Potential for Course Modality Change
If Texas Tech University campus operations are required to change because of health concerns related to the COVID-19 pandemic, it is possible that this course will move to a fully online delivery format. Should that be necessary, students will likely need a webcam and microphone and will be advised of additional technical and/or equipment requirements, including remote proctoring software

ARCHITECTURAL TECHNOLOGY II

Texas Tech University - College of Architecture

ARCH 2355 Architectural Technology II - SPRING 2021

Class time: Tuesday and Thursday, 5:30-6:50 via Zoom

Lab time: Wednesday, 5:30 - 6:50 via Zoom

Kurilpa Pedestrian Bridge by COX Architecture, photo: https://www.coxarchitecture.com.au/project/kurilpa-pedestrian-bridge/

Peter Johnson
Instructor
Email: Peter.Johnson@ttu.edu (will respond in 24-hours)
Office hours: By appointment

501	502	503	504
TBD	TBD	TBD	TBD

CATALOG COURSE DESCRIPTION / PREREQUISITES

2355. Architectural Technology II [3]. Prerequisite: Arch 2351.
Introduction to the mechanics of structural materials with emphasis on capacities and behavior. Structural analysis and determination of structural systems via load-tracing, equilibrium, and statics.

STUDENT LEARNING OBJECTIVES - Disciplinary

At the end of this course, students should be able to:
- Understand basic considerations in structural design and structural mechanics
- Solve for resultant vectors and equilibrium forces in trusses, cantilevers, and arches
- Diagram the shear and bending moment forces acting in a simply supported system and the resultant deflection
- Trace load paths and lateral loads
- Describe the basic qualities of primary building materials and understand material selection criteria
- Show understanding of the topics in the course through various forms of information affirmation including solving structural problems in homework's and tests

STUDENT PERFORMANCE OBJECTIVES - Professional

- Identify different structural systems and recognize when to properly employ them
- Graphically express an understanding of the structural services in a building
- Recognize different categories of loads
- Show ability to process information by responding to test questions and working through ideas in project-based learning.

NAAB STUDENT PERFORMANCE CRITERION

Required:

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.

Additional:

A.1 Professional Communication Skills: Ability to write and speak effectively and use representational media appropriate for both within the profession and with the general public.

TOPICAL OUTLINE

10% - Loads, Load Tracing, and Vectors
20% - Equilibrium and Stable Systems
10% - Sectional Properties
40% - Shear and Moment, Slope and Deflection
10% - Building Construction Materials
10% - Real World Applications

TENTATIVE SCHEDULE

Homework is due at the beginning of class on the Thursday of the week shown. They are assigned the Thursday prior. Readings should be completed during the week they are listed and are numbered according to their name on blackboard.

Week	Date	Content	Homework	Reading
Week 1	01/21	Intro to structures		
Week 2	01/26 01/28	Load Tracing, Forces Moment, Vectors	HW01	01
	LAB	HW Review/Math Questions		
Week 3	02/02 02/04	Support Reactions, truss stability Concrete trusses by Joints, truss by section	Quiz 01 HW02	02
	LAB	HW Review/Math Questions		
Week 4	02/09 02/11	Truss by joints and by section, Arches Three-hinged arch, Masonry	Quiz 02 HW03	03, 04
	LAB	HW Review/Math Questions		
Week 5	02/16 02/18	Test Review **TEST**	Quiz 03 **Test 1 (Thurs)**	05
	LAB	Test Review		
Week 6	02/23 02/25	Masonry, Lateral Loads, Concrete Centroid, Sectional Properties	HW04	06
	LAB	Exam 01 Answers/Edits		
Week 7	03/02 03/04	Shear and Moment	Quiz 04 HW05	06

