

## MEMORANDUM

To: CENG4412 Students  
From: Elina Efthymiou, Ph.D., Instructor CENG4412  
Date: 20 August 2024  
Subject: CENG4412 Course Administration, Fall 2024

<b>Instructor:</b>	Dr. Elina Efthymiou	Office Hours:
	RBS 1036	M/W/F: 10:30AM – 12:30PM
	☎ 903 565-5890	or by appointment
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**Lecture:** Monday/Wednesday/Friday: 9:05 – 10:00 AM, RBN 3039

- 1. Welcome to CENG4412, Reinforced Concrete and Steel Design.** This course in the structural design sequence relies on your understanding of important engineering concepts: static equilibrium, mechanics of materials, material science, and structural analysis. In this course, we apply these fundamentals to understand the behavior of structural steel and reinforced concrete and learn how to design efficient steel and reinforced concrete structures. In addition to problem sets, exams and two design challenges, this course includes one semester-long engineering design project in which you will design a steel frame and roof truss. You will learn how to perform structural design as it is done in engineering practice, using the 16<sup>th</sup> Edition of the American Institute of Steel Construction (AISC) Steel Construction Manual (SCM) and the American Concrete Institute (ACI) Strength Design provisions. In the process, you will use computer-based design tools and modern technology (Revit, Visual Analysis [VA], Mathcad, and the Microsoft Office suite). By the end of this course, you will be able to accomplish these objectives:
  - a. Design and analyze axial, flexural, and combined loaded members and connections of low-rise structural steel structures using the Load Resistance Factor Design (LRFD) methodology, given a set of functional requirements and an architectural concept.
  - b. Describe the advantages and disadvantages of structural steel as a building material.
  - c. Describe and model the path of gravity and lateral loads through common structural systems.
  - d. Use modern engineering software to analyze load effects and communicate structural plans in two- and three-dimensions.
  - e. Describe and predict structural stability concerns in compression members, flexural members, and frames.

- f. Analyze and design reinforced concrete beams, one-way slabs and columns using ACI Strength Design provisions, given a set of functional requirements and an architectural concept
  - g. Describe the advantages and disadvantages of using reinforced concrete as a building material considering factors including economics, sustainability, and safety.
2. **Prerequisite:** CENG3325: Structural Analysis
  3. **Co-requisite:** CENG3434: Civil Engineering Materials, Codes and Specifications
  4. **Course Materials.** The texts and software for CENG4412 are listed below. These are all excellent references and will make a valuable addition to your professional library.
    - a. *Unified Design of Steel Structures, 4<sup>th</sup> Ed*, by Louis Geschwindner, Judy Liu, and Charles J. Carter, 2017.
    - b. *AISC Steel Construction Manual, 16<sup>th</sup> Ed*, published by the American Institute of Steel Construction. **Tab your copy of the SCM by lesson 5** using the list of recommended tabs found in Lesson 1 of the course study guide (available on Canvas). Instructions for purchasing with a student discount are also available on Canvas.
    - c. PTC Mathcad Prime 5.1 ©2018, Parametric Technology Corporation.
    - d. Visual Analysis (VA) ©2019 EIS.(free download from <https://www.iesweb.com/edu>)
    - e. *ACI 318-19 Building Code Requirements for Structural Concrete and Commentary*, American Concrete Institute, Farmington Hills, MI, 2019. **Tab your copy of ACI 318-19 by lesson 10** using the list of recommended tabs found in Lesson 1 of the course study guide (available on Canvas). Instructions for purchasing with a student discount are also available on Canvas.
    - f. *Reinforced Concrete: Mechanics and Design, 8<sup>th</sup> Edition*, James K. Wight, Pearson, Hoboken, New Jersey, 2021.
  5. **Class Preparation.**
    - a. In the study guide available on Canvas (with links) and passed out in class, you will find specific lesson objectives and reading assignments for each lesson. The objectives describe concepts or procedures you must understand. Focus your study on these objectives; master them and you will master CENG4412. Given information for in-class example problems is also provided in the study guide. Because this is an upper-level course, not every topic you are required to know will be covered in detail during class. All will be addressed by lesson objectives and assigned reading.
    - b. Of the expected **two-hour out-of-class preparation time for each lesson** I recommend spending about 30 minutes familiarizing yourself with the next day's lesson objectives and reading assignment; I expect you to come to class with conversational knowledge about the day's topics from the reading. Spend the remaining 90 minutes of your study time reviewing material from previous lessons by working on problem sets and the EDP.

