CLASS SYLLABUS

University of Southern California
School of Architecture

A. GENERAL
Course: ARCH-511L: BUILDING SYSTEMS
Semester Offered: FALL 2019, (4 units)
Professor: Tigran Ayrapetyan, P.E.
Submit class assignments to: arch511.tigran@gmail.com
How to contact professor: tigran30@gmail.com
Office Hours: By appointment
Section: 11309D
Day and Time: Tuesday from 12:00pm to 3:20pm
Location: WAH-1

B. OBJECTIVE
During this course, students will learn the following, based on the National Architectural Accreditation Board (NAAB). These are Student Performance Criteria (SPC) for this course that NAAB requires students to demonstrate to earn an accredited degree. The following legends are used at the end of each paragraph below to indicate how each SPC is demonstrated: (L) lecture; (R) Reading; (Q) Quiz; (A) Assignment; (P) Project.

B.2 Site Design: Ability to respond to site characteristics, including urban context and developmental patterning, historical fabric, soil, topography, ecology, climate, and building orientation, in the development of a project design. (Demonstrated in L.0.1-1; R1; Q1; A1-2; P)

B.3 Codes and Regulations: Ability to design sites, facilities, and systems that are responsive to relevant codes and regulations, and include the principles of life-safety and accessibility standards. (Demonstrated in L0.1.1-12; R1-12; Q1-6; A1-13; P)

B.4 Technical Documentation: Ability to make technically clear drawings, prepare outline specifications, and construct models illustrating and identifying the assembly of materials, systems, and components appropriate for a building design. (Demonstrated in L0.1.1-12; A1-13; P)

B.5 Structural Systems: Ability to demonstrate the basic principles of structural systems and their ability to withstand gravitational, seismic, and lateral forces, as well as the selection and application of the appropriate structural system. (Demonstrated in L2-5; R2-5; Q1-4; A3-6; P)

B.6 Environmental Systems: Ability to demonstrate the principles of environmental systems’ design, how design criteria can vary by geographic region, and the tools used for performance assessment. This demonstration must include active and passive heating and cooling, solar geometry, daylighting, natural ventilation, indoor air quality, solar systems, lighting systems, and acoustics. (Demonstrated in L7,8,10,12; R7,8,10,12; Q5-6; A8-10,11,13; P)

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B.7. Building Envelope Systems and Assemblies: Understanding of the basic principles involved in the appropriate selection and application of building envelope systems relative to fundamental performance, aesthetics, moisture transfer, durability, and energy and material resources. (Demonstrated in L6-8; R6-8; Q5; A7-9; P)

B.8. Building Materials and Assemblies: Understanding of the basic principles used in the appropriate selection of interior and exterior construction materials, finishes, products, components, and assemblies based on their inherent performance, including environmental impact and reuse. (Demonstrated in L2-9; R2-9; Q2-5; A3-10; P)

B.9. Building Service Systems: Understanding of the basic principles and appropriate application and performance of building service systems, including lighting, mechanical, plumbing, electrical, communication, vertical transportation, security, and fire protection systems. (Demonstrated in L10-12; R10-12; Q6; A11-13; P)

B.10 Financial Considerations: Understanding of the fundamentals of building costs, which must include project financing methods and feasibility, construction cost estimating, construction scheduling, operational costs, and life-cycle costs. (Demonstrated in L10; R10; Q7; P)

"The USC School of Architecture's five year BARCH degree and M.ARCH degree are accredited professional architectural degree programs. All students can access and review the NAAB Conditions of Accreditation (including the Student Performance Criteria) on the NAAB Website, [http://www.naab.org/accreditation/2009_Conditions.aspx](http://www.naab.org/accreditation/2009_Conditions.aspx)."

C. PURPOSE
1. After this course students are expected to be able to contribute in the design and development of architectural and structural systems in an Architectural / Engineering firm, or in a Design and Build firm.