	LAB	HW Review/Math Questions		
Week 8	03/09 03/11	Foundations, Stress, strain, modulus of elasticity	Quiz 05 HW06	07
	LAB	HW Review/Math Questions		
Week 9	03/16 03/18	Computer Program: RISA-2D **TEST**	Quiz 06 **Test 2 (Thurs)**	
	LAB	Test Review		
Week 10	03/23 03/25	Modulus of Elasticity, Slope	HW 07	
	LAB	Exam 02 Answers/Edits		
Week 11	03/30 04/01	Deflection Structural Fails	HW08	08
	LAB	HW Review/Math Questions		
Week 12	04/06 04/08	Selecting Members in Bending, Shear, Steel	Quiz 09 HW09	09, 10
	LAB	HW Review/Math Questions		
Week 13	04/13 04/15	Columns, Wood, Final Project Assigned	Quiz 10 HW10	11, 12
	LAB	HW Review/Math Questions		
Week 14	04/20 04/22	Slabs, You-pick-material, Long-span	Quiz 09 Test Review	13, 14
	LAB	HW Review/Math Questions		
Week 15	04/27 04/29	Test Review **TEST**	Quiz 10 **Test 3 (Thurs)**	
	LAB	Test Review		
Week 17	5/5	Summary of Semester, Final Thoughts		

MEANS OF EVALUATION:

1. Deliverables

10 HW Assignments
10 Quizzes
3 Tests

2. Methods of Assessment

Each homework will be graded out of 100 points. Point values are indicated with each question. Each test is graded out of 100 points. The value of each question is indicated with each question. The test is divided into half topical questions and half numerical questions where students will be required to show their understanding of the topic matter.

3. Grade Updates

Online Blackboard grades will be updated approximately after every 4-5 weeks.

GRADING SYSTEM

Grading will be based upon the following percentage values in the semester:

30% Homework
25% Quizzes
45% Tests (3) 15%

Homework

Homework is due 1 week after it is assigned. There will be 10 homework assignments, each graded out of 100 points. They will be graded for accuracy of problem solving and accuracy of solutions within each project. (i.e. if you make an error early on in the problem, but everything else is correct, you will get the majority of the points for that problem) The lowest homework grade will be dropped. Homework is due by 5pm on the Tuesday it is due. Homework will be submitted to student OneDrive files. Homework will be posted at least one week prior to when it is due. To complete homework, follow the following criteria:

1) You must complete your homework on **gridded or engineering paper**. If not, homework will not be graded, resulting in a zero for that homework.
2) On the top left of the first paper, you will write the homework assignment number.
3) On the top right, you will write your name and Section Number
4) You will rewrite the **problem** , redraw the **image** (if present), and clearly state what you are expected to **find**. Then solve out the **solution**.
5) Write your answer clearly and either box or underline it.

Tests

Three tests will serve as milestones in the semester. The tests are to assess your comprehension of the topic material. Each test will be made up approximately of 50% topical questions and 50% solving problems.

Participation

Intermittent quizzes will be given to check for in class participation. You are expected to be attentive in the classroom (see rules of conduct for more information).

Extra Credit

Extra credit opportunities occur throughout the course and will be presented and discussed during class. Each opportunity will range in value. Extra credit may also be earned by completing the study packets prior to each test.

Grade

Meeting the project requirements is expected and generally describes average performance. Average work demonstrates satisfactory comprehension of issues and address of the requirements. Grade descriptions are as follows:

A, A- represents work of excellent and exceptional quality

B+, B, B- represents work of good quality that is above average

C+, C, C- represents work of average quality

D+, D, D- represents work of below average quality, above failure

F represents work that is not of an acceptable quality

TEXTBOOKS/LEARNING RESOURCES

Required Book:

Text is provided

Required Supplies:

Scientific Calculator/Graphing Calculator

Graph or Engineering Paper Supplemental

Text:

Alread, Jason. Design-Tech: Building Sciences for Architects, Second Edition. New York, NY. Routledge Taylor and Francis Group.2014.

Salvadori, Mario. Why Buildings Stand Up. New York, NY. Norton and Company, Inc.1980.

R. C. Hibbeler Engineering Mechanics: Statics, 12th edition. Person. 2009

ATTENDANCE POLICY / LATENESS / LATE WORK

Three absences are allowed in the course. That count includes absences from Lab. Two absences may be unexcused. A third is acceptable if excused by a doctor's note within 48 hours of missing the class. * It is in your best interest to notify me or your TA before missing a class that you will be absent.

