

ARCHITECTURAL ENGINEERING DESIGN I
ARCE 680 -- Fall Semester 2010
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 640/645, 650/642, 661, CMGT 500, and CE 562 and 563, or consent of instructors. Senior (5th year) standing in ARCE.

Required Textbooks, References, and Other Materials:

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

<i>Grading:</i>	Weighting:	Final Grades:	
	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: No final "exam", however the last L/E requirement may be scheduled for the exam period which is Friday, Dec. 17th, 10:30 a.m. - 1 p.m.

Other: Students are expected to abide by KU's academic misconduct policies. All work is to be original, and completed independently, unless otherwise directed by the instructor. Instructors' penalties for academic misconduct range from 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:	Mr. Lyon, 2134-E Learned Hall
Mechanical:	Dr. Rock, 2134-D Learned Hall
Lighting/Electrical:	Dr. Cai, 2134-C Learned Hall

Start/Stop Dates and Times:

<u>Portion</u>	<u>Start Date/Time</u>	<u>Stop Date/Time</u>
Introduction	August 20, 1:00 p.m.	August 20, ~2:00 p.m.
Structural	August 20, ~2:00 p.m.	September 24, 2:50 p.m.
Mechanical	September 27, 1:00 p.m.	October 29, 2:50 p.m.
Lighting/Electrical	November 1, 1:00 p.m.	December 8, 2:50 p.m.

Note: The Kansas F.E. exam is scheduled for Saturday, October 30th, 2010.

General Information:

The objective of this course is to design the engineered systems for an entire 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 skills to potential employers.

This capstone 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, 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.

Drawings:

Finished drawing sheets, as described above and by the individual instructors, are required. Neat hand-only or CAD-only drawings are acceptable, but CAD is highly recommended. 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 one sheet use larger paper, but all sheets for each portion of the course must be of the same size; alternatively use one or more match-lines 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, scales, drawing titles, 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 clients require that you meet their deadlines, be sure to plan ahead. See or e-mail the course coordinator for paper and toner for the ARCE Senior Design Lab (1137 Learned).

Project:

This semester's project is described via separate handouts of 1) drawings and 2) a building site/information sheet.

You are to design the structural, mechanical, and lighting/electrical systems for the building. Low initial and operating costs, swiftness of construction, high percent usable floor area, safety/security, and low maintenance are top priorities of the building's future owner/occupant, but the owner/occupant is also very 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. For your subsequent drawings, using CAD layers on top of your base drawings has been a popular approach used by ARCE 680 students in the past.

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 Web sites (e.g., www.ceae.ku.edu 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 *study for* and take it as soon as possible.

Visiting the program and faculty is also recommended, but don't wait for Spring Break – that's likely too late. Also make an appointment with and visit the relevant department's Graduate Advisor while there. For KU's ARCE, CMGT, and CE graduate programs, Prof. Bruce McEnroe, in 2150 Learned, is our Graduate Advisor – visit with him as soon as possible.