D. COURSE REQUIREMENTS
1. The students will be required to attend all lectures, complete series of reading assignments, quizzes, drawings relating to each weekly topic, job site visits, architectural models, and project. See attached course outline for more details.
2. Students will be treated as beginning architects/engineers working for a design office and are expected to fully participate in classroom discussions, and to communicate with each other regarding the subject matter on daily bases, as it would be required in a design office.
3. ATTENDANCE: Read below carefully "Statement regarding Attendance" that may significantly influence your grade.
4. Electronic communication devices must be turned off or in vibration mode during class.
5. Examination behavior: Any use of external assistance during an examination or quiz, or attempt to benefit from work of another student, shall be considered academically dishonest. If clear violation has occurred, the instructor may disqualify the student’s work as unacceptable and assign a failing mark for the assignment, quiz, or examination and such incident will be reported to the Office of Student Judicial Affairs. See also "Statement on Academic Integrity” stated below.
E. COURSE OUTLINE
1. The course outline is attached to this syllabus.
2. The course outline contains schedule of all assignments and events for this class.
3. Please note that the course outline could be revised during the semester, as needed.
4. The footer on the syllabus and the course outline shows the revision date. Make sure always to refer to the latest edition of the syllabus and the course outline that will be distributed in class, or sent by e-mail in timely fashion.

F. READING ASSIGNMENTS
1. Reading assignments are listed in the attached course outline based on the text books listed in the bibliography below.
2. It is imperative to keep up with the reading to be able to participate in classroom discussions and complete all the required class assignments and quizzes.

G. ASSIGNMENTS (Will count for 30% of the final grade)
1. All Assignments will be according to the attached course outline.
2. The assignments are meant to provide insight into the design detailing, construction process, and materials methodology, etc., according to the objective outlined above.
3. Late assignments will not receive a full credit.

H. QUIZZES (Will count for 15% of the final grade)
1. Quizzes will be given throughout the semester according to the attached course outline.
2. Each quiz will typically consist of 20 to 30 questions that would be based on the reading assignments and the previous lectures.
3. Quizzes cannot be made up at an earlier date, or a later date.

I. TWO FIELD OBSERVATION REPORTS (Will count for 15% of the final grade)
1. To be able to complete the Final Project, the students are required to visit jobsite, the building of their choice to observe and conduct research studies for their Final Project. See Section-J below for more information about the Final Project.
2. The students would be required to visit the jobsite a few times, to be able to complete the project. However, they are required to submit for grading only two Field Observation Reports that discuss the on-site observations during their visit.
3. The students should schedule construction site visits outside of class time, at their convenience.
4. It is advisable for students to obtain at the beginning of the semester their own personal Hardhats, Construction Vests, Safety Glasses, and Construction Boots or Heavy-Duty Tennis Shoes, that could used for this class, as well as for other classes. (A kit that includes Hardhat, Construction Vest, and Safety Glasses could be purchased on-line for a minimal price.)

J. THE FINAL PROJECT (Will count for 30% of the final grade)
1. The final project will reflect the compilation of the semester studies. Each student will chose a one existing building for their project. It will include analysis of the existing building structure, and the building systems that were integrated into that structure.
2. It will consist of sketches, drawings, photos, and charts necessary to describe how the building functions and how it was constructed.
3. The students will make presentation to the class as well as will submit bound and digital copies of their project for grading. See Final Project Outline for more details.

K. PORTFOLIO SUBMITTAL (Will count for 10% of the final grade)
1. Each student must prepare and submit electronic portfolio in .PDF format on a CD or DVD that includes student's complete class work for the semester. They have to scan all graded materials for the portfolio, and name the electronic files properly before putting it on the CD. See Section-L regarding the protocol for any electronic file submittal.
2. If any portion of the student's class work will be missing at the end of the semester, it will result in a lower final grade, regardless of the fact that it has being previously graded, or not. Hence, it must be the student's responsibility to maintain carefully hard copies and electronic copies of their complete class work for the entire semester. Note: Students must constantly backup their electronic class work throughout the semester to prevent any unforeseen electronic data loss.
3. The final grade will be based on the combined review of the portfolio and the final project.

