

ARCHITECTURAL ENGINEERING DESIGN I
ARCE 680 -- Fall Semester 2013
GENERAL SYLLABUS

Meeting Time: Mondays, Wednesdays, and Fridays; 1:00 to 2:50 p.m.

Meeting Place: 2148 Learned Hall {ARCE Senior Design Lab = 1137 Learned}

Coordinator: Brian A. Rock, Ph.D., P.E., 2134-D Learned Hall, docrock@ku.edu

Computer Help: 1137 Learned's hardware and software: see the SoE techs in 1132 Learned, or their Web site *help.engr.ku.edu/home*

Catalog Description: Capstone engineering design course that includes the analysis, design, and integration of structural, mechanical, electrical, and lighting systems for a commercial, industrial, or institutional building

Prerequisites: ARCE 640, 650, 661, CMGT 500, and CE 562 and 563, or consent of instructors. Senior (5th year) standing in ARCE. Consent of the instructors requires all of the following:

- Completion of a Course Substitution Petition stating the reason for not having a prerequisite, and approval of the student's advisor
- Written approval on the Course Substitution Petition of the ARCE 680 instructors
- Approval of the CEAE Department Chair
- Approval of the Associate Dean of Engineering

Required Textbooks, References, and Other Materials:

See the individual instructors' syllabi for their portions of the course.

<i>Grading:</i>	<i>Weighting:</i>	<i>Final Grades:</i>	
	Structural Portion	33%	90% to 100% = "A"
	Mechanical Portion	33%	80% to 89.9% = "B"
	Lighting/Electrical Portion	33%	70% to 79.9% = "C"
	First Day Attendance	<u>1%</u>	60% to 69.9% = "D"
	Total possible:	100%	59.9% or less = "F"

Assignment due dates are set by the individual instructors, but *may not extend past each portion's allotted dates.*

Final Exam: None.

Other: Students are expected to abide by KU's academic misconduct policies. All work is to be original and completed independently by each student unless

otherwise directed by the portion's instructor. Instructors' penalties for academic misconduct range from points off or no credit on a particular assignment to course failure; incidents are reported to the Department Chair and Dean's Office for further action.

Instructors:

Structural:	Prof. Lyon, 2134-E Learned Hall
Mechanical:	Dr. Rock, 2134-D Learned Hall
Lighting/Electrical:	A team led by Emily Royal, of HEI

Start/Stop Dates and Times:

<u>Portion</u>	<u>Start Date/Time</u>	<u>Stop Date/Time</u>
Introduction	August 26, 1:00 p.m.	August 26, ~2:00 p.m.
Structural	August 26, ~2:00 p.m.	September 27, 2:50 p.m.
Mechanical	September 30, 1:00 p.m.	November 1, 2:50 p.m.
Lighting/Electrical	November 4, 1:00 p.m.	December 11, 2:50 p.m.

Note: The Kansas F.E. exam is scheduled for Saturday, October 26th, 2013.

General Information:

The objective of this course is to design the engineered systems for a building. You will produce design drawings that include your structural (sheets labeled S1, S2, . . .), mechanical (M1, M2, . . .), and lighting/electrical (E1, E2, . . .) designs. These drawings, if done well, will help demonstrate your design knowledge and skills to potential employers.

This capstone engineering design course serves as a transition from academia to professional practice. The three portions' instructors should provide the general guidance necessary to complete your assignments. But as an engineering design professional *you* must secure the additional references, materials, catalogs, and methods that are needed to complete the assignments.

Learned Hall's Room 1137 serves as the office of our E/A firm. In a consulting firm our livelihood depends on the expertise and resources that we have to offer to our clients. The office's computers, printers, drawings/books/catalogs, and environment are crucial to our success, so treat them as if your and your colleagues' careers depend upon them. Please keep the room orderly -- "when in doubt, clean!" Clients, vendors, colleagues, and your supervisors do visit engineering offices frequently, and making a good first impression is important to your career and for the company.

Drawings:

Finished drawings, as described above and by the individual instructors, are required. When submitted on paper, use uniformly-sized sheets (e.g., 11" by 17", 24" by 36", ...) with easy-to-read, scaled drawings. A title sheet with a table of contents is also often needed. If a drawing does not fit on a sheet use larger paper, but all sheets for each portion of the course must be the same size. Match-lines can be used to show a large drawing on multiple sheets. Be sure that your drawings have excellent line weights, lettering/spelling, and standard items such as borders, title blocks,

titles, scales, your name, dates, north-arrows, P.E. seal boxes (but no seal!), etc.

Beware that the printers and plotters in the Learned, Marvin, and Art & Design tend to breakdown, run out of paper, ink, or toner, or be log-jammed near due dates. Because your instructors and future clients require that you meet their deadlines, be sure to plan ahead. See or e-mail the course coordinator for paper and toner/ink for the ARCE Senior Design Lab (1137 Learned).

Project:

This semester's project is described via separate handouts. You are to design the structural, mechanical, and lighting/electrical systems for the building. Appropriate initial and operating costs, swiftness of construction, high percent usable floor area, safety/security, and low maintenance are priorities of the building's future owner/occupant, but the owner/occupant is also somewhat interested in sustainability as well as appearance. Design your systems accordingly.

Be sure to prepare your base drawings from the supplied draft(s) as soon as possible -- each student must prepare his or her own base drawings.

Fundamentals of Engineering Exam:

Taking the F.E. (formerly E.I.T.) exam is a CEAE Department requirement for all its undergraduates. Instructions and registration forms for the exam should be available from the SoE Dean's Office in Eaton Hall or the Kansas State Board of Technical Professions' Web site www.kansas.gov/ksbtp/.

Graduate Study:

Now is the time to start the application process for graduate study. For example, KU's Master of Science in Architectural Engineering (MS ARCE), Master of Construction Management (MCM), Master of Science in Civil Engineering (MSCE), and NAAB-accredited Master of Architecture (M ARCH) have been popular choices for graduate study by previous KU ARCEs. For exemplary students, direct admission to some Ph.D. programs may be possible.

Finding a specific professor or group of professors who specialize(s) in your area of interest is an important early task; ask a faculty member in that area here at KU for suggestions. Next, visit the relevant websites (e.g., www.ceae.ku.edu, www.engr.ku.edu/prospective, and www.graduate.-ku.edu) to obtain graduate degree program information, application materials, and other advice. The Graduate Records Exam (G.R.E.; www.ets.org/gre/) is required for admission to many programs, so you should likely register, *study for*, and take it as soon as possible.

Submit a complete application for admission soon. Visiting with the faculty member(s) is also recommended, but don't wait for Spring Break – that's likely far too late. Also make an appointment to see the relevant department's Graduate Advisor while there. For KU's ARCE, CMGT, and CE graduate programs, Prof. Bruce McEnroe, in 2150-C Learned Hall, is our Graduate Advisor.