**CM 2210 – Introduction to Structures**

# Construction Management Department

**College of Architecture & Construction Management Term: Spring 2020**

**Prerequisite:** PHYS 1111

**Class Meeting time:** T & R 12:30 – 1:45 PM **Course Website:** http:d2l.kennesaw.edu **Class Location:** H-323 (Academic Building)

**Class instruction methodology:** Lecture & Lab (3-0-3)

**Instructor:** Amaal Al Shenawa

**Office Location:** H-342 (Academic Building)

**Office Hours:** M & W (2:15 – 3:15) PM

T & R (1:45 – 3:15) PM

## Or by appointment

**Email****:** [aalshena@kennesaw.edu](mailto:aalshena@kennesaw.edu) **Phone:** 470-578-6233

**Course Communications: :** [aalshena@kennesaw.edu](mailto:aalshena@kennesaw.edu)

**Required Text/ISBN Number:** Statics & Strength of Materials, 2nd Edition, Cheng 0-02-803067-2

## COURSE SYLLABUS

The intent of the syllabus is to provide the students with information on the course content, required learning outcomes, grading policy, course policies, and Kennesaw State University student policies and resources. This syllabus also includes the tentative topical outline and schedule. Each student is expected to abide by the stated policies.

## Course Catalog Description:

The study of basic structural design and analysis. Primary aim of this course is to develop and present structural concepts, introduce structural theory, provide a sound understanding of statics and strength of materials to establish a basis for understanding structural principles as it relates to building components.

## Student Learning Outcomes covered in this course:

SLO 19 – Understand the basic principles of structural behavior.

## Course Learning Outcomes:

Upon completion of the course the student will have the ability to:

CLO 1 – Understand of the basic concepts and principles of statics. CLO 2 – Understand of the basic concepts of strength of materials. CLO 3 – Analyze and design simple beams and columns.

## Purpose of this course:

All courses in the Construction Management program contribute to the body of knowledge required to complete the Capstone project necessary for graduation. Each course in the Construction Management program provides the student with an opportunity to attain knowledge, skills, and abilities in one or more of the 20 Student Learning Outcomes (SLO) set forth by the American Council for Construction Education (ACCE). The student’s level of achievement of SLO is measured through one or more Course Learning

Outcomes (CLO). The mapping of CLOs with SLOs for the course is shown in the table below followed by the table that presents the mapping of CLO with assessment tools.

## Mapping of CLO with SLO

|  |  |  |  |
| --- | --- | --- | --- |
| **Assessment** | **CLO 1** | **CLO 2** | **CLO 3** |
| SLO 19 | X | X | X |

**Mapping of Assessment with CLO**

|  |  |  |  |
| --- | --- | --- | --- |
| **Assessment** | **CLO 1** | **CLO 2** | **CLO 3** |
| HW- Resultants and  Reactions | X |  |  |
| HW- Stress & Strain |  | X |  |
| HW- Design of Beams |  |  | X |

**COURSE POLICIES**

**Attendance Policy:** Attendance is required for this course. Excused absences are given with proper notice and/or documentation. The Class Participation grade is based on your attendance to the class and other approved functions.

**Exam Policy:** There are three exams. The exams will test the individual student's understanding of some of the principle concepts covered in the course.

**Make-up Policy:** No make-up exams are given.

**Assignment Policy:** Assignments are submitted in a hard copy. Students are expected to attend class and complete assignments in a timely manner. Due dates and times are given for all assignments. It is your responsibility to submit the work before the time expires. All student work will be graded within two weeks of submission.

**Course Technology:** This course requires access to a computer. The Construction Management Department has 105 computer stations available for student use.

## Evaluation & Grading:

|  |  |
| --- | --- |
| Homework | 50 % |
| Tests | 45 % |
| Class Participation | 5 % |