- c. Some lessons will begin with a verbal assessment of your understanding of the reading assigned for the day’s lesson. Based on a roll of a dice, one person from each EDP team will have to answer a question. The correct or incorrect answer will affect the grade of the entire team and will be reflected on each individual’s problem set grade. Don’t let your teammates (or yourself) down – come to class prepared!
- d. When an assignment includes material from the Steel Construction Manual (SCM), or the ACI318-19 code provisions you are responsible for reading and understanding both the “Specification” and the corresponding “Commentary” provisions.
- e. You are required to bring the SCM and/or ACI318-19 with you to every class.

**6. Grade Plan.**

- a. **Graded Events.** Your grade in CENG4412 will be based on the following requirements:

<u>Graded Event</u>	<u>Points</u>
Problem Sets	800
Engineering Design Problem	400
Design Challenges (2@150)	300
Mid Term Exams (2 @ 250)	500
Final Exam	500
<b>TOTAL</b>	<b>2500</b>

- b. **Grade Scale.** At the end of the semester, your accumulated points will be converted to a letter grade. The following grade cutoffs are guaranteed at a minimum:

**Letter Grade Conversions**

<u>Grade</u>	<u>Cutoff %</u>
A	90–100
B	80–89
C	70–79
D	60–69
F	< 60

- c. **Minimum Course Performance Requirements.** If you earn less than 65% on all Mid Term Exams and the Final Exam or if you fail to earn at least 50% on the Final Exam you may fail the course, **regardless of your course grade.**
- d. There will be no makeup work or extra credit allowed/granted at the end of or during the semester unless allowed/granted to everyone by the instructor. All assignments must be turned in at the appropriate time to receive credit.

**7. Problem Sets.**

- a. Engineering expertise and judgment is gained only through experience. In CENG4412 you will gain experience by completing problem sets. Problem sets are mandatory individual assignments. Working with a study group can be very effective; explaining

- your solution to a peer or having a peer explain a concept to you results in deeper learning. Note that this is different than collaboration in which you and a group work together to produce a common solution. Even when working with a study group it is important that you each complete your own work. Take special care to clearly annotate any assistance you receive from other students. Simply stating that “you and student XXX worked on the problem together” is not acceptable.
- b. Engineers conduct peer reviews of their work. This semester, you will perform a “design review” on assigned homework. After completing your individual work, you will meet with another student to check each other’s work prior to submitting the work for grade.
    - i. The problem set assignment will include a design review form to fill out while conducting the review. Upon completion of the review, you are expected to go back and make changes to your individual work prior to turning their individual work in. Therefore, it is important that this design review occurs well before the submission deadline to allow time for you to make corrections. You must properly document any assistance you received during the design review as you make corrections.
    - ii. Your problem set submission will consist of the standard cover page, followed by the design review of your work, followed by your individual homework. In picking your design review partner, the following rules must be followed: (1) you must pick a student in your section, (2) the student cannot be in your EDP group, (3) you cannot pick the same student more than twice during the term.
  - c. **Late policy. There is no late policy.** All assignments are due **on Canvas by 11:59pm on the date specified**, unless otherwise stated. **You will submit a single pdf file.** If you need to submit a late assignment, notify me ahead of time to coordinate when you will turn in the assignment.
  - d. **Format.** Refer to paragraph 10 and Enclosure 1 of this memorandum.
  - e. **Documentation.** See paragraph 9 of this memorandum.
  - f. Solutions to all graded assignments will be posted on Canvas.
8. **Engineering Design Problem (EDP).** CENG4412 includes one semester-long EDP with two interim submissions, three in-progress reviews, and one final design report. When all submissions are complete, you will have completed the preliminary design for a complete steel structural system. The late policy and submission time for the EDP is the same as the late policy for problem set submissions.
9. **Mid-Term Exams.**
- a. This course includes two Mid-Term Exams. The Mid-Term Exam dates are listed on the course schedule. You must notify your instructor at least one-week prior if you will not be available to take a scheduled Mid-Term Exam.

