A. COURSE

Title and Number: COSC 321 502 CS 3 STRUCTURAL SYSTEMS I
Term: Spring 2017
Meeting Times and Locations: TR 12:45 – 2:00 PM FRAN 102
Course Web Address: http://people.tamu.edu/~mhaque/COSC321HAQUE/
Instructional Type and Method: Lecture; Traditional, Face-to-Face

B. DESCRIPTION AND PREREQUISITES

Introduction to the physical principles that govern classical statics and strengths of materials through the design of architectural structures. (3-0). Credit 3; COSC Majors Only.
Prerequisites: Admission to upper level in Construction Science.

C. MINIMUM REQUIRED LEARNING OUTCOMES

University Student Learning Outcomes:
- Master the depth of knowledge required for a degree
ACCE Student Learning Outcomes:
- Understand the basic principles of structural behavior
Rubrics:
- Quantitative literacy
Instructions: See Faculty Instructions for Course Assessment of the above minimum required learning outcomes.

D. ADDITIONAL LEARNING OBJECTIVES

To develop an understanding of and a proficiency in the application of the physical principles that governs the fundamental concepts of classical statics and strength of materials. A heavy emphasis is placed on the use of free-body diagrams in understanding the forces acting on a structural member. Specifically, this course has five particular learning objectives:
1. To develop the ability to manipulate forces by adding them together to form a single resultant force.
2. To understand moments, loads, and support reactions based on equilibrium theorem, with the use of free-body diagrams.
3. To develop the ability to solve joint forces in a truss: method of joints versus method of sections.
4. To understand the concepts of center of gravity, centroids, and the moment of inertia.
5. To develop the ability to construct shear and bending moment diagrams.
After taking this course, the student should be able to possess comprehensive knowledge of statics and strength of materials, with a proficiency in the use of free-body diagrams.

E. INSTRUCTOR INFORMATION

Name: Dr. Mohammed E. Haque, P.E., Professor, Department of Construction Science
Phone Number: (979) 458-1015
E-mail Address: mhaque@arch.tamu.edu
Website: http://people.tamu.edu/~mhaque/
Office Hours: MW 11:30 – 12:30 PM
Office Location: FRAN 314

F. REFERENCE TEXT (Optional):

G. GRADING POLICIES:

<table>
<thead>
<tr>
<th>Points</th>
<th>Grading Scale (Points)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class Attendance: 5 (See Note 1)</td>
<td>90 – 100 = A</td>
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<tr>
<td>Exam A: 30</td>
<td>80 – 89 = B</td>
</tr>
<tr>
<td>Exam B: 30</td>
<td>70 – 79 = C</td>
</tr>
<tr>
<td>Exam C: 35</td>
<td>60 – 69 = D</td>
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<tr>
<td>Total 100</td>
<td>Below 60 = F</td>
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NOTES:

1. Class Attendance: Class attendance is mandatory, and your regular attendance at class is required. Your attendance records will be kept by using daily sign-in sheets. It is your responsibility to check that your signature is put in place before leaving the classroom. Unexcused absences will impact your final grade. More than three (3) unexcused absences will result in lose of 5 points. See rules for officially excused absence - http://student-rules.tamu.edu/rule07.

2. There will be no Final Exam. Student’s grade will be decided based on total points received, (Exam A + Exam B + Exam C + Class attendance). Your total points will be rounded to nearest whole number. (Example - Total points of 79.5 will be counted as 80; Total points of 79.4 will be counted as 79).

3. Exam A, B, and C: ALLOWED- ONE letter size page (written on both sides) of Notes and Formulae (No Textbook).

4. Make-up-Exam (for a missed scheduled exam): Only officially excused university absences (http://student-rules.tamu.edu/rule07) will justify a make-up exam. The student is responsible for providing satisfactory evidence (such as Original Signed Copy of Doctor's letter; Photocopy or scanned copy will NOT be accepted) to the instructor to substantiate the reason for absence. The exam must be rescheduled by the student, and completed the make-up exam within 30 calendar days of the last date of the absence (after missing the scheduled exam).
### H. CALENDAR of ACTIVITIES and MAJOR ASSIGNMENTS

*Note that this is a tentative schedule and is subject to change at the discretion of the instructor.*

