

**HOSTOS COMMUNITY COLLEGE  
DEPARTMENT OF MATHEMATICS**

**CMT 250** FUNDAMENTALS OF BUILDING SYSTEMS  
**CREDIT HOURS:** 3.0  
**EQUATED HOURS:** 3.0  
**CLASS HOURS:** 3.0 (3 Class Hours)  
**PRE/COREQUISITE:** CMT 160 (Introduction to Surveying)

**REQUIRED TEXT(S):**

1. *Olin's Construction: Principles, Materials, and Methods*, H. Leslie Simmons, 9th edition, Wiley 2011. (ISBN: 978-0-470-54740-3)
2. *Fundamentals of Building Construction: Materials and Methods*, by Edward Allen, Joseph Iano, 6th Edition Wiley 2013 (ISBN: 978-1-118-13891-5)
3. Understand Building Construction Newsletter (<http://www.understandconstruction.com>)

**REFERENCE(S):**

1. *Building Construction: Principles, Materials, & Systems* / Edition 2
2. *Journal of Building Construction and Planning Research*; ISSN Print: 2328-4889 ISSN Online: 2328-489
3. *Construction and Building Materials Journal* ISSN 0950-0618
4. *Journal of Performance of Constructed Facilities* / ASCE ISSN
5. *Case Studies in Construction Materials*; ISSN: 2214-5095

**DESCRIPTION:** The course includes an examination of all building components, their relevant codes, and standards in modern construction build-outs as well as the performance of those constructed facilities over time. Fundamentals of Building Systems encompasses the very core of construction as a field, the materials, and the methods utilized to build a structure from excavation through final delivery. The properties of these materials determine the level of quality and shape of the structure's assembly. Students will learn to identify these materials and their properties as part of the construction document package which includes plans and specifications.

**GRADING CRITERIA:**

Attendance/Participation	10%
Assignments/Projects (2 x 10%)	20%
Midterm Exam	35%
Final Exam	35%
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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<sup>-</sup>, B<sup>+</sup>, B, B<sup>-</sup>, C<sup>+</sup>, 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**

<b>Week</b>	<b>Topic</b>	<b>Assignment</b>
1	a. <b>Introduction</b> (Chapter 1 - Fundamentals of Building Construction) b. <b>Foundations and Site Work</b> – Foundation Requirements, Earthwork and Excavation, Foundations, Sitework and Geotextiles (Chapter 2 - Fundamentals of Building Construction)	
2	<b>Concrete</b> – concrete as a construction material (Chapter 3 - Olin’s Construction)	Assignment 1
3	<b>Masonry</b> - use of brick and concrete block as a structural material (Chapter 4 - Olin’s Construction)	
4	<b>Metals</b> – metal as a constructional material; including framing and decks (Chapter 5 - Olin’s Construction)	
5	<b>Wood, Plastics, and Composites</b> – use of wood, plastics, and composites as a construction material (Chapter 6 - Olin’s Construction)	
6	<b>Thermal and Moisture Protection</b> – thermal and moisture protection systems using in construction; including systems for moisture control, waterproofing, thermal installation and fireproofing (Chapter 7 - Olin’s Construction)	
7	<b>Midterm Exam</b>	

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<b>Week</b>	<b>Topic</b>	<b>Assignment</b>
8	<b>Plumbing</b> - Plumbing basics water supply and drainage (Chapter 15 - Olin's Construction)	
9	<b>Fire Suppression</b> – fire suppression systems including standpipe, sprinkler and extinguishing systems (Chapter 14 - Olin's Construction)	
10	<b>Electrical</b> – electrical system basics as well as service and distribution, and lighting protection (Chapter 17 - Olin's Construction)	
11	<b>Heating, Ventilating and Air Conditioning</b> - Heating, ventilating and air conditioning system basics (Chapter 16 - Olin's Construction)	Assignment 2
12	<b>The Curtain Wall System</b> – designing exterior wall systems, cladding with masonry and concrete, and cladding with metal and glass (Chapter 19, 20, 21- Fundamentals of Building Construction)	
13	a. <b>Finishes</b> – review of the different finishes used during construction (Chapter 9 - Olin's Construction) b. <b>Openings</b> – door and frames used during construction (Chapter 8 – Olin's Construction)	
14	a. <b>Conveying Systems</b> – elevators, lifts and escalators (Chapter 13 - Olin's Construction) b. <b>Performance of Constructed Facilities</b> (Journal of Performance of Constructed Facilities - ASCE Library)	
15	<b>Final Exam</b>	

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.