- b. You may use your SCM and/or ACI318/19 for all exams in CENG4412. You may make notes in your copies of the SCM and the ACI318-19 but you may not attach/affix additional sheets of paper to the manuals.
- c. For each MID TERM EXAM, you are authorized a single 8.5-in x 11-in sheet of paper (front and back) on which you may write anything you wish to assist you and prompt your memory during the open code portion of the exam. **Only handwritten notes are allowed.** No typing, copying/pasting images is allowed. You will turn this sheet of paper in with your exam; it will be returned after I have graded your exam.

10. **Final Examination.** All students will take the Final Exam in CENG4412. Authorized reference are copies of the SCM and the ACI318-19. You are also authorized three 8.5-in x 11-in sheets of paper (front and back) for the Final Exam. You will turn in these sheets of paper with your exam.

11. **Documentation of Academic Work (DAW).**

- a. Use parenthetical documentation.
- b. All submissions must have a signed cover page. Before signing this document take time to reflect and ensure that all work is either yours or that credit is given within where due. Assignments will not be accepted without this signed cover page. For group assignments all members of the group must sign the cover sheet.
- c. Common knowledge. Information from the course texts (Geschwindner, Wight, SCM, ACI318-19 etc.) is considered course-specific common knowledge, and does not need to be documented for problem sets. While not required, it is good practice to note sections of the SCM and ACI318-19 which apply as you solve problems. Course documents from previous semesters, and course notebooks of other students or the like are not considered common knowledge and must be documented.
- d. To document Engineering Design Problems (EDPs):
  - i. For calculations, use the procedures for homework described above.
  - ii. Include a bibliography page in the MLA style to list any references outside of the course texts used to accomplish the EDP. (i.e. AISC Website, etc).
  - iii. Bottom line, be very clear on what are not wholly your own ideas and/or work. Regardless of the amount of points cut it is not worth the cost of putting your integrity in question even if you didn't do anything wrong.

12. **Standards for Written Work.**

- a. **Neatness.** Sloppy, disorganized work will receive significant point reduction subject to your instructor's judgment. You may choose to complete homework assignments using a computer program (such as Mathcad) or by hand. If using a computer, use Arial font (typically no larger than 12 point and no smaller than 10 point). Whether using a computer program or by hand it is best to work from top to bottom. Do not work in columns shifting from side to side.

- b. **Organization.** Problem sets and EDP assignments should be logically organized. If doing calculations by hand, use engineering paper for problem sets and sample calculation pages. Refer to Enclosure 1 of this memorandum for instruction on organizing and presenting your assignments.
- c. **Explanation of Work.** When you do engineering calculations, you must explain your work such that an uninformed reader can follow precisely how and why you performed each step; tell a story as you work through a problem. Practicing engineers maintain very high standards in the quality of their calculations because their work is checked independently by other engineers as part of the design review process.
- d. **Drawings / Sketches.** Engineers communicate with drawings. You must learn to supplement your engineering calculations with clear sketches. This will help others understand what you did and help you organize your thoughts and solve the problem. Importantly, you must learn to present completed design work in the form of comprehensive and detailed drawings. Use this course as an opportunity to refine your drawing skills. Use a straightedge for all straight lines. Use dimension lines. Print neatly.

**13. Classroom Procedures.**

- a. Always bring your SCM and/or ACI31819, study notes, study guide, and a serviceable calculator to class.
- b. During quizzes, Mid-Term Exams and the Final, Students **will not borrow or loan the SCM or ACI318-19 from any student currently enrolled in the course.**

**14. Course Website and Electronic Documents.** Canvas is the official method of electronic file dissemination and contains all the course documents. You should check it regularly.