*(Highlight indicates SLO Assessment)*

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Course Website Part</th>
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</thead>
<tbody>
<tr>
<td>Lecture #1 T – 1/17/19</td>
<td>Introduction – Course Syllabus, Web site of Lecture Notes, Course Topics, Units – Force, Pressure, Moments, and others</td>
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<tr>
<td>Lecture #2 R – 1/19/17</td>
<td>Fundamentals of Statics- Vector Addition (Analytical and Graphical Method)</td>
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<tr>
<td>Lecture #3 T – 1/24/17</td>
<td>Moment of a Force Principle of Moments (Varignon’s Theorem) Couple and Moment of a Couple</td>
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<tr>
<td>Lecture #4 R – 1/26/17</td>
<td>Resolution of a Force into a Force and a Couple acting at another point Equilibrium of Two-Dimensional Systems: Equilibrium of a Particle</td>
<td>Website Part-A</td>
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<tr>
<td>Lecture #5 T – 1/31/17</td>
<td>Equilibrium of Rigid Bodies</td>
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<tr>
<td>R – 2/2/17</td>
<td>CIAC Career Fair, Class cancelled. (Faculty Retreat)</td>
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<tr>
<td>Lecture #6 T – 2/7/17</td>
<td>Equilibrium of Rigid Bodies (continued)</td>
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<td>Lecture #7 R – 2/9/17</td>
<td>Equilibrium involving distributed loadings</td>
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<td>Lecture #8 T – 2/14/17</td>
<td>Equilibrium involving Pulleys and Sheaves</td>
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<tr>
<td>EXAM-A R – 2/16/17</td>
<td><strong>60 min long EXAM-A will be held on Thursday February 16, 2017</strong></td>
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<tr>
<td>Lecture #9 T – 2/21/17</td>
<td>Analysis of Selected Determinate Structural Systems- Planar Trusses – Method of Joints</td>
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<td>Lecture #10 R – 2/23/17</td>
<td>Continue;</td>
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<tr>
<td>Lecture #11 T – 2/28/17</td>
<td>Planar Trusses – Method of Sections</td>
<td>Website Part-B</td>
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<td>Lecture #12 R – 3/2/17</td>
<td>Continued.</td>
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<td>Lecture #13 T – 3/7/17</td>
<td>Pinned Frames with Multi-Force Members</td>
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<td>Lecture #15 T – 3/21/17</td>
<td>Retaining Wall.</td>
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<tr>
<td>EXAM-B R – 3/23/17</td>
<td><strong>60 min long EXAM-B will be held on Thursday March 23, 2017 (EXAM-B is based on materials covered since EXAM-A)</strong></td>
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I. SPECIAL PROVISIONS

COSC Required Field Trip
All upper level students in the Construction Science Department are required to participate in one of the available field trips scheduled for 4/19/17 unless unable to participate due to:

- Currently on an internship
- Participating in the American Institute of Constructors (AIC) Associate Constructor Exam
- Other non-COSC classes that are scheduled on that date
- Excused absence as allowed by University Student Rule #07, Absences.

Americans with Disabilities Act (ADA) Policy Statement
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit http://disability.tamu.edu.

Academic Integrity
Misconduct in research or scholarship includes fabrication, falsification, or plagiarism in proposing, performing, reviewing, or reporting research. It does not include honest error or honest differences in interpretations or judgments of data. Texas A&M University students are responsible for authenticating all work submitted to an instructor. If asked, students must be able to produce proof that the item submitted is indeed the work of that student. Students must keep appropriate records at all times. The inability to authenticate one’s work, should the instructor request it, is sufficient grounds to initiate an academic dishonesty case. For additional information please visit http://www.tamu.edu/aggiehonor.

“An Aggie does not lie, cheat, or steal, or tolerate those who do.”
Upon accepting admission to Texas A&M University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning, and to follow the philosophy and rules of the Honor System. Students will be required to state their commitment on examinations, research papers, and other academic work.
Ignorance of the rules does not exclude any member of the TAMU community from the requirements or the processes of the Honor System.

Absences
Rules concerning excused absences may be found at http://student-rules.tamu.edu/rule07. In particular, except for absences due to religious obligations, the student must notify his or her instructor in writing (acknowledged e-mail message is acceptable) prior to the date of absence if such notification is feasible. By state law, if a student misses class due to an obligation of his or her religion, the absence is excused. A list of days of religious obligation for the coming semester may be found at http://student-rules.tamu.edu/append4.

Disruptive Behavior
If a student's behavior in class is sufficiently disruptive to warrant immediate action, the instructor is entitled to remove a student on an interim basis, pending an informal hearing with the Head of the Department offering the course. This hearing must take place within three working days of the student's removal. This rule and supporting information may be found at http://student-rules.tamu.edu/rule21.