A 4th absence will warrant failure of the class. Speak with me if outstanding circumstances arise that cause a 4th absence.

Homework is due on Tuesday's at 5:00 pm. It will be accepted for 24-hours after that for a 10-point deduction (i.e. a 90 becomes an 80). Notify me *before* class with a doctor's note if you are submitting your homework late due to illness.

**With exception to absences due to religious observance and officially approved trips according to guidelines specified in the TTU Catalog. Students are expected to comply with TTU rules for reporting student illness requiring absence from class for more than one week, or immediate family deaths.*

COVID-19 INFORMATION

Face coverings are required. Texas Tech University requires that students wear face coverings while in classes, while otherwise in campus buildings, and when social distancing cannot be maintained outdoors on campus.

Signage. Be attentive to signage posted at external and some classroom doorways that indicates entry and exit ways, gathering and queuing spaces, and availability of masks and hand sanitizer.

Seating assignments. The purpose of assigned seating is to assist in contact tracing, if necessary, and to augment social distancing. Students are expected to sit at a minimum of six feet apart. Unavailable seats will be marked as such. A required seating chart will be created once everyone is positioned with appropriate social distancing. There will also be an orderly procedure, designed to ensure social distancing, for exiting the classroom.

Illness-Based Absence Policy
If at any time during this semester you feel ill, in the interest of your own health and safety as well as the health and safety of your instructors and classmates, you are encouraged not to attend face-to-face class meetings or events. Please review the steps outlined below that you should follow to ensure your absence for illness will be excused. These steps also apply to not participating in synchronous online class meetings if you feel too ill to do so and missing specified assignment due dates in asynchronous online classes because of illness.

1. If you are ill and think the symptoms might be COVID-19-related:
a) Call Student Health Services at 806.743.2848 or your health care provider.
b) Self-report as soon as possible using the ttucovid19.ttu.edu management system. This website has specific directions about how to upload documentation from a medical provider and what will happen if your illness renders you unable to participate in classes for more than one week.

c) If your illness is determined to be COVID-19-related, remaining documentation and communication will be handled through the Office of the Dean of Students, including notification to your instructors.
d) If your illness is determined not to be COVID-19-related, please follow steps 2.a-d below.

2. If you are ill and can attribute your symptoms to something other than COVID-19:
a) If your illness renders you unable to attend face-to-face classes, participate in synchronous online classes, or miss specified assignment due dates in asynchronous online classes, you are encouraged to visit with either Student Health Services at 806.743.2848 or your health care provider. Note that Student Health Services and your own and other health care providers may arrange virtual visits.
b) During the health provider visit, request a "return to school" note.
c) E-mail the instructor a picture of that note.
d) Return to class by the next class period after the date indicated on your note.

Following the steps outlined above helps to keep your instructors informed about your absences and ensures your absence or missing an assignment due date because of illness will be marked excused. You will still be responsible to complete within a week of returning to class any assignments, quizzes, or exams you miss because of illness.

If you have interacted with individual(s) who have tested positive for COVID-19:

Maintain a list of those persons and consult Student Health Services at 806-743-2911 or your primary care provider on next steps.

Do not return to class until you are medically cleared by your Health Care Provider.

ADA STATEMENT:
Any student who, because of a disability, may require special arrangements in order to meet the course requirements should contact the instructor as soon as possible to make any necessary arrangements. Students should present appropriate verification from Student Disability Services during the instructor's office hours. Please note instructors are not allowed to provide classroom accommodations to a student until appropriate verification from Student Disability Services has been provided. For additional information, please contact Student Disability Services in West Hall or call 806-742-2405.