**15. Additional Instruction.** CENG4412 is rigorous and fast-paced. Do not fall behind, or you may never catch up. If you have difficulty understanding a lesson or working a problem set, see your instructor. If you need guidance on the EDP, come and get it. If you miss a class, you are responsible for the material; get the notes from a fellow student first and then schedule additional instruction to have your questions answered. If you need additional instruction, feel free to drop by my office **during office hours**. Before asking for additional instruction, try to solve the problem yourself, and then collaborate with a peer. Do not come to additional instruction with vague questions, or without trying to determine a solution with a peer. Come to additional instruction with specific questions.

**16. Laptops/PDAs/MP3 players/Cell Phones or other electronic devices:** The use of any electronic device, except an approved calculator, is not permitted during exams. Your exam will be collected and your grade will be a zero if you are caught using a non-approved electronic device/calculators. Any instances of a calculator inappropriately used during an exam will be the basis of alleging Academic Misconduct and may result in Failing (F) of the course at the determination of the course's instructor or the basis for a recommendation for expulsion from the University. Any Calculator used during an exam in this course must meet the requirements stated within the policy below.

**17. Calculator Policy:**

**Only NCEES approved calculators will be permitted during tests and your test will be collected and your grade will be a zero if you are using a non-approved calculator.** The approved calculators include the following:

- **Casio:** All fx-115 and fx-991 models (Any Casio calculator must have “fx-115” or “fx-991” in its model name.)
- **Hewlett Packard:** The HP 33s and HP 35s models, but no others
- **Texas Instruments:** All TI-30X and TI-36X models (Any Texas Instruments calculator must have “TI-30X” or “TI-36X” in its model name.)

At the discretion of the course instructor, any calculator not meeting the requirements stated (especially in the case of a graphing calculator) may be used but only after an inspection of the device and a clearing of all the memory within the device, performed for the instructor at a time immediately prior to the exam. At any time during the exam your calculator is subject to a random search by the instructor. Failure or refusal to clear all memory or to surrender your calculator to search will disqualify you from the exam immediately, unless you can produce a calculator meeting the requirements as stated above.

**18. Final day to withdraw:** The final day to withdraw from the course without penalty is **November 4<sup>th</sup>**

**19. Census dates:** The university requires that instructors report the attendance to the register at various points in the semester. Therefore, on **September 9<sup>th</sup>** I will report the attendance for the class.

**20. UT Tyler Honor Code:** Every member of the UT Tyler community joins together to embrace: Honor and integrity that will not allow me to lie, cheat, or steal, nor to accept the actions of those who do.

**21. Other Important Information for Students:**

Students’ Rights and Responsibilities	To know and understand the policies that affect your rights and responsibilities as a student at UT Tyler, please follow this link: <a href="http://www.uttyler.edu/wellness/rightsresponsibilities.php">http://www.uttyler.edu/wellness/rightsresponsibilities.php</a>
Campus Carry	We respect the right and privacy of students 21 and over who are duly licensed to carry concealed weapons in this class. License holders are expected to behave responsibly and keep a handgun secure and concealed. More information is available at <a href="http://www.uttyler.edu/about/campus-carry/index.php">http://www.uttyler.edu/about/campus-carry/index.php</a>
UT Tyler: A Tobacco-Free University	All forms of tobacco will not be permitted on the UT Tyler main campus, branch campuses, and any property owned by UT Tyler. This applies to all members of the University community, including students, faculty, staff, University affiliates, contractors, and visitors.  Forms of tobacco not permitted include cigarettes, cigars, pipes, water pipes (hookah), bidis, kreteks, electronic cigarettes, smokeless tobacco, snuff, chewing tobacco, and all other tobacco products.  There are several cessation programs available to students looking to quit smoking, including counseling, quitlines, and group support. For more