Copyright
Dr. Mohammed E. Haque reserves copyright to all materials used in this course. This means all materials generated for this class, which includes but is not limited to syllabi, quizzes, exams, lab problems, in-class materials, review sheets, and additional problem sets. Because these materials are copyrighted, you do not have the right to copy any material, unless expressly granted written permission.

Defacement of University Property
"It is unlawful for any person to damage or deface any of the buildings, statues, monuments, trees, shrubs, grasses, or flowers on the grounds of any state institutions of higher education (Texas Education Code Section 51.204)" The words damage or deface refer specifically to any and all actions, whether direct or indirect, that either diminish the value or mar the appearance of the physical environment.

Engineering Advice
We will be discussing many engineering topics in this class. Many of you will experience or have experienced many of these matters in your life. Design issues are extremely complex and for every rule there are usually many exceptions. Do not use the material that we cover in class as a substitute for proper informed design advice. An engineer can only give you design advice after establishing a client relationship and investigating the facts of a particular matter completely. What I tell you in class is never to be considered design advice and I cannot and will not represent you as your engineer. Please seek competent design advice if you are faced with a design issue.

Plagiarism
It is very important to read other people's work and to use their ideas in developing theses, professional papers, or otherwise completing academic requirements. This is called scholarship and is highly rewarded because it builds a cumulative body of knowledge. When other scholars share their ideas, they expect that others will give them credit when making use of their ideas. It is critically important for students to understand the rules for properly crediting other people's ideas when writing a thesis or professional paper or otherwise completing academic requirements. If you use someone else's idea without using his or her specific words, this is called paraphrasing. When you paraphrase, you are expected to indicate the source of the idea (the author and publication date, but not a page number). This allows a reader to find the source of the ideas, verify that you have accurately represented them, and obtain additional information about those ideas if necessary. If you use someone else's exact words, this is called quoting. When you quote, you are expected to enclose the words in quotation marks, and indicate the source of the quote (the author, publication date, and page number). Plagiarism also applies to information found on the web; it is equally important to cite a web source and the rules above pertain. Consequently, if there are not quotation marks around the text and no source is cited, instructors will assume that you intend for them to conclude that any ideas, especially the specific words, that you presented in your work are your own. Thus, if the idea or the exact words are taken from another source and you do not indicate the source of the idea, you are representing another person's ideas as if they were your own. This is called plagiarism and is a very serious offense. All paper submittals need to have a cover sheet with turnitin.com report showing a score less than 10%. See the Evans library for more information since it is at no cost for our students.
J. OTHER COURSE SPECIFIC

Student Performance Expectations
Our industry is based on responsive, responsible, timely and unambiguous performance.

• **Responsiveness** means that you comply with the scope of the work, that is: Regarding class, it means that your readings are completed before class and you are prepared to participate according to the expectations on this syllabus.

• **Responsible** performance means that you are responsible for reading and participating to the best of your abilities in a team learning effort.

• **Timely** means that: Regarding class, it means that you are present and on time.

• **Unambiguous** means that: You will strive for clarity in your writing and words so that there is no misinterpretation of what is intended and what is communicated.

K. ASSESSMENT OF STUDENT LEARNING OUTCOME (SLO)

The SLO Assessment will be based on the EXAM-C, and will use the following rubric.

<table>
<thead>
<tr>
<th></th>
<th>100%</th>
<th>50%</th>
<th>10%</th>
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<tbody>
<tr>
<td><strong>Application / Analysis (15 Points)</strong></td>
<td>Calculations attempted are essentially all successful and sufficiently comprehensive to solve the problem. Calculations are also presented elegantly (clearly, concisely, etc.)</td>
<td>Calculations attempted are either unsuccessful or represent only a portion of the calculations required to comprehensively solve the problem.</td>
<td>Calculations are attempted but are both unsuccessful and are not comprehensive.</td>
</tr>
<tr>
<td><strong>Application / Analysis (15 Points)</strong></td>
<td>Develops comprehensive knowledge of shear force and bending moment diagrams as the basis for deep and logical calculations and judgments, with a proficiency in the applications of fundamental concepts.</td>
<td>Develops good understanding of shear force and bending moment diagrams as the basis for deep and logical calculations and judgments, with medium confidence in the applications of fundamental concepts.</td>
<td>Uses shear force and bending moment diagrams as the basis for tentative, basic judgments without confidence in the applications of fundamental concepts.</td>
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</tbody>
</table>