A = 90-100

B = 80-89

C = 70-79

D = 60-69

F = Below 60

## CM 2210: COURSE TOPICAL OUTLINE & SCHEDULE

|  |  |  |  |
| --- | --- | --- | --- |
| **Week** | **Topic** | **Reading** | **Assignment** |
| 1 | Course Introduction Math Review | Chapter 1 | [HW - 1] Assigned |
| 2 | Statics: Forces, Types of Force Systems  Resultant | Chapter 1&2 | [HW – 1] Due |
| 3 | Statics: Forces, Types of Force Systems  Resultant | Chapter 2 | [HW – 2] Assigned |
| 4 | Statics: Moment of a Force, Varignon’s Theorem  Distributed Force | Chapter 2 | [HW – 2] Due  [HW – 3] Assigned |
| 5 | Statics: Principles of Force Equilibrium, Supports and Reactions | Chapter 3 | [HW – 3] Due  [HW - 4] Assigned |
| 6 | Statics: Truss Analysis (analytical method of joints) | Chapter 4 | [HW - 4] Due |
| 7 | Statics: Properties of Area  Test 1 | Chapter 7 & 8 | [HW – 5] Assigned |
| 8 | Strength of Materials: Simple Stress | Chapter 9 | [HW- 5] Due |
| 9 | Strength of Materials: Strains,  Mechanical Properties | Chapter 10 & 11 | [HW – 6] Assigned |
| 10 | Strength of Materials: Shear Force & Bending Moment Diagrams | Chapter 13 | [HW - 6] Due |
| 11 | Strength of Materials: Shear Force & Bending Moment Diagrams | Chapter 13 | [HW – 7] Assigned |
| 12 | Strength of Materials: Stresses in Beams  Deflection of Beams  Test 2 | Chapter14 & 16 | [HW -7] Due |
| 13 | Strength of Materials: Design of Beams for Strength | Chapter 15 | [HW – 8] Assigned |
| 14 | Strength of Materials: Steel Column Design | Chapter 19 | [HW: 8]: Due |
| 15 | Review |  |  |

Note: The topical outline and schedule is **tentative** and subject to change as per the progress of the course.

## UNIVERSITY POLICIES: Statement of Student Rights and Responsibilities KSU Student Code of Conduct

**Plagiarism and Cheating:**

No student shall receive, attempt to receive, knowingly give or attempt to give unauthorized assistance in the preparation of any work required to be submitted for credit (including examinations, laboratory reports, essays, themes, term papers, etc.). Unless specifically authorized, the presence and/or use of electronic devices during an examination, quiz, or other class assignment is considered cheating. Engaging in any behavior which a professor prohibits as academic misconduct in the syllabus or in class discussion is cheating. When direct quotations are used, they should be indicated, and when the ideas, theories, data, figures, graphs, programs, electronic based information or illustrations of someone other than the student are incorporated into a paper or used in a project, they should be duly acknowledged. No student may submit the same, or substantially the same, paper or other assignment for credit in more than one class without the prior permission of the current professor(s).

University Policy on Academic Misconduct: Academic honesty and integrity are fundamental values of the University community. Students should be sure that they understand the KSU Student Academic Integrity Policy at <http://kennesaw.edu/handbooks/faculty/section2_13.php>

## University Policy on Accommodating Students with Disabilities:

Students requesting accommodation for disabilities must first register with the Office of Disabled Student Support Services at [http://www.kennesaw.edu/stu\_dev/dsss/dsss.html.](http://www.kennesaw.edu/stu_dev/dsss/dsss.html) The Office of Disabled Student Support Services will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation. You must submit this documentation prior to submitting assignments or taking the quizzes or exams (No more than 3 weeks). Accommodations are not retroactive, therefore, students should contact the office as soon as possible in the term for which they are seeking accommodations.

## \*\*Netiquette: Communication Courtesy:

All members of the class are expected to follow rules of common courtesy in all email messages, threaded discussions and chats. <http://teach.ufl.edu/docs/NetiquetteGuideforOnlineCourses.pdf>

## Electronic Recording & Social Media Policy

Electronic recording performed without the consent of the people being recorded chills the free exchange of ideas. Academic freedom, free inquiry, and freedom of expression should not be limited by the fear that one’s brainstorming, polemic discourse, speculative inquiry, or any other kind of expressed curiosity made within the space of a university classroom will be made public without one’s consent. This fear is unacceptable regardless of whether one is in an online, hybrid, or face-to-face classroom setting. Accordingly, no person shall electronically record any class discussion without the written permission of the instructor. No person shall publish online or elsewhere any electronic recording of a class discussion without the written permission of the instructor and any other persons who were recorded. This policy is not intended to discourage electronic recording in the classroom or the use of social media when such actions are performed with the written consent of the instructor and any other persons who were/will be recorded. Faculty accommodate all reasonable requests to electronically record a class discussion; these requests must be documented by the Disabled Student Support Services available at: <http://www.kennesaw.edu/stu_dev/dsss/prospect.shtml>

## GETTING HELP

For issues with technical difficulties, please contact the Student Helpdesk:

1. Fill out a service form <http://uits.kennesaw.edu/support/formselect.php?s=tech>
2. Email:[studenthelpdesk@kennesaw.edu](mailto:studenthelpdesk@kennesaw.edu) 3. Call: 770-499-3555

Getting Started With Technology Services <http://uits.kennesaw.edu/>

Any requests for make-ups due to technical issues MUST be accompanied by the ticket number received from ITS when the problem was reported to them. The ticket number will document the time and date of the problem. You MUST e-mail your instructor within 24 hours of the technical difficulty if you wish to request a make-up.