	<p>information on cessation programs please visit <a href="http://www.uttyler.edu/tobacco-free">www.uttyler.edu/tobacco-free</a>.</p>
<p>Grade Replacement / Forgiveness and Census Date Policies</p>	<p>Students repeating a course for grade forgiveness (grade replacement) must file a Grade Replacement Contract with the Enrollment Services Center (ADM 230) on or before the Census Date of the semester in which the course will be repeated. Grade Replacement Contracts are available in the Enrollment Services Center or at <a href="http://www.uttyler.edu/registrar">http://www.uttyler.edu/registrar</a>. Each semester’s Census Date can be found on the Contract itself, on the Academic Calendar, or in the information pamphlets published each semester by the Office of the Registrar.</p> <p>Failure to file a Grade Replacement Contract will result in both the original and repeated grade being used to calculate your overall grade point average. Undergraduates are eligible to exercise grade replacement for only three course repeats during their career at UT Tyler; graduates are eligible for two grade replacements. Full policy details are printed on each Grade Replacement Contract.</p> <p>The Census Date is the deadline for many forms and enrollment actions of which students need to be aware. These include:</p> <ul style="list-style-type: none"> <li>• Submitting Grade Replacement Contracts, Transient Forms, requests to withhold directory information, approvals for taking courses as Audit, Pass/Fail or Credit/No Credit.</li> <li>• Receiving 100% refunds for partial withdrawals. (There is no refund for these after the Census Date)</li> <li>• Schedule adjustments (section changes, adding a new class, dropping without a “W” grade)</li> <li>• Being reinstated or re-enrolled in classes after being dropped for non-payment</li> <li>• Completing the process for tuition exemptions or waivers through Financial Aid State-Mandated Course Drop Policy</li> </ul>
<p>State-Mandated Course Drop Policy</p>	<p>Texas law prohibits a student who began college for the first time in Fall 2007 or thereafter from dropping more than six courses during their entire undergraduate career. This includes courses dropped at another 2-year or 4-year Texas public college or university. For purposes of this rule, a dropped course is any course that is dropped after the census date (See Academic Calendar for the specific date). Exceptions to the 6-drop rule may be found in the catalog. Petitions for exemptions must be submitted to the Enrollment Services Center and must be accompanied by documentation of the extenuating circumstance. Please contact the Enrollment Services Center if you have any questions.</p>
<p>Disability / Accessibility Services</p>	<p>In accordance with Section 504 of the Rehabilitation Act, Americans with Disabilities Act (ADA) and the ADA Amendments Act (ADAAA) the University of Texas at Tyler offers accommodations to students with learning, physical and/or psychological disabilities. If you have a disability, including a non-visible diagnosis such as a learning disorder, chronic illness, TBI, PTSD, ADHD, or you have a history of modifications or accommodations in a previous educational environment, you are</p>



	<p>encouraged to visit <a href="https://hood.accessiblelearning.com/UTTyler">https://hood.accessiblelearning.com/UTTyler</a> and fill out the <u>New Student</u> application. The Student Accessibility and Resources (SAR) office will contact you when your application has been submitted and an appointment with Cynthia Lowery, Assistant Director of Student Services/ADA Coordinator. For more information, including filling out an application for services, please visit the SAR webpage at <a href="http://www.utt Tyler.edu/disabilityservices">http://www.utt Tyler.edu/disabilityservices</a>, the SAR office located in the University Center, # 3150 or call 903.566.7079.</p>
Student Absence due to Religious Observance	<p>Students who anticipate being absent from class due to a religious observance are requested to inform the instructor of such absences by the second class meeting of the semester.</p>
Student Absence for University-Sponsored Events and Activities	<p>If you intend to be absent for a university-sponsored event or activity, you (or the event sponsor) must notify the instructor at least two weeks prior to the date of the planned absence. At that time the instructor will set a date and time when make-up assignments will be completed.</p>
Social Security and FERPA Statement	<p>It is the policy of The University of Texas at Tyler to protect the confidential nature of social security numbers. The University has changed its computer programming so that all students have an identification number. The electronic transmission of grades (e.g., via e-mail) risks violation of the Family Educational Rights and Privacy Act; grades will not be transmitted electronically.</p>
Emergency Exits and Evacuation	<p>Everyone is required to exit the building when a fire alarm goes off. Follow your instructor's directions regarding the appropriate exit. If you require assistance during an evacuation, inform your instructor in the first week of class. Do not re-enter the building unless given permission by University Police, Fire department, or Fire Prevention Services.</p>
Student Standards of Academic Conduct	<p>Disciplinary proceedings may be initiated against any student who engages in scholastic dishonesty, including, but not limited to, cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts.</p> <p>i. <b>“Cheating”</b> includes, but is not limited to:</p> <ul style="list-style-type: none"> <li>• copying from another student's test paper;</li> <li>• using, during a test, materials not authorized by the person giving the test;</li> <li>• failure to comply with instructions given by the person administering the test;</li> <li>• possession during a test of materials which are not authorized by the person giving the test, such as class notes or specifically designed “crib notes”. The presence of textbooks constitutes a violation if they have been specifically prohibited by the person administering the test;</li> <li>• using, buying, stealing, transporting, or soliciting in whole or part the contents of a non-administered test, test key, homework solution, or computer program;</li> </ul>

