
Working Drawings

Department of Architectural Engineering
The Pennsylvania State University

COURSE INSTRUCTOR:

Paul A. Bowers, Assistant Professor

219 Engineering Unit A

Office Hours

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Angel Course Web Page

AE Web Page

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1:25 – 2:15 on MWF

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

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A E 222 WORKING DRAWINGS (3) Materials and methods of construction used in residences, and preparation of working drawings for a small building.

Prerequisite: EDSGN 100 or EDSGN 130

COURSE OUTLINE:

The course is organized around a series of modules related to working drawings. The list below indicates the module topics and the general order in which they will be introduced. Reading assignments related to the various topics or modules will be announced in class on a regular basis.

1. Read and Interpret Construction Documents
2. Hand drawn Sketches:
 - a. Sketch from existing mockups
 - b. Sketch from existing drawings
 - c. Sketch from assigned details of existing campus buildings showing plan, elevation, and section
 - d. Create sketch from given parameters

3. Draw the following, utilizing the latest version of AutoCAD and Revit in accordance to the National CAD Standards:
 - a. Floor Plans
 - b. Elevations
 - c. Exterior Wall Section
 - d. Building Sections
 - e. Floor Plan/s with Lighting, Electrical, HVAC, Plumbing
 - f. Reflected Ceiling Plan
 - g. Title Block
 - h. Roof Plan
 - i. Foundation Plan
 - j. Structural Plan
 - k. Site Plan (Parking, Landscape, Zoning)
 - l. Stairs
 - m. Details
 - n. Schedules (Room, Door, Window, Lintel, etc.)
4. Create partial Construction Documents for an apartment building with given parameters in accordance with various codes (Zoning, IBC, ADA, etc.).

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 are different. In addition, for some program skill topics one on one instruction is provided. 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 skill (including speed) and understanding of the CAD software, a valuable asset when looking for a summer or permanent employment opportunity.

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:
Architectural Graphic Standards
Student Edition by Ramsey, Sleeper (11th Edition)
ISBN 978-0-470-08546-2
- Textbook:
Building Construction Illustrated
Fourth Edition by Ching
ISBN 978-0-470-08781-7
- Textbook (Optional)
Mastering Revit Architecture 2009 ... by Demchak, Dzambazova, Krygiel
ISBN 978-0-470-29528-1
- 1 package 8½ x 11 'Engineer's Computational Pad' (PSU Bookstore)
- Architectural Scale (1/8, 3/32, 3/16, 1/4, 3/8, 1/2, 3/4, 1, 1-1/2, 3)
- Engineering Scale(10, 20, 30, 40, 50, 60)
- Black Pens in 3 noticeable lineweights (or Pencils) (thin - .25mm, medium - .35mm, wide

-.70mm)

For example micro – 0.2mm, medium – 0.7mm, bold - 1.0mm by uni-ball

- 45/90 Transparent Triangle
- 30/60 Transparent Triangle
- Tape Measure 10' or 25' (inexpensive)
- CDR or CDRW media containing backups of dwg, dwf, dat, doc, xls, etc.
- Plotting Paper (for AE 222 assignments) will be provided.
- An HP color ink jet plotter will be used for large scale output. Ink cartridges are supplied by the AE Department. **Do not attempt to change the cartridges or refill ink supplies. Ask for assistance.**
- A laser printer is used for small scale output (8.5 x 11 and 11 x 17). An allowance of \$20.00 has been added to your printing account for laser printing during the semester. Additional funds will be added to your account for 11 x 17 color laser printing and 24 x 36 color ink jet printing.

REFERENCE MATERIALS:

The following items will be utilized for this course. The student is expected to have access to the items listed except where specifically noted.

- Sweet's Catalog
309 Sackett
Sweet's Online
- *Architectural Graphic Standards* by Ramsey Sleeper
TH2031.A48.1994 in the Architecture Library

COMPUTER LAB ACCESS:

Access to the AE Computer Lab is by way of electronic key activated by your PSU Student ID card. Each student is responsible to supply the department with their ISO # which is printed on the front of the card. Please note the labs are equipped with video cameras for security and safety issues and you are being taped at all times while in the labs.

Do not attempt to reconfigure any hardware or software without consulting the course instructor. Your efforts in keeping the lab clean and organized are appreciated by all.

STUDENT EVALUATION AND GRADING:

Student evaluation and individual grades are based on a combination of homework, projects, in class assignments, exams, quizzes and attendance. In class assignments are generally short and given to demonstrate a concept or as practice. As such, in class assignments are graded for completion, not skill, and are a measure of attendance. Grade distributions are noted below:

- 1. 6-8 Homework 30%
- 2. 6-8 Sketches 20%
- 3. 3-5 In Class Assignments 15%
- 4. 2-3 Quizzes 20%
- 5. 1-2 Projects 10%
- 6. Attendance 5%
- No Final Exam

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	

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 individual assignments 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.	
(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.	
(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.	
(i) a recognition of the need for, and an ability to engage in life-long learning.	
(j) a knowledge of contemporary issues.	
(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.	2

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