UNIVERSITY OF TEXAS AT AUSTIN
COCKRELL SCHOOL OF ENGINEERING
DEPARTMENT OF CIVIL, ARCHITECTURAL AND ENVIRONMENTAL ENGINEERING
ARCHITECTURAL ENGINEERING PROGRAM

Course Syllabus
ARE 320K: Introduction to Design 1
Fall Semester 2018

UT Unique # 15020
MWF 12-3pm

and

UT Unique # 15025
T,Th 12:30-4:30pm
F 12-1

CLASSROOM:
ECJ 3.104 / 3.106 Datum Design Lab
ECJ 1.204 Friday Lecture Series (12-1p)

INSTRUCTOR:
Professor Gregory Brooks (UT Senior Lecturer)
Office: ECJ 5.432
Office Hours: By appointment, and 1/2 hour before class each day.
Instructor Telephone/Text: (512) 659-8083
Instructor Email: gregorybrooks@mail.utexas.edu
Instructor Website: www.utgb.info

TEACHING ASSISTANTS:
Cade Osborne
TA Email: cade@cdoengineering.com
TA Office Hours: During studio hours and by appointment.

COURSE BLOG:
www.aestudio.info

UT ArchE JOB POSTS BLOG:
https://utarchejobs.wordpress.com/

COURSE DESCRIPTION: ARE 320K 'INTRODUCTION TO DESIGN 1'
(Part 1 of a required 2-course sequence)

Introduction to current (architectural) engineering design issues, design concepts, principles, and problem-solving approaches.
Nine laboratory hours a week for one semester.
Prerequisite: Credit or registration for Architectural Engineering 217.

COURSE OBJECTIVE
To teach the integration of architecture + engineering + construction concepts during the early stages of the building design process.

ACADEMIC / LEARNING GOALS:

A. An understanding of the current profession of architectural engineering (recent history, firms and projects).

B. Critical-thinking skills - an understanding that design problems have multiple solutions - how to generate multiple solutions and choose the best answer.

C. Problem solving skills, particularly the engineering aspects of an architectural project, including artistic concepts, site and cultural issues, structural, mechanical, electrical, plumbing, facade technology, energy and sustainability issues.

D. Collaboration tools, preparing students to be productive members of a building design and construction team.

E. Communication skills: develop verbal skills, writing skills, sketching, computer drawing, model-making (physical and digital), time-management and productivity skills, all necessary for a career in architectural engineering.

F. Be exposed to many aspects of the profession, which will help each student to better decide on their own future academic and professional direction.

COURSE CALENDAR:
See image on next page.
This calendar is also available on the course web-site.

2018 Fall Semester Calendar ARE320K Intro to Design 1 - Architectural Engineering program, UT-Austin

Week		Monday	Topics and Lectures	Reading Req'd.		Friday Noon session	FB		Notes
1	*	Aug 27	Introduction to ArchE profession + First Principles: Sketching and design process.	BUY supplies		History of Innovation lecture	H		First Class day is Wednesday Aug 29
2	*	Sep 3	First Principles: Preliminary Design methods with digital tools.	Due M/T: Sketchup Tutorial		History of Innovation quiz	H		No class Monday Sep 3: Labor Day. Possible date for DallasFtW. Trip : Saturday Sep 8.
3	*	Sep 10	First Principles: Architectural theory, design. *Begin example project, international location.*	Due M/T: BCI Ch1 Site		AEWMap lecture	A		T,W Sep11,12 Expo.
4		Sep 17	First Principles: Climate design.	*read ahead for next week*		AEWMap quiz	x		
5		Sep 24	First Principles: Structure (gravity system).	Due M/T: BCI Ch2 The Bldg. + Ch3 Fnd. + Ch4 Floors + Ch5 Walls + Ch6 Roofs.		Visiting Firm: AEC	A		Assign Friday+weekend homework: 3d printing sample. Optional date for DallasFtW. Trip: Saturday Sep 29.
6	*	Oct 1	First Principles: Structure (lateral system).	Due M/T: 3D print sample		Class exhibit: Lateral models + discussion.	H		Saturday Oct 6 is Cottonbowl: travel day OK, but Lateral Model due Friday 12noon.
7		Oct 8	First Principles: Mechanical systems (climate specific).	Due M/T: BCI Ch11 M/E Sys.		No Friday session.	CB		
8		Oct 15	First Principles: Electric and Water systems (plumbing and waterproofing).	Due M/T: BCI Ch7 Moi&Therm + Review Ch1&Ch11.		Visiting Firm: TBA	H		
9		Oct 22	First Principles: Construction	Due M/T: BCI Ch8 Doors&Win. + Ch9 Spec.Con.		Visiting Firm: TBA	A		
10		Oct 29	Semester Project: Preliminary Integrated Design. Precedent and massing options.			Friday: Pin-up precedent research in class.	A		
11		Nov 5	Semester Project: Preliminary Integrated Design. Revit massing, sketch windows and systems.			Visiting Firm: TBA	H		
12		Nov 12	Semester Project: Preliminary Integrated Design: Revit model - envelope and structure.			Visiting Firm: TBA	A		
13	*	Nov 19	Semester Project: Preliminary Integrated Design: Revit model - systems.			No Friday session.	H		Thanksgiving Holiday is Wed Nov 21 - Fri Nov 253
14		Nov 26	Semester Project: Preliminary Integrated Design: Rendering.			Visiting Firm: TBA	x		
15		Dec 3	Semester Project: Preliminary Integrated Design: Rendering.			45min. Final Test	x		
16	*	Dec 10	Semester Project due by 3pm Monday			No Friday session.	x		Last Class day is Monday Dec 10
	*	indicates short week							

