The University of Texas at Tyler
Department of Construction Management

CMGT: 3315 Construction Design Theory

Course Syllabus (Fall 2021)

Date Class Begins: 9/23/2021

Time & Venue	1115 to 1210 PM Every Mon, Wen, Fri in Room RBN 3040 NOTE: Construction is a service industry to an owner of the project. The owner is our customer and excellent service requires timely service and professional performance of duties. Timeliness is of supreme importance to a project. We will practice this skill and trait in 3305. The professional standard is to ***NEVER be late*** for any class. If you are going to be late OR if you will need to miss a lecture ***you MUST*** notify me ahead of time. Any tardy or late attendance of submission of graded material will be ***graded as a ZERO*** if the tardy or late submission is not approved 24 hours ahead of time by me.
Instructor	Joe Boylan Office: RBS 1037 Email: jboylan@uttyler.edu Phone: (903) 565-5884 Office hours: 0800:00 a.m. – 1700 p.m. I am always available for help in my office anytime I am not teaching. (See office hours outside of RBS 1037) To ensure you get your necessary help please email me ahead of time and we can get your visit locked into the schedule.
Teaching Assistant	Note: The CM Honor Society does provide extra instruction and assistance to students needing extra help in 3315. Contact them for help if you need it also.
Course Website	See UT Tyler's 3315 Canvas Website
Course Objective	1. Welcome to Construction Design Theory – an important core course that continues to look at: a. the equilibrium of structures and b. the behavior of materials under various loading conditions

Course Outcomes	**1. Introduction to Construction Design Theory Course Objectives:** **A. Bending** 1. Draw shear and moment diagrams for a beam. 2. Determine normal flexure stresses (□) for a beam. 3. Determine the maximum elastic internal bending moment (M_{ME}) for a beam. 4. For inelastic conditions, determine the partially plastic internal bending moment (M_{PP}) and the fully-plastic internal bending moment (M_{FP}) for a beam. 5. Determine transverse shear stress at any point on a beam cross section. 6. Design a *prismatic* beam. (A beam with a uniform cross sectional area) **B. Beam, Deflections and Buckling** 1. Explain the elastic curve function for beam deflections. 2. Calculate beam deflections. 3. Calculate stresses in a member subjected to combined loading due to axial, torsional, internal pressure (i.e., thin wall pressure vessels), and/or bending forces. 4. Analyze/design columns. 5. Design connections 6. Use applicable codes to design members (LFRD)
Note to Student About a Syllabus	***This syllabus is a statement of intent*** about how the course will be taught this semester. It outlines what we will cover, what you will need to do in the course, and it explains what and when you must do it to successfully complete the course and get a great final grade. This syllabus is intended

	to protect you from arbitrary or untimely changes in course requirements and due dates. But ***I reserve the right to make changes as necessary to the syllabus with announcement of changes.*** As we learned during 2020, there are many circumstances outside of our direct course control that may require changes to this syllabus in content and schedule. These will always be announced in advance and the syllabus will be updated on Canvas so all can be aware of the required changes.
Prerequisite/Co-Requisite	CMGT 3310 or its equivalent transfer course approved by the CM Dept. Head is a prerequisite for this course.
Required Texts	1. *Statics and Structural Strength of Materials for Architecture and Building Construction* (4th Ed.) by Barry Onouye and Kevin Kane (ISBN 978-0-13-507925-6 ***NOTE: Class slides in lecture are NOT complete information. You MUST read the chapters and all quizzes and exams will include information in the chapter in the text and may NOT have been included in class lecture slides!***
Grading	Contributions towards final grade (out of 100%) 10% Attending Weekly Lectures and Discussions • Attendance and preparedness for weekly lectures in 4335 are expected in order to receive full credit for this portion of your final grade. • ***NOTE: Lecture attendance will/does impact your grade!*** 50% Exams 1- 4 20% Parking Garage Project (Team Grade) 10% Wood Design and Build Structure Project ***10% Unannounced in class tests/quizzes or adhoc class presentations given by one or more of you as selected by me*** on chapter material due for that date on syllabus (approx. 10) ***NOTE: Exams, quizzes, and any form of assessment all carry the same grade weight. (ie. quizzes are not less important than exams for your final grade!)*** Letter grades will be assigned based on the final course grade: A 90 and above B 80 to 89.99 C 70 to 79.99 D 69 to 65 F 65 and below