ACADEMIC INTEGRITY STATEMENT:
Academic integrity is taking responsibility for one's own class and/or course work, being individually accountable, and demonstrating intellectual honesty and ethical behavior. Academic integrity is a personal choice to abide by the standards of intellectual honesty and responsibility. Because education is a shared effort to achieve learning through the exchange of ideas, students, faculty, and staff have the collective responsibility to build mutual trust and respect. Ethical behavior and independent thought are essential for the highest level of academic

achievement, which then must be measured. Academic achievement includes scholarship, teaching, and learning, all of which are shared endeavors. Grades are a device used to quantify the successful accumulation of knowledge through learning. Adhering to the standards of academic integrity ensures grades are earned honestly. Academic integrity is the foundation upon which students, faculty, and staff build their educational and professional careers. [Texas Tech University ("University") Quality Enhancement Plan, Academic Integrity Task Force, 2010]

RELIGIOUS HOLY DAY STATEMENT:
"Religious holy day" means a holy day observed by a religion whose places of worship are exempt from property taxation under Texas Tax Code §11.20. A student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence. A student who is absent from classes for the observance of a religious holy day shall be allowed to take an examination or complete an assignment scheduled for that day within a reasonable time after the absence. A student who is excused under section 2 may not be penalized for the absence; however, the instructor may respond appropriately if the student fails to complete the assignment satisfactorily.

DISCRIMINATION, HARASSMENT, AND SEXUAL VIOLENCE STATEMENT:
Texas Tech University is committed to providing and strengthening an educational, working, and living environment where students, faculty, staff, and visitors are free from gender and/or sex discrimination of any kind. Sexual assault, discrimination, harassment, and other Title IX violations are not tolerated by the University. Report any incidents to the Office for Student Rights & Resolution, (806)-742-SAFE (7233) or file a report online at titleix.ttu.edu/students. Faculty and staff members at TTU are committed to connecting you to resources on campus. Some of these available resources are: TTU Student Counseling Center, 806- 742-3674, https://www.depts.ttu.edu/scc/(Provides confidential support on campus.) TTU 24-hour Crisis Helpline, 806-742-5555, (Assists students who are experiencing a mental health or interpersonal violence crisis. If you call the helpline, you will speak with a mental health counselor.) Voice of Hope Lubbock Rape Crisis Center, 806-763-7273, voiceofhopelubbock.org (24-hour hotline that provides support for survivors of sexual violence.) The Risk, Intervention, Safety and Education (RISE) Office, 806-742-2110, https://www.depts.ttu.edu/rise/ (Provides a range of resources and support options focused on prevention education and student wellness.) Texas Tech Police Department, 806-742- 3931, http://www.depts.ttu.edu/ttpd/ (To report criminal activity that occurs on or near Texas Tech campus.)

CIVILITY IN THE CLASSROOM STATEMENT:
Texas Tech University is a community of faculty, students, and staff that enjoys an expectation of cooperation, professionalism, and civility during the conduct of all forms of university business, including the conduct of student–student and student–faculty interactions in and out of the classroom. Further, the classroom is a setting in which an exchange of ideas and creative thinking should be encouraged and where intellectual growth and development are fostered. Students who disrupt this classroom mission by rude, sarcastic, threatening, abusive or obscene language and/or behavior will be subject to appropriate sanctions according to university policy. Likewise, faculty members are expected to maintain the highest standards of professionalism in

all interactions with all constituents of the university (www.depts.ttu.edu/ethics/matadorchallenge/ethicalprinciples.php).

LGBTQIA SUPPORT STATEMENT*:
I identify as an ally to the lesbian, gay, bisexual, transgender, queer, intersex, and asexual (LGBTQIA) community, and I am available to listen and support you in an affirming manner. I can assist in connecting you with resources on campus to address problems you may face pertaining to sexual orientation and/or gender identity that could interfere with your success at Texas Tech. Please note that additional resources are available through the Office of LGBTQIA within the Center for Campus Life, Student Union Building Room 201, www.lgbtqia.ttu.edu, 806.742.5433."

*If you prefer to list campus resources rather than a statement about ally status, you might include the following among other campus resources you wish to share:

Office of LGBTQIA, Student Union Building Room 201, www.lgbtqia.ttu.edu, 806.742.5433
Within the Center for Campus Life, the Office serves the Texas Tech community through facilitation and leadership of programming and advocacy efforts. This work is aimed at strengthening the lesbian, gay, bisexual, transgender, queer, intersex, and asexual (LGBTQIA) community and sustaining an inclusive campus that welcomes people of all sexual orientations, gender identities, and gender expressions.

Syllabus update: 1/27/2021 8pm