SEMESTER OUTLINE OF PROJECTS:
(individual student work, unless noted otherwise)

A. First Principles Project (9 weeks)
Weekly seminars focusing on a different fundamental aspect of design each week.

- Sketching
- Preliminary design methods with digital tools.
- Architecture theory, design.
- Climate design.
- Structure: gravity system.
- Structure: lateral system.
- Mechanical system.
- Water and Electric systems.
- Construction technologies.

First half of week: basic principles.
Second half of week: students apply these principles to an example project.
Design tools: see List of Supplies (at end of this document) + SketchUp and Revit.

B. Semester Project (6 weeks)
Topic: Compact mid-rise tower.
Now familiar with First Principles, student will individually design a building and it's systems and model the project in Revit. PDF package of drawings is due on Last Class Day.
Design tools: Sketching and Revit.

C. AEWorldMap Project (ongoing during semester)
www.aeworldmap.com
Research of contemporary architecture and related professional team.
AEWorldMap authored entries and presentation to class.
This project is begun during 1st week of class, but individual student deadlines are scheduled throughout the semester.
Tools: web and library research, Wordpress blog.

MATERIALS / SUPPLIES:
Each student is expected to bring the following items to the beginning of the 2nd week of class:

a. Small sketchbook for chronological class journal.

b. USB memory device with student name and contact information taped on it.

c. A few #2 pencils and a sharpener. (no mechanical pencils please).

d. White plastic Engineering scale (6 sided).

e. White plastic Architectural scale (6 sided).

f. Roll of 12" wide WHITE tracing paper. (no yellow tracing paper).

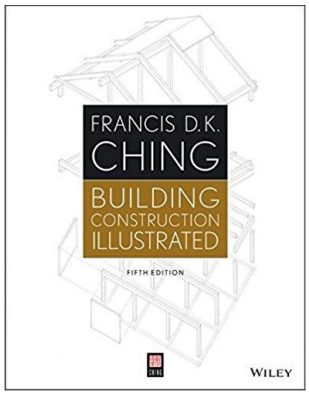
g. Roll of drafting tape.

h. Medium size drafting triangle (metal or plastic).

i. X-acto knife and one pack of #11 blades.

j. Small bottle of Elmer's Glue All (not 'School Glue').

k. Lock for student locker in studio.



REQUIRED TEXTBOOKS:

Ching, Francis. 'Building Construction Illustrated' - 5th Edition. Published by John Wiley and Sons, Inc.
ISBN: 978-1-118-45834-1.
Related to learning goals beginning Week #02.

SUGGESTED ADDITIONAL READING:

Slade, Ron. 'Sketching for Engineers and Architects.' Published by Routledge, 2016.
ISBN: 978-1-138-92540-3 (hardback).
(Required for ARE320L).

