

## **ENGR 3132 - Strength of Materials Lab**

### **Instructor: Hosain (Amir) Haddad Kolour, PhD, PE**

### **Course Syllabus – Fall, 2023**

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#### **Course Description:**

Strength of Materials investigates how structures in our world (beams, columns, trusses, etc.) respond to loads. Will the beam break? How much will the rod stretch under tension? If the material doesn't break, how much does it deform? How do engineers know how structures will perform—because they understand the mechanics of the materials they are using—because they've performed tests on the materials to understand how it behaves. In this lab, we will place various engineering materials under various types of load and see how these materials respond.

#### **Instructor:**

Hosain (Amir) Haddad Kolour, PhD, PE

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Phone: 470-578-7294

**Office Hours:** M W, 1:00 - 2:30 T R, 2:00 - 3:00

**Office location:** G214

#### **Class Time and Location:**

**ENGR 3132 Section 01:** Tuesday 11:00am - 1:45pm

**Room:** Q-135

#### **Credit Hours:**

0-3-1 (Lecture-Lab-Total Credit Hours)

#### **Required or Elective:**

This course is required for all civil, construction, mechatronics, and mechanical engineering majors.

#### **Required Course Materials:**

- *Kennesaw State University Civil & Construction Engineering Strength of Materials Lab Manual*  
PDF available as a download from the course D2L website.
- Safety Glasses (you cannot be in the laboratory without them, and if you don't have any, you'll have to leave).
- Face Mask, per University System of Georgia Guidelines

#### **Textbook Required:**

There is no textbook required to be purchased. However, you might find the textbook from the ENGR 3131 lecture helpful if you have it. There is a required lab manual that will be available for free download on the course's D2L site.

#### **Co-requisite:**

ENGR 3131 – *Strength of Materials* lecture

Students must register for a strength of materials lecture ENGR 3131 along with ENGR 3132. The lecture is a separate course, and the student must register for the lecture separately. Having the same instructor for the lab and the lecture is not required.

## Learning Outcomes:

The student, upon completion of this course, will be able to:

1. Perform standard mechanical testing such as tensile test, torsion test, beam bending test, and buckling test.
2. Develop and utilize the stress-strain diagrams for determining the mechanical properties of various materials.
3. Utilize extensometer and strain gauge in stress/strain analysis
4. Utilize data acquisition hardware/software for mechanical testing
5. Prepare calculations and data analysis to determine material properties

## Course Outcome Measures and Assessment:

Measures and assessment of the outcomes will be made by:

1. Periodic lab reports
2. Periodic Quizzes
3. End of term peer evaluation survey.
4. Course and instructor evaluation at the end of the semester to provide student feedback on the quality of the course and effectiveness of the instructor.

## Grading:

1. Lab Reports: 40%
2. Attendance Quizzes: 15 %
3. Professionalism/Participation: 15 %
4. Lab Report Quizzes: 30%

The grade scale is:  $A \geq 90.0\%$ ;  $80.0\% \leq B < 90.0\%$ ;  $70.0\% \leq C < 80.0\%$ ;  $60.0\% \leq D < 70.0\%$ ;  $F < 60.0\%$

## Course Policies:

### Lab Attendance:

Attendance is required for all non-virtual experiments unless you are ill or officially excused by the instructor (such as a result of official, documented participation in a university function). Accommodations for Covid-19 related absences should be documented with the Student Disability Services Center.

In the case of unavoidable absences, alternate instruction might be provided to fulfill the attendance requirements. Missed lab experiments without a written excuse approved by the instructor will result in 50% credit for that lab report and a reduction in points towards the attendance and participation grades.

Please note that, to be in the laboratory during experiments, you must have and be wearing your safety glasses and a face mask. You cannot participate without them. Due to sanitation concerns, there are no safety glasses available for borrowing in the lab.

### Readings and Lab Introductory Videos:

The student shall read over the lab manual pages pertaining to the week's experiment prior to the lab meeting, so that the student is familiar with the experiment. To reduce contact time in the lab, video lectures will be distributed to cover background information on each lab. Students should review these videos and complete the attendance quiz prior to their lab meeting time.

### Lab Professionalism/Participation:

Students are expected to arrive to lab on time and prepared to start the experiment. Students are expected to participate in each experiment and be engaged during their time in the lab. A portion of this grade item

will be based on peer reviews by group members regarding Participation in the Lab Group. The remaining portion of the Professionalism/Participation grade will be based on instructor's observations in the lab. There will be a participation component for virtual labs as well.

