ESF Course Proposal Form
Committee on Instruction - ESF Faculty Governance
Office of Instruction & Graduate Studies

Date: May 5, 2011
Course Number: CME 306
Course Title: Engineering Materials for Sustainable Construction

☐ New Course  OR  ☒ Changes in existing course (check all that apply):
☐ Prefix
☐ Number
☐ Credits
☐ Title
☐ Description
☒ Pre-requisite(s)
☐ Co-requisite(s)
☐ Shared Resources
☐ Course Format
☐ Content
☐ Semester Offered

This course meets the General Education standards in the following knowledge and skills area (check all that apply):

☐ American History  ☐ Humanities  ☐ Other World Civilizations
☐ The Arts  ☐ Mathematics  ☐ Social Sciences
☐ Basic Communication  ☐ Natural Sciences  ☐ Western Civilization

Prequisites or co-requisite requirements:
☒ Prerequisites: None (This is a change from previously requiring GNE 273)
☐ Co-requisites:

Institutional Impact:

Anticipated Enrollment: 30 per semester
Technology and Classroom Resource Demands: Access to Department Laboratory Equipment
Computing Resources: None
Library Resources: None
Transportation Requirements: None
Forest Properties or Field Practicum Facilities Required: None
Health and Safety Considerations:

Conditions or situations present in association with the course?  

1. Will substances with any of the following properties be used during instruction? flammability, toxicity, corrosivity, reactivity, registered pesticide, legally controlled, or other characteristics with the potential to cause harm or injury?  
   Yes

2. Will any physical hazards be present during instruction? (e.g., machines that need safety guards; razor blades or syringes; compressed gases, etc.).  
   No

3. Will any biological hazards be present during instruction? (e.g., handling animals (rabies or hantavirus); cultures or stocks of infectious agents (fungal spores, viruses, bacteria, etc.).  
   No

4. Will any radiation hazards be present during instruction? (e.g., radioisotopes, X-rays, ultraviolet rays, lasers, etc.).  
   No

5. Will any electrical equipment that, due to its design, location, or method of use, pose any threat to safety during instruction? (Give considerable thought to electrical use outdoors, or any potentially wet location.).  
   No

6. Will there be any personal safety issues related to the class? (e.g., due to time of day or location, at the end of any organized class exercise, will students be in danger of physical assault, etc.).  
   No

7. Will any students be driving official state or research sponsored land or water vehicles during any class or instructional exercise?  
   No

8. Will any type of personal protective equipment be necessary during class exercises? (e.g., hard-hats, eye/face protection, hearing protection, hand/foot protection, lab coat, visibility clothing, etc.)  
   Yes

If the answer was “Yes” to any of the HEALTH AND SAFETY questions, please explain:

1. Students will work under controlled conditions in the lab with Portland Cement. If left on the skin for an extended period, Portland Cement can produce burns.
2. All laboratory exercises will require the use of safety glasses by the students.

CATALOG DESCRIPTION (Please provide using the precise format currently used in the ESF catalog, please do not exceed 500 characters):

CME 306 Engineering Materials for Sustainable Construction (3)  
Two hours of lecture and one lab per week  
Introduction to the principal structural materials used for building construction, their engineering properties and environmental impacts. Exploration of production and performance of these materials with emphasis on the application during sustainable construction.  
Spring  
Prerequisite(s): None
COURSE: CME 306 – Engineering Materials for Sustainable Construction

3 Credit Hours – Spring Semester
2 Lectures Per Week 1 Lab
Prerequisite(s): None

SCOPE:

1. **Level of Instruction:**
   a. CME 306 is a required course in the Construction Management curriculum
2. **Relation to curriculum or to other ESF or Syracuse University courses:**
   a. CME 306 is one of three courses addressing materials in the construction management curriculum. It is required for students majoring in Construction Management. This course can serve as an elective for students in other majors at ESF and at SU.
   b. Shared resource requirements: none, a graduate offering is not planned

STUDENT LEARNING OUTCOMES:

After completing this course the student should be able to:

1. Describe the engineering properties of materials that are commonly specified during building construction, and explain the impact of changes in those properties on the building performance.
2. Describe the environmental properties of materials that are commonly specified during building construction.
3. Write a clear technical report to describe a laboratory study of a particular material property.
4. Properly specify the engineering properties of a material for the individual construction application chosen.

MAJOR CONCEPTS OR METHODOLOGIES: The engineering properties of steel, concrete, masonry, and glass will be explored. The thermal, hygroscopic, air permeability, fire resistance, and acoustic properties will also be studied. The life cycle environmental impacts, particularly with respect to carbon and energy, will be considered. The course will use both laboratory testing and classroom discussion to build this understanding of the materials.

CATALOG DESCRIPTION (Please provide using the precise format to be included in the ESF catalog, please do not exceed 50 words)

CME 306 Engineering Materials for Sustainable Construction (3)

Two hours of lecture/discussion per week, one lab per week. Introduction to the principal structural materials used for building construction and their engineering properties and environmental impacts. The production and performance of these materials will be explored through class discussion and laboratory experiments. The application of each of the materials during sustainable construction processes will be emphasized. Spring.

Prerequisite(s): None
COURSE HISTORY:

This course was taught for the first time Spring 2011
Course prefix changed to reflect department name change and graduate program changes 10/2010.
Course prerequisite removed 5/2011