Ching, Francis. 'Architectural Graphics'- 6th Edition. Published by Van Nostrand Reinhold (VNR).
ISBN 978-1-119-03566-4.
Related to class discussion beginning Week #01.
Sketching exercises based on Chapters 10, 5, 6.

Pfammater, Ulrich. 'Building the Future.' Published by Prestel, 2008.
ISBN 978-3-7913-3926-9.
Related to class lectures beginning Week #01.
General reference related to History of Innovation.

Ching, Onouye, Zuberbuhler. 'Building Structures Illustrated'. Published by John Wiley and Sons, Inc.
ISBN 978-0-470-18785-2.
Related to class discussion beginning Week #07.
Highly recommended for any student planning to specialize in structural engineering.

GRADED COURSE ACTIVITIES AND PERCENTAGE OF GRADE:

Attendance	10	Cumulative.
In-class Productivity/Communication	10	Assessed at end of semester.
Quiz: History of Innovation	5	
Quiz: AEWorldMap	5	
AEWorldMap Posts	5	Students will be assigned specific deadlines for weekly presentation.
First Principles seminars / example project	30	Students will be graded weekly based on understanding and project progress.
Semester Project		
- Site + Architecture	15	
- Structure	10	
- MEP	10	

Project Grades and Final Grades will utilize +/- additions (Ex: B+)

GRADE EVALUATIONS:
Grading in a design studio is different from other courses. Project grades are based on each student's understanding of course material as exhibited in the final products of each assignment.

Asking for help with a project:
Each student is expected to ask for assistance when needed, and engage in problem-solving discussions with their peers, the TA and the instructor. The TA or instructor may be approached at any time during class for assistance, or you can schedule additional time to sit down privately to solve a design problem with either the TA or the instructor.

'A' Grades:
Only students who exhibit exceptional effort and strong design skill level will get an ‘A’ grade.

'B' Grades:
Completing the assignments with above average effort and skill level is rewarded by a ‘B’ grade.

'C' Grades and lower:
Projects that are late, incomplete or show only average effort and skill will lead to a ‘C’ grade or lower.

To check on your overall grade during the semester:
Intermittent overall grade status will be available upon request but must be understood to be an estimate. Final grades are available only near the end of the semester as your work will be compared to all other student efforts over the entire semester.

CLASS ATTENDANCE:
Class attendance is used to determine the course grade. Students are expected to be on-time, to attend every class session, and should not leave class early unless approved by the instructor. Lateness or absence can be excused if the student sends an email to the instructor before the start of class, stating their reason.

UT policy regarding religious holidays:
A student who misses classes or other required activities, including examinations, for the observance of a religious holy day should inform the instructor as far in advance of the absence as possible, so that arrangements can be made to complete an assignment within a reasonable time after the absence.

IN-CLASS PRODUCTIVITY / COMMUNICATION:
Students are expected to contribute to a productive, professional working environment in the studio/classroom. Students are expected to help each other during studio, participate in class discussions, and show progress regularly to the TA and instructor. Students are expected to clean up their workspace at the end of each class day.

GRADE REDUCTION FOR NON-PROFESSIONAL BEHAVIOR IN STUDIO.
Professional courtesy and behavior is required during class, and grade reductions will occur after 2 recorded infractions. Examples of non-professional behavior include:
- Texting, or other personal use of digital devices (phones, tablets, etc.) during class-time.
- Use of class-time or university equipment for non-studio-related assignments during class-time.
- Disruptive or negative behavior during class-time.

Students will receive a verbal warning the first time this is a problem. If the problem continues a second time, an email warning will be issued by the instructor with an offer to discuss the problem. Any additional instances will result in a one-step reduction of the student's final grade. For example, due to a third instance, a student's final grade is reduced from A- to B+ and so on.

DEADLINES:
Deadlines for projects are included on the Calendar (see last page of this syllabus). Minor adjustments are often made to deadlines by the instructor in order to maintain a balanced workload for the studio. If a deadline is changed, students will be notified in class, via email and on the class blog.

Work that is due in which the rest of the students in the class or student team are dependent on, will receive all or nothing credit. Otherwise, work due to the instructor will be down-graded one-half grade each day of the week that it is late. Credit for projects turned in late due to non-scholastic reasons may be negotiated with the instructor provided that an agreed upon proof of the reason is provided by the student for accountability.

