HOSTOS COMMUNITY COLLEGE
DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

CMT 260	**MATERIALS PROPERTIES AND TESTING LABORATORY**
CREDIT HOURS:	2.0
EQUATED HOURS:	2.0
CLASS HOURS:	4.0 (0 Class Hour, 4 Lab Hours)
PRE/COREQUISITE:	CMT240 (Fundamentals of Construction Materials)

REQUIRED TEXT(S):

1. Laboratory Manual for Materials Testing by Sydney H. Avner, Professor Emeritus and George Cavaliere, Professor Emeritus 4th Edition, unofficial revised by Elliot Colchamiro 2006
2. Concrete Field Testing Technician Workbook, Level 1; published by the American Concrete Institute (latest edition - updated annually by ACI)

REFERENCE:

1. Various ASTM Standards for Mechanical Testing of Materials, for Cement Mortar, for Field Inspection of Fresh Concrete
2. The American Association of State Highway and Transportation Officials (AASHTO), T168, T312, T209, T283, and T308

DESCRIPTION:

The mechanical properties of steel, timber, asphalt and concrete will be explored through laboratory testing. Standard tests for tension, compression, bending, shear, torsion, ductility, aggregate grading and asphalt are performed in accordance with ASTM and AASHTO standards. Principles of field inspection of fresh concrete are covered as well. Students take the "Concrete Field Testing Technician - Grade I" certification exam by the American Concrete Institute (ACI).

GRADING CRITERIA:

Laboratory Reports	60%
7 ACI performance exam	15%
ACI written exam	25%
	100%

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 CMCE department has adopted the most current ABET Program Criteria. Graduates of baccalaureate degree programs typically specify project methods and materials, perform cost estimates and analyses, and manage construction activities. The CMCE curriculum provides instruction in the following areas:

- Utilization of techniques that are appropriate to administer and evaluate construction contracts, documents, and codes (Criterion a)
- Demonstrate utilization of measuring methods, hardware, and software that are appropriate for field, laboratory, and office processes related to construction (Criterion c)

Student Learning Outcomes

- The CMCE 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 broadly-defined engineering problems appropriate to the discipline (Criterion 1)
- an ability to design systems, components, or processes meeting specified needs for broadly-defined engineering problems appropriate to the discipline (Criterion 2)
- an ability to apply written, oral, and graphical communication in broadly-defined technical and non-technical environments; and an ability to identify and use appropriate technical literature (Criterion 3)
- an ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes (Criterion 4)
- an ability to function effectively as a member as well as a leader on technical teams (Criterion 5)

Academic Integrity Policy

Students and all other show work with information, ideas, texts, images, music, inventions, and other intellectual property owe their audience and sources accuracy and honesty in using, crediting, and citing sources. As a community of intellectual and professional workers, the College recognizes its responsibility for providing instruction in information literacy and academic integrity, offering models of good practice, and responding vigilantly and appropriately to infractions of academic integrity.

Course Outline:

Week	Topic	Hours	Lab Reports
1	Course Introduction	4 hrs	#1
2-5	Steel and Timber	16 hrs	#2
6-8	Asphalt	12 hrs	#3
9 - 11	Concrete	12 hrs	#4
12 - 13	7 ACI performance examinations	8 hrs	
14	Preparation for ACI examination	4 hrs	
15	Review and ACI written examination	4 hrs	