## Additional Technology Resources

1. Student Service Desk and Help Center [studenthelpdesk@kennesaw.edu](mailto:studenthelpdesk@kennesaw.edu)
2. Browser Checker https://usg.desire2learn.com/d2l/tools/system\_check/systemcheck.asp?ou=6606
3. USG Desire2Learn Help Center https://d2lhelp.view.usg.edu/
4. D2L Training Options & Resources for Students https://web.kennesaw.edu/acs/pages/desire2learn/student-resources-d2l
5. Computertrain Online Courses <http://www.kennesaw.edu/dlc/FacultyResources/>
6. ITS Documentation Center <http://uits.kennesaw.edu/docs/netaccess/guides/windows7_wifi_instructions.pdf>
7. Check Service Outages <http://status.usg.edu/>
8. Maintenance Schedule https://usg.desire2learn.com

## Academic Resources

1. Academic Tutoring Services <http://www.kennesaw.edu/stu_dev/alp/academic.shtml>
2. Disability Resources <http://www.kennesaw.edu/stu_dev/dsss/dsss.html>
3. ESL Study and Tutorial Center <http://www.kennesaw.edu/us/programs/esl.php>
4. Library <http://www.kennesaw.edu/library/>
5. Supplemental Instruction <http://www.kennesaw.edu/us/programs/si.php>
6. The Writing Center <http://www.kennesaw.edu/writingcenter/index.php>
7. Math Lab <http://mathlab.kennesaw.edu/>

## Student Support and Wellness Resources

1. Career Services Center https://careerctr.kennesaw.edu/
2. Counseling and Psychological Services <http://sss.kennesaw.edu/cps/>
3. Center for Health, Promotion and Wellness <http://www.kennesaw.edu/col_hhs/wellness/>
4. Student Health Clinic <http://studenthealth.kennesawstateauxiliary.com/>

KSU desires to resolve student grievances, complaints and concerns in an expeditious, fair and amicable manner. The Complaints and Appeals Page was developed to assist current and prospective students in submitting complaints and appeals and to direct them to the most effective venue for accurate information and resolution. The resources on the page will direct students to the specific venue to appropriately address related student complaint. <http://www.kennesaw.edu/complaints_appeals.shtml>

Complaints for online students are resolved following the same general procedures for students who attend classes on campus. However, for any process that requires that a student appear in person, the university may make other arrangements. For processes that cannot be completed via telephone, e-mail, or written correspondence, the university may set up a two way Video conference site in place of a meeting on the KSU campus.

## STUDENT LEARNING OUTCOMES

**Upon graduation from an accredited ACCE 4-year program a graduate shall be able to:**

|  |  |
| --- | --- |
| **ACCE SLO** | **TARGET** |
| SLO 1 – Create written communications appropriate to the construction discipline. |  |
| SLO 2 – Create oral presentations appropriate to the construction discipline. |  |
| SLO 3 – Create a construction project safety plan. |  |
| SLO 4 – Create construction project cost estimates. |  |
| SLO 5 – Create construction project schedules. |  |
| SLO 6 – Analyze professional decisions based on ethical principles. |  |
| SLO 7 – Analyze construction documents for planning and management of construction processes. |  |
| SLO 8 – Analyze methods, materials, and equipment used to construct projects. |  |
| SLO 9 – Apply construction management skills as a member of a multi-disciplinary team. |  |
| SLO 10 – Apply electronic-based technology to manage the construction process. |  |
| SLO 11 – Apply basic surveying techniques for construction layout and control. |  |
| SLO 12 – Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process. |  |
| SLO 13 – Understand construction risk management. |  |
| SLO 14 – Understand construction accounting and cost control. |  |
| SLO 15 – Understand construction quality assurance and control. |  |
| SLO 16 – Understand construction project control processes. |  |
| SLO 17 – Understand the legal implications of contract, common, and regulatory law to manage a construction project. |  |
| SLO 18 – Understand the basic principles of sustainable construction. |  |
| SLO 19 – Understand the basic principles of structural behavior. |  |
| SLO 20 – Understand the basic principles of mechanical, electrical and piping systems. |  |