EMAIL / CLASS BLOG ENTRIES:
Email and/or the class blog (www.aestudio.info) will be used by the instructor to announce project clarifications, modifications or tips. Students are expected to check email daily and are expected to subscribe to the class blog.

STUDENT PROJECTS / TEACHING EXAMPLES:
Some projects or assignments may be kept by the instructor for use as future teaching examples, public exhibits, or accreditation purposes. Students may make arrangements to pick up any such materials upon graduation, or once the materials are no longer needed by their academic dept.

COURSE / INSTRUCTOR EVALUATIONS:
An evaluation of the course and instructor will be conducted at the end of the semester using the approved UT Course/Instructor evaluation forms.

ACCOMMODATIONS FOR DISABILITIES:
The University of Texas at Austin provides, upon request, appropriate academic accommodations for qualified students with disabilities. For more information, contact the Division of Diversity and Community Engagement, Services for Students with Disabilities, 512-471-6259 (Videophone: 512-410-6644) or http://diversity.utexas.edu/disability/ .

HONOR CODE:
The core values of The University of Texas at Austin are learning, discovery, freedom, leadership, individual opportunity, and responsibility. Each member of the university is expected to uphold these values through integrity, honesty, trust, fairness, and respect toward peers and community.

ACADEMIC INTEGRITY:
Policy on Scholastic Dishonesty: Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and/or dismissal from the University. Since such dishonesty harms the individual, all students, and the integrity of the University, policies on scholastic dishonesty will be strictly enforced.

For additional information related to Scholastic Dishonesty, see the Dean of students' website and University General Information Catalog at: http://deanofstudents.utexas.edu/sjs/ and http://catalog.utexas.edu/general-information/appendices/appendix-c/student-discipline-and-conduct/.

Examples of what constitutes plagiarism in this course would be:
- Presenting written work or professional photography of others in research work / website posts, without giving credit to the source (website, text, author or photographer).
- Presenting the design of a project which has been developed by another person, ie: literal copying of overall design or component design without acknowledging such direct reference.
- Copying an assignment, quiz or test answer from another student.

UNDERGRADUATE STUDENTS - DROP POLICY FOR LONG SESSIONS:
From the 1st through the 12th class day, an undergraduate student can drop a course via the web and receive a refund, if eligible. From the 13th through the university's academic drop deadline, a student may Q drop a course with approval from the Dean, and departmental advisor.

CLASS WEB SITES AND STUDENT PRIVACY:
Web-based, password-protected class sites will be associated with all academic courses taught at the University. Syllabi, handouts, assignments and other resources are types of information that may be available within these sites. Site activities could include exchanging e-mail, engaging in class discussions and chats, and exchanging files. In addition, electronic class rosters will be a component of the sites. Students who do not want their names included in these electronic class rosters must restrict their directory information in the Office of the Registrar, Main Bldg, Room 1. For information on restricting directory information, see the General Information Catalog or go to: https://directory.utexas.edu/faq.php

EMERGENCY EVACUATION RECOMMENDATIONS:
(from the Office of Campus Safety and Security, 512-471-5767, http://www.utexas.edu/safety/)

- Occupants of buildings on The University of Texas at Austin campus are required to evacuate buildings when a fire alarm is activated. Alarm activation or announcement requires exiting and assembling outside (across the bridge).

- Familiarize yourself with all exit doors of each classroom and building you may occupy. Remember that the nearest exit door may not be the one you used when entering the building.

- Students requiring assistance in evacuation shall inform their instructor in writing during the first week of class.

- In the event of an evacuation, follow the instruction of faculty or class instructors. Do not re-enter a building unless given instructions by the following: Austin Fire Dept., The University of Texas at Austin Police Dept., or Fire Prevention Services office.

- Behavior Concerns Advice Line (BCAL) 512 – 232-5050. For more information visit the BCAL website: http://www.utexas.edu/safety/bcal/

- Link to information regarding emergency evacuation routes and emergency procedures can be found at: www.utexas.edu/emergency

REFERENCE FOR ADDITIONAL UNIVERSITY POLICIES:
All other university policies not explicitly included on this syllabus can be found on the General Information Catalog: http://catalog.utexas.edu/general-information/.