## Lab Reports & Lab Groups:

Technical lab reports are an important part of this course. There will be a written lab report required for each lab experiment. Students will be assigned to lab groups, and each lab group will then produce a group written report which describes the experiments and the findings. Unless directed otherwise, each group shall submit its lab report as a PDF uploaded to the D2L Assignments folder by the due date and time listed in D2L (usually one week after the experiment is performed.)

Lab Report Guidelines:

- The lab report shall be a single file of PDF format, named in the following naming convention: Lab [X]\_[Course Section #]\_[Group #], where [X] refers to the experiment number, [course section #] refers to the KSU course section number particular to your section of ENGR 3132, and the [Group #] refers to the group number assigned to your group by the instructor. Example: "Lab 01\_ENGR 3132 07\_1.pdf"
- Include the names of all group members at the top of the report.
- The reports are due as PDF uploads to D2L by the time and date listed in the D2L assignment or as directed by the instructor. Late lab reports will not be accepted.
- The lab reports shall be written in accordance with the "Preparation of Laboratory Reports" section of the Lab Manual.

## Virtual Labs:

For experiment conducted virtually, all information will be distributed to students electronically. Lab reports for these experiments shall follow the same format as in person experiments.

## Quiz Policy:

Quizzes will be administered via D2L. Attendance quizzes will cover topics addressed in the introductory videos. Lab Report Quizzes will be more in depth and relate to the experiment and analysis of results. Quizzes are open notes/open lab manual.

## Exam Make-up Policy:

There will be no make-up quizzes under any circumstances, except for university-approved absences with written documentation. If your absence is excused, then the instructor reserves to have you either make up the exam, or to have subsequent quizzes weighted more heavily to make up for the missing points.

## Methods of Communicating:

D2L shall be considered the primary method of communication from the instructor, and the student should check D2L regularly. You can ask questions and ask for clarification by e-mail, in class, or by visiting the instructor during office hours or by appointment.

## Response Timeframe:

Grading of assignments may take up to a week. I will try to respond to any discussions, comments, and questions within 24 hours Monday through Friday.

## Course Withdrawal Policy:

Please refer to the KSU catalog for specific information regarding course withdrawal. Students are solely responsible for managing their enrollment status in a class; nonattendance does not constitute a withdrawal.

## Netiquette:

Please remember that others cannot hear you online – they can only read what you write. To keep the course friendly and inviting to all, please follow these netiquette points:

- Do not use all caps. It is the equivalent of screaming.
- Do not flame. These are outbursts of extreme emotion or opinion.
- Think before you hit the post button. You cannot take it back!
- Do not use offensive language.
- Use clear subject lines.
- Do not use abbreviations or acronyms unless the entire class knows them.
- Be forgiving. Anyone can make a mistake.
- Keep the dialog collegial and professional.
- Be sensitive and reflective to what others are writing.

## Recording of Lectures:

Throughout the semester, lectures may be recorded by the instructor and these recordings may be distributed to the class. By participating in synchronous lectures, you are giving consent for your contribution to appear in the final recording distributed to class.

## Additional Policies:

- **Computer Use:** Much of the course materials, quizzes, assignments, and communication will be through D2L Brightspace. It is the student's responsibility to stay current with D2L content. In the classroom, laptop/handheld computers may be used as long as it is not distracting to other students.
- **Cell Phones:** All communication devices must be turned off or to silent mode in the laboratory. The use of cell phones or other communication devices is disruptive, and is therefore prohibited during class.
- **Instructor's Absence or Tardiness:** If the instructor is late in arriving to class, you must wait 20 minutes after the start of class before you may leave without being counted absent, or you must follow any written instructions the instructor may give you about an anticipated absence or tardiness.

## Policy Changes:

Information contained in the course syllabus may be subject to change with reasonable advance notice, as deemed appropriate by the instructor.

## University Policies:

### Federal, BOR, & KSU Course Syllabus Policies

- Information contained in the links below constitutes the Federal, BOR, and KSU course syllabus policies and procedures and may be referenced by faculty members in their course syllabi. These policies are updated on the Academic Affairs Website annually.
- **Academic Affairs - Federal, BOR, & KSU Policies:**  
[https://curriculum.kennesaw.edu/resources/federal