

**HOSTOS COMMUNITY COLLEGE
DEPARTMENT OF MATHEMATICS**

CMT 240 FUNDAMENTAL OF CONSTRUCTION MATERIALS
CREDIT HOURS: 2.0
EQUATED HOURS: 2.0
CLASS HOURS: 2.0 (2 Class Hour, 0 Lab Hours)
PRE/COREQUISITE: CMT 160 (Introduction to Surveying)

REQUIRED TEXT(S): *Building Construction Principles, Materials, and Construction*, Mehta, Scarborough and Armpriest, 2nd edition, Pearson 2013. (ISBN: 9780132148696)

REFERENCE(S):

1. New York City Building Code
2. *Architectural Graphic Standards for Architects, Engineers, Decorators, Builders and Draftsmen*, Ramsey & Sleeper, Wiley 1998.

DESCRIPTION: This course introduces students to the construction and building techniques related to wood frame, brick, and masonry construction. The theoretical component of this course includes the language of construction, the terminology relating to the industry, and accepted practices of construction. Construction materials and their applications related to the finished product are also covered. Reading and interpreting blueprints and the reading architectural and engineering scales will be covered, as well as assignments to reinforce construction concepts.

GRADING CRITERIA:

Class Participation	5%
Assignments (4 x 5%)	20%
Term Project	25%
Midterm Exam	20%
Final Exam	30%
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	100%

Attendance policy: Grade drops after three missed classes (for example, A to a B; B+ to a C+). Three late arrivals are equal to one skipped class. Six or more unexcused absences will result in a failing grade for the course. **THIS POLICY WILL BE STRICTLY ENFORCED.**

GRADES: A, A⁻, B⁺, B, B⁻, C⁺, C, D, I, F.

Program Criteria

ABET, Inc. is the nationally recognized accrediting body for engineering technology programs. The Department has adopted the most current ABET Program Criteria. Graduates of a construction degree programs typically specify project methods and materials, perform cost estimates and analyses, and manage construction activities. The curriculum provides instruction in the following areas:

- utilization of techniques that are appropriate to administer and evaluate construction contracts,

- documents, and codes;
- estimation of costs, estimation of quantities, and evaluation of materials for construction projects;
- utilization of measuring methods, hardware, and software that are appropriate for field, laboratory, and office processes related to construction; and
- application of fundamental computational methods and elementary analytical techniques in sub-disciplines related to construction engineering.

Student Learning Outcomes

The Department has adopted the most current ABET student outcomes criteria. Student performance in this course will be assessed based on the following learned capabilities:

- an ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve well-defined engineering problems appropriate to the discipline (Criterion 3.A.1.); and
- an ability to apply written, oral, and graphical communication in well-defined technical and non-technical environments; and an ability to identify and use appropriate technical literature (Criterion 3.A.3.).

COURSE OUTLINE

Week	Topic	Assignment
1	Plan Reading - plot/site plan, foundation, basement and floor plans, elevations, building sections, details, plumbing and heating drawings, symbols, specifications, schedules and notes. Using and reading engineering and architectural scales pertaining to construction (Chapter 1 & 2)	
2	Building Site Layout and Excavation - The use of the transit and surveying instruments in the site work (Chapter 7)	Assignment 1
3	Concrete Footings and Foundation Walls - Concrete as a construction material (Chapter 8)	
4	Columns & Girders - Their use, placement and protection (Chapter 8)	
5	Floor Systems - An understanding of floor framing systems, spacing, joist connection, sill construction and masonry walls (Chapter 9)	Assignment 2
6	Wood Framing - Types: Platform (Western) frame and Balloon frame construction (Chapter 4)	
7	Midterm Exam	
8	Wall Frame Construction - Component parts, exterior corner connections, partition junctions, assembling the frame, erecting the frame and wall sheathing (Chapter 9)	Term Project
9	Stair Construction - Types of staircases, nomenclature, layout calculations, code requirements (Chapter 9)	
10	Roof construction - Types, nomenclature, framing computation for developing members, framing of dormers (Chapter 10)	Assignment 3
11	Exterior Finishes - Insulation of exterior surfaces and exterior wall finishes. Types of windows and doors, sizes, moldings and trim and gutters and leaders (Chapters 11, 15 & 17)	

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Week	Topic	Assignment
12	Brick Veneer Construction - Understanding the use of brick as a finish wall surface applied to wood frame walls (Chapter 5)	
13	Brick/Masonry Construction - Understanding the use of brick and concrete block as a structural material (Chapter 5)	Assignment 4
14	Plumbing - Plumbing basics water supply and drainage (Chapter 13)	
15	Final Exam	

Note that this syllabus is a suggested timeline only. Instructors are responsible for covering all of the material in the syllabus, but they may do so at their own pace.