	<ul style="list-style-type: none"> <li>• collaborating with or seeking aid from another student during a test or other assignment without authority;</li> <li>• discussing the contents of an examination with another student who will take the examination;</li> <li>• divulging the contents of an examination, for the purpose of preserving questions for use by another, when the instructors has designated that the examination is not to be removed from the examination room or not to be returned or to be kept by the student;</li> <li>• substituting for another person, or permitting another person to substitute for oneself to take a course, a test, or any course-related assignment;</li> <li>• paying or offering money or other valuable thing to, or coercing another person to obtain an unadministered test, test key, homework solution, or computer program or information about an unadministered test, test key, home solution or computer program;</li> <li>• falsifying research data, laboratory reports, and/or other academic work offered for credit;</li> <li>• taking, keeping, misplacing, or damaging the property of The University of Texas at Tyler, or of another, if the student knows or reasonably should know that an unfair academic advantage would be gained by such conduct; and</li> <li>• misrepresenting facts, including providing false grades or resumes, for the purpose of obtaining an academic or financial benefit or injuring another student academically or financially.</li> </ul> <p>ii. <b>“Plagiarism”</b> includes, but is not limited to, the appropriation, buying, receiving as a gift, or obtaining by any means another’s work and the submission of it as one’s own academic work offered for credit.</p> <p>iii. <b>“Collusion”</b> includes, but is not limited to, the unauthorized collaboration with another person in preparing academic assignments offered for credit or collaboration with another person to commit a violation of any section of the rules on scholastic dishonesty.</p> <p>iv. All written work that is submitted will be subject to review by plagiarism software.</p>
<p>UT Tyler Resources for Students</p>	<ul style="list-style-type: none"> <li>• <a href="#">UT Tyler Writing Center</a> (903.565.5995), <a href="mailto:writingcenter@uttyler.edu">writingcenter@uttyler.edu</a></li> <li>• <a href="#">UT Tyler Tutoring Center</a> (903.565.5964), <a href="mailto:tutoring@uttyler.edu">tutoring@uttyler.edu</a></li> <li>• The Mathematics Learning Center, RBN 4021, this is the open access computer lab for math students, with tutors on duty to assist students who are enrolled in early-career courses.</li> <li>• <a href="#">UT Tyler Counseling Center</a> (903.566.7254)</li> </ul>

