 5		5-Ind, Prof, Disc, Know Skills ISLO ISLO	Subsets Subsets Subsets Subsets
			ISLO ISLO ISLO	Subsets Subsets Subsets Subsets

KEY	<u>Institutional Student Learning Outcomes [ISLO 1 – 5]</u>
ISLO #	ISLO & Subsets
1	Communication Skills Oral [O], Written [W]
2	Critical Thinking <i>Critical Analysis [CA], Inquiry & Analysis [IA], Problem Solving [PS]</i>
3	Foundational Skills <i>Information Management [IM], Quantitative Lit./Reasoning [QTR]</i>
4	Social Responsibility <i>Ethical Reasoning [ER], Global Learning [GL], Intercultural Knowledge [IK], Teamwork [T]</i>
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:

Fundamentals of Building Construction 6th edition Materials and Methods
Authors:Edward Allen, Joseph Iano ISBN:1118138910• ISBN-13:9781118138915

L. REFERENCES:

New York State Building Code

M. EQUIPMENT: None Needed:

N. GRADING METHOD: A-F

O. SUGGESTED MEASUREMENT CRITERIA/METHODS:

Exams

Homework

Quizzes

Term Paper

P. DETAILED COURSE OUTLINE:

I. Introduction to the Building Process

1. Feasibility of designs
2. Choosing a building system
3. The work of the design professional
4. Involvement of the building codes
5. The role of specifications and their divisions in the building process

II. Foundations and Site Work

1. Foundation loads
 2. Foundation settlement
 3. Soil types and properties
 4. Excavation and support
 5. Shallow (spread) foundations
6. Deep (pile) foundations

III. Concrete Construction

1. History
2. Cement and aggregate
3. Mixing
4. Formwork
5. Placement
6. Reinforcing
7. Prestressing and posttensioning
8. Problems in concrete quantities

IV. I. Wood

- 1. Trees**
 - a) Hardwood/Softwood**
 - b) Growth**
- 2. Lumber**
 - a) Harvest to manufacture**
 - b) Sizes**
 - c) Classifications**
- 3. Wood Products**
 - a) Panel products**
 - b) Engineered Lumber products**
 - c) Pressure Treated lumber**
- 4. Fasteners**

V. Light Frame Construction

- 1. History**
- 2. Platform Frame v Balloon Frame**
- 3. Foundations - Overview**
- 4. Framing**
 - a) The platform**
 - b) The walls**
 - c) The roof**
- 5. Exterior Finishes**
 - a. Roofing**
 - b. Windows**
 - c. Doors**
 - d. Siding**

Masonry Construction

- 1. History**
- 2. Mortar**
- 3. Brick masonry**
- 4. Concrete block masonry**
- 5. Stone masonry**
- 6. Construction techniques**

VI. Structural Steel Frame Construction

- 1. History of steel and metals in construction**
- 2. Steel, the material**
- 3. Details of steel framing**
- 4. The fabrication and erection process**
- 5. Fireproofing of steel framing**
- 6. Longer spans in steel**

VII. Interior Walls and Partitions

- 1. Types of interior walls**
- 2. Framed partition systems (steel studs)**
- 3. Masonry partitions**
- 4. Wall and partition facings (gypsum board)**

VIII. Roofing

1. Low-slope roofs
2. Components of roof systems
3. Roofing and the building codes

IX. Exterior Finish and Cladding

1. The glass process and design
2. Design requirements for cladding
3. Watertightness in cladding
4. Curtain wall design
5. Energy requirements

Q. LABORATORY OUTLINE: None Yes