

AE 221

Syllabus

Architectural Building Materials

Department of Architectural Engineering
The Pennsylvania State University

Course Instructor:

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219 Engineering Unit A

Office Hours

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AE 221 Angel Web Page

AE Web Page

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1:25 – 2:15 on MWF

also by appointment or by email

<http://www.angel.psu.edu>

<http://www.enr.psu.edu/ae/>

AE 221. ARCHITECTURAL BUILDING MATERIALS (2) The structural and architectural use of building materials; commercial standardization, classification, and description as encountered in the building trades.

AE 221 and AE 222 must be taken concurrently. If one course is dropped during the semester the other course must be dropped also.

Course Overview:

AE 221 will be taught utilizing a combination of several of the following methods.

Job Site Visits:

Job site visits to current construction projects on the Penn State University Park Campus will be conducted during the semester.

Guest Speakers:

Manufacturers' Representative

Structural Engineer

Local Building Code Authorities

State Labor and Industry Inspector

Lighting/Electrical Engineer

Mechanical Engineer

Construction Manager

Superintendent

Intern

Owner's Representative

Videos:

Building A Skyscraper series featuring the construction of the CalTran (similar to PennDOT) building by Clark Construction in Los Angeles, California will be viewed.

The *Skyscraper* series featuring a behind-the-scenes look at the design and construction of New York City's 47-story, 770-foot Worldwide Plaza building will be viewed.

Other videos will be viewed during the semester.

Local Building Suppliers and Testing Facilities Visits:

Concrete Supply Plant	Soils Testing
Concrete Masonry Unit Plant	Concrete Testing

Bus Trip:

Brick Manufacturing Plant	Steel Truss Fabrication Plant
Wood Saw Mill	Steel Fabrication Shop
Wood Truss Manufacturing Plant	Prestressed Concrete Plant

Projects:

Students will work in groups on one area of an efficiency apartment mockup:

1. Entry
2. Kitchen
3. Living Room
4. Bedroom
5. Bathroom
6. Hall
7. Exterior

Also design and possible construction of other projects.

Material Samples Library:

We have a building materials library that is in 113 Engineering Unit B. These samples will be utilized through out the course during lectures and for exams. If you have access to samples or actual materials, please donate any type of sample to the AE Building Materials Library.

Resources:

The following items are required for this course. The student is expected to have access to the items listed except where specifically noted.

- Textbook
Building Construction –Principles, Materials and Systems
by Mehta, Scarborough, Armpriest
ISBN-13 978-0-13-049421-4
- “**Clicker**” Interwrite PRS RF (Personal Response System) setup with email username
- **Hard Hat** (OSHA approved)of your choice for site visits. Hard hats with the AE logo can be purchased in the Engineering Copy Center located in 101 Engineering Unit A.
- OSHA approved **Boots** for construction, open footwear or sandals are not acceptable for Job Site Visits, and mockup construction.
- **Eye Protection** for constructing mockups, job site visits, and structures lab.

Reference Materials:

The following items will be referenced during this course.

- Sweet’s Catalog
309 Sackett
Sweet’s Online
- *Architectural Graphic Standards* by Ramsey Sleeper
TH2031.A48.1994 in the Architecture Library
- *International Building Code*
- *National CAD Standard*

Course itinerary will generally follow the MasterFormat according to the Construction Specifications Institute, CSI.

Quiz Schedule:

Six (6) quizzes will be scheduled, one approximately every two to three weeks. One (1) quiz may be dropped. The remaining five (5) quizzes will be 40% of the final grade. There will not be makeup quizzes. If a quiz is missed due to anything, including illness, then this quiz will be used as the dropped quiz.

Cumulative Quiz:

A Cumulative Quiz will be given during finals week.

Attendance:

Attendance in class is expected. Many lecture items are either not in the book or not easily to search out of the book. Class examples and demonstrations vary by semester. The AE Department will not provide make up lecture time for topics missed due to unexcused absences. Regular attendance also not only helps with course topics, but it improves your understanding of the course material.

Student Evaluation and Grading:

Student evaluation and individual grades are based on a combination of attendance, homework, quizzes, projects, and the final exam. Grade distributions are noted below:

- 1. 4-6 Homework 25%
- 2. 5 Quizzes 40%
- 3. 1-2 Projects 15%
- 4. Final Quiz 10%
- 5. Attendance & Clicker Questions 10%

93 to 100	A
90 to 92	A-
87 to 89	B+
83 to 86	B
80 to 82	B-
77 to 79	C+
70 to 76	C
60 to 69	D
0 to 59	

Current grades and attendance can be reviewed on [Angel](#)

Late Assignment Policy:

Students should make every attempt to turn in assignments on time. A penalty of 3% will be imposed for each **day** that an assignment is late. First week late – grade less 21%, second week late – grade less 42%. Assignments over two weeks late will not be accepted. Third week late and later – grade=0. In class assignments cannot be made up except for excused absences.

Students are encouraged to work together for team assignments to share ideas and short cuts. Files may be exchanged by network or disk as a part of some assignments but only when directed by the course instructor. Copying of files for an individual assignment is not permitted. The highest levels of academic honesty are expected of all students. Please review the statement on academic integrity at http://www.engr.psu.edu/www/ug/acad_int/students/default.htm

ABET Expected Outcome	Emphasis in this course
(a) an ability to apply knowledge of mathematics, science, and engineering.	1
(b) an ability to design and conduct experiments, as well as to analyze and interpret data.	1
(c) an ability to design a system, component, or process to meet desired needs.	
(d) an ability to function on multi-disciplinary teams.	
(e) an ability to identify, formulate, and solve engineering problems.	
(f) an understanding of professional and ethical responsibility.	2
(g) an ability to communicate effectively.	2
(h) the broad education necessary to understand the impact of engineering solutions in a global and societal context.	3
(i) a recognition of the need for, and an ability to engage in life-long learning.	
(j) a knowledge of contemporary issues.	1
(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.	

Emphasis: 3 – Strong, 2 – Moderate, 1 – Little, blank – Nothing specific expected