22. **Recording of Class Sessions:** Class sessions may be recorded by the instructor for use by students enrolled in this course. Recordings that contain personally identifiable information or other information subject to FERPA shall not be shared with individuals not enrolled in this course unless appropriate consent is obtained from all relevant students. Class recordings are reserved only for the use of students enrolled in the course and only for educational purposes. Course recordings should not be shared outside of the course in any form without express permission.
23. **Academic Misconduct:** Plagiarism of homework and cheating on examinations will be interpreted as academic misconduct and will not be tolerated. Please refer to the University of Texas at Tyler current Undergraduate Catalog for academic policies and Manual of Policies and Procedures for Student Affairs (MOPPS, Chapter 8) regarding academic integrity, cheating and plagiarism. Academic dishonesty will not be tolerated. Ignorance of the rules and policies provides no protection from the consequences.
24. **Collection of Student Work:** Throughout the semester I may collect student work (best, average, and worst) for the ABET outcomes notebooks. This will require me to make a copy of your work, keep your original and return a copy of the graded work to you. I will not draw attention as to what level of work you accomplished.
25. **Final Guidance.** This will be an exciting learning experience where you get to DESIGN as engineers! I know that all of you are smart, dedicated students, and I look forward to working with you this semester.

This syllabus is subject to revision by the instructor.

Elina Efthymiou, Ph.D.

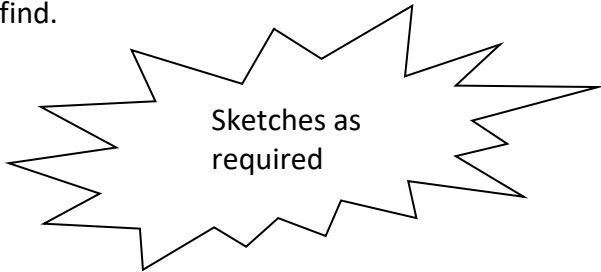


Assistant Professor  
CENG4412 Course Instructor

**Enclosure 1: Standard for Problem Set Submissions and Design Problem Sample Calculations.**

Engineering  
Paper Required

Page #\_\_ of x pages  
total. (Place on all pages  
of the problem set)

	CENG4412 Assignment #	Date Due: DD MMM YY (on first page only)	Name (on all pages)	1/x
○	<p><b>GIVEN:</b> Write a brief description of the information given in the problem statement.</p> <p><b>FIND:</b> Indicate the information you are to find for this problem. When you finish the problem, check this line to make sure you found all the things you were supposed to find.</p> <div data-bbox="552 709 1149 978" style="text-align: center;">  <p>Sketches as required</p> </div> <p><b>SOL'N:</b> Indicates where the solution starts. Good solutions are neat and clearly written, reference equation numbers from the SCM and/or ACI 318-19 Code or the text, and include notes of explanation. Drawings are neat and contain clear labels and dimensions.</p> <p>Put only one problem per page. Do not start a new problem in the middle of a page.</p> <p>Sloppy work or work which does not follow this format may result in a point cut.</p> <p>Use parenthetical documentation to indicate where you received assistance or information from others. For example:</p> <p style="padding-left: 40px;">(Helpful, I.M., '20 instructed me to check the slab in shear, not just bending and where to find the shear equation in the ACI 318-19.)</p> <p>○</p> <p>○</p> <p><u>"XXXXXXX ANS"</u> indicates your answer and the end of the problem. This should match the FIND line from above.</p>			

**Enclosure 2: Tentative Schedule for CENG4412 Fall 2024.**

Legend			
B	Both Course Blocks	RCC	Reinforced Concrete Column
C	Concrete Course Block	RCS	Reinforced Concrete Slab
CM	Compression Member	RVW	Review
DC	Design Challenge	S	Steel Course Block
EDP	Engineering Design Project	SB	Steel Beam
EX	Exam	SH	Shear
PS	Problem Set	SS	Structural Steel
RC	Reinforced Concrete	TM	Tension Member
RCB	Reinforced Concrete Beam		