L. PROTOCOL FOR ANY ELECTRONIC FILE SUBMITTAL
1. All electronic files shall be burned on CD or DVD for the portfolio submittal.
2. Use the following protocol for naming all .PDF files for your portfolio submittal:
   a) Assignments 1 to 13  => A- #_ARCH511_RosterName.pdf
   b) Prelim Submittal for Final Project  => FinalPrelim_ARCH511_RosterName.pdf
   c) Final Project  => FinalProject_ARCH511_RosterName.pdf
   d) Field Reports  => FieldRep- #_ARCH511_RosterName.pdf

M. GRADING
Course final grades will be determined using the following scale:
A  95-100
A-  90-94
B+  87-89
B   83-86
B-  80-82
C+  77-79
C   73-76
C-  70-72
D+  67-69
D   63-66
D-  60-62
F   59 and below

N. ATTENDANCE
1. A maximum of one absence (excused or unexcused) is permitted, adhering to the University and School of Architecture policies for one day per week courses.
2. After one absence, students will be issued a Letter of Unsatisfactory Progress stating the potential negative impact on their final course grade. Additional absences subsequent to the letter may require the student to consider the option of withdrawing from the course to avoid the possibility of obtaining a failing grade.

3. At a minimum, any students missing a class session will be required to make up (except for the quizzes) the missed session by fulfilling an assignment provided by the faculty consistent with the content and intentions of the course.

4. Students need to inform the faculty via e-mail of any anticipated absence as soon as it is determined that the student will not be able to attend and explain in writing the nature of the conflict that prevented full participation in the class.

5. Students that are late for class or absent for a part of the class period are liable for a reduced grade or failing grade depending on the extent of the absence and its impact on performance in the class.

6. The university recognizes the diversity of our community and the potential for conflicts involving academic activities and personal religious observation. The university provides a guide to such observances for reference and suggests that any concerns about attendance or inability to participate fully in course activity be discussed with your instructor at the beginning of the term.

O. BIBLIOGRAPHY

Required Texts:


P. SUGGESTED COMPUTER SOFTWARE (But not required):
1. AutoCAD, Revit, or similar software.
2. SketchUp or similar software.
3. Adobe Creative Suite (Photoshop, Illustrator, In-Design, Acrobat, etc.) or similar software.

Q. ADDITIONAL INFORMATION

Statement on Academic Conduct:
Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in SCampus in Part B, Section 11, “Behavior Violating University Standards”
https://policy.usc.edu/scampus-part-b/. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on scientific misconduct, http://policy.usc.edu/scientific-misconduct.

Statement on Support Systems:
Student Counseling Services (SCS) - (213) 740-7711 – 24/7 on call
Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention. https://engemannshc.usc.edu/counseling/

National Suicide Prevention Lifeline - 1-800-273-8255
Provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week. http://www.suicidepreventionlifeline.org

Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-4900 - 24/7 on call
Free and confidential therapy services, workshops, and training for situations related to gender-based harm. https://engemannshc.usc.edu/rsvp/

Sexual Assault Resource Center
For more information about how to get help or help a survivor, rights, reporting options, and additional resources, visit the website: http://sarc.usc.edu/

Office of Equity and Diversity (OED)/Title IX Compliance – (213) 740-5086
Works with faculty, staff, visitors, applicants, and students around issues of protected class. https://equity.usc.edu/

Bias Assessment Response and Support
Incidents of bias, hate crimes and microaggressions need to be reported allowing for appropriate investigation and response. https://studentaffairs.usc.edu/bias-assessment-response-support/

The Office of Disability Services and Programs
Provides certification for students with disabilities and helps arrange relevant accommodations. http://dsp.usc.edu

Student Support and Advocacy – (213) 821-4710
Assists students and families in resolving complex issues adversely affecting their success as a student EX: personal, financial, and academic. https://studentaffairs.usc.edu/ssa/

Diversity at USC
Information on events, programs and training, the Diversity Task Force (including representatives for each school), chronology, participation, and various resources for students. https://diversity.usc.edu/

USC Emergency Information
Provides safety and other updates, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible, http://emergency.usc.edu

USC Department of Public Safety – 213-740-4321 (UPC) and 323-442-1000 (HSC) for 24-hour emergency assistance or to report a crime.
Provides overall safety to USC community. http://dps.usc.edu

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