	A grade of 69 (D) or below will be a failure to complete the course for graduation in the department. No letter grade will be released until it is official on the University grade system.
General Syllabus Student Information and Rights	General Syllabus Student Information and Rights .docx

4335 Course Schedule ***(Subject to change as needed throughout the semester)***				
Date	Lesson	Topic for Class	Reading	Assignment
8/23/2021	1	Course Syllabus & Key 3310 Concepts Review	Chapter 1 Review	Canvas Homework #1 Sheet
8/25/2021	2	Key 3310 Concepts Review	CH 1-2	Canvas Homework #2
8/27/2021	3	Key 3310 Concepts Review	CH 3	Canvas Homework #3
8/30/2/2021	4	Pinned Frames	CH 3 pg 153- 163	Ex 3.15 & 3.16
9/1//2021	5	Retaining walls	CH 3 175 – 184	3.58 3.62 Watch this video https://urldefense.com/v3/__https://youtu.be/WrTp3JDG9Fs__;!!E8kiGCC_!g7lvHkTBsee-xnvc0CHnhxzGBx3GemifqkCEY0AqlE59hLf7mjQdbkx3ImZh-7v99mk$ Watch this Video https://www.youtube.com/watch?v=jxNM4DGBRMU
9/3/2021	6	Load Tracing	Ch 4 p95 – 210	Ex 4.1 (pg 209)
9/8/2021	7	Bracing	Chp 4 pg 231 -242	
9/10/2021	8	Stress and Strain	CH 5 pg 251 - 293	5.1, 5.2, 5.4, 5.8,5.16
9/13/2021	9	Centroid, I	CH 6 pg 300 - 328	6.7, 6,12

9/15/2021	10	EXAM # 1	1-6	FOR GRADE
9/17/2021	11	Elastic Bending I	CH 8.1	Prob 8.1 pg 371 and 8.4 pg 374
9/20/2021	12	Elastic Bending II	CH 8.2	8.2, 8.3,8.6 pg 379 8.9, 8.10
9/22/2021	13	Inelastic Bending by Equilibrium	CH 8.3-4	8.11,.12,.13
9/24/2021	14	Deflection in Beams	CH 8.5	8.14,.15 text and 8.15, .21,.22,.23
9/27/2021	15	Lateral Buckling and LRFD Equations	Sec 8.6, 8.7	Text example 8.19 and 8.20
9/29/2021	16	Flexural Stresses & Design for Bending	8.7 pg 427-430	Text example 8.21
10/1/2021	17	Design for Bending	8.7 pg 430 -435	Text example 8.22, .23
10/4/2021	18	Exam Review	CH 8	
10/6/2021	19	EXAM #2		FOR GRADE
10/8/2021	20	Shear and Bending Moment Diagrams I	CH 7.1 and 7.2	7.1,.2,.3,.4
10/11/2021	21	Shear and Bending Moment Diagrams II	CH 7	7.5,.6
10/13/2021	22	Shear and Bending Moment Diagrams II	CH 7	7.10,.12 "
10/15/2021	23	Column Buckling, I	CH 9.1,9.2 pg 438 to 455	9.1,.2.3,.4
10/18/2021	24	Column Buckling II	CH 9.3 456 - 466	9.8,.10
10/20/2021	25	Column Design I	CH 9 pg 467-472	9.12,.13
10/22/2021	26	Column Design II	CH 9.4 pg 474 - 484	9.16
10/25/2021	27	Exam #3 Review		
10/27/2021	28	**Exam #3**	Chp 9	FOR GRADE
10/29/2021	29	Connections Bolts	CH 10.1 to p507	Ex Prob 10.1
11/1/2021	30	Connections Bolts	CH 507 - 511	Ex prob 10.
11/3/2021	31	Connections Bolts		Homework 10.1 - .5
11/5/2021	32	Team Wood Structure Project		

11/8/2021	33	Framed Bolt Connections pg513		10.7, .8
11/10/2021	34	Welded Connections	10.2 pg 519 - 527	Ex 10.7 – 10.9
11/12/2021	35	Eccentricity Welds	Pg 528	Ex 10.10 Homework 10.9, .10, .11, .12
11/15/2021	36	Steel Framing Details/Bracing	Pg 531 - 537	
11/17/2021	37	Exam Review – Why steel structures fail	Ch 10	
11/19/2021	38	Exam #4		FOR GRADE
11/22 – 11/26		Fall Break		
11/29/2021	39	Parking Garage Proj		
12/1/2021	40	Parking Garage Proj		
12/3/2021	41	Proj Presentation		FOR GRADE