CENG 4412 Reinforced Concrete and Steel Design Course Schedule; Fall 2024							
Lsn. #	Date		C/S/B	Block	Topic	Assign	Submit
1	8/26/2024	Mon	B	SS1	Course intro & overview	EDP	
2	8/28/2024	Wed	S	SS2	Structural Steel Fundamentals; Mechanical Behavior & Manufacturing	PS1	
3	8/30/2024	Fri	S	SS3	Structural Systems		
	9/2/2024	Mon			<b>Labor Day holiday</b>		
4	9/4/2024	Wed	S	SS4	Modeling and Plans Reading		
5	9/6/2024	Fri	S	TM1	Tension Member Overview	PS2	
6	9/9/2024	Mon	S	TM2	Tension Member and Connecting Element Analysis <b>Census Date</b>		PS1
7	9/11/2024	Wed	S	TM3	Bearing & Tearout		
8	9/13/2024	Fri	S	TM4	Block Shear & Bolt Strength		
9	9/16/2024	Mon	S	TM5	Tension Member Design		IPR (1)
10	9/18/2024	Wed	S	CM1	Global Buckling of Compression Members		
11	9/20/2024	Fri	S	CM2	Local Buckling		
12	9/23/2024	Mon	S	CM3	Flexural Buckling		PS2
13	9/25/2024	Wed	S	CM4	Torsional and Flexural-Torsional Buckling		
14	9/27/2024	Fri	S	CM5	Compression Member Design		
15	9/30/2024	Mon	S	DC1	<b>Truss Design Challenge</b>	DC1	EDP (1)
16	10/2/2024	Wed			<b>No Class</b> Study for Exam		
	10/3/2024	Thur		EX1	<b>Exam #1</b> Structural Steel Fundamentals, TM Block, CM Block		
17	10/4/2024	Fri	C	RC1	Intro to Design of Reinforced Concrete Structures ACI Strength Design Method	PS3	
18	10/7/2024	Mon	C	RC2	Reinforced Concrete Flexure Theory (+ accompanying recording)		
19	10/9/2024	Wed	C	RC3	Continuous beams and RC Floor Systems	PS4	
20	10/11/2024	Fri	C	RCS1	Flexural Analysis of One-Way Slabs		

CENG4412 Course Administration, Fall 2024

CENG 4412 Reinforced Concrete and Steel Design Course Schedule; Fall 2024							
Lsn. #	Date		C/S/B	Block	Topic	Assign	Submit
21	10/14/2024	Mon	C	RCS2	Flexural Design of One-Way Slabs I		PS3
22	10/16/2024	Wed	C	RCS3	Flexural Design of One-Way Slabs II		
23	10/18/2024	Fri	C	RCB1	Flexural Design of Concrete Beams I	<b>PS5</b>	
24	10/21/2024	Mon	C	RCB2	Flexural Design of Concrete Beams II		PS4
25	10/23/2024	Wed	C	RCB3	Flexural Design of Concrete Beams – Detailing		
26	10/25/2024	Fri	C	SH1	Diagonal Tension	<b>PS6</b>	IPR (2)
27	10/28/2024	Mon	C	SH2	Shear Analysis		PS5
28	10/30/2024	Wed	C	SH3	Shear Design I		
29	11/1/2024	Fri	C	SH4	Shear Design II		
30	11/4/2024	Mon	C	DC2	<b>Beam Design Challenge</b>	<b>DC2</b>	PS6
31	11/6/2024	Wed			No Class Study for Exam		
	11/7/2024	Thur		EX2	Exam #2 RCS Block, RCB Block		
32	11/8/2024	Fri	S	SB1	Flexural Strength I	<b>PS7</b>	
33	11/11/2024	Mon	S	SB2	Flexural Strength II		EDP (2)
34	11/13/2024	Wed	S	SB3	Flexural Strength III		
35	11/15/2024	Fri	S	SB4	Effects of Moment Gradient on Strength		
36	11/18/2024	Mon	S	SB5	Shear Failure and Other Beam Limit States		
37	11/20/2024	Wed	S	SB6	Beam Design		
38	11/22/2024	Fri	C	RCC1	RC Column Fundamentals	<b>PS8</b>	IPR (3)
	11/25/2024	Mon			<b>Thanksgiving Holidays</b>		
	11/27/2024	Wed					
	11/29/2024	Fri					
39	12/2/2024	Mon	C	RCC2	Interaction Diagrams		PS7
40	12/4/2024	Wed	C	RCC3	Design of Columns		
41	12/6/2024	Fri	B	RVW	Wrap Up and Review		PS8; EDP (3)

\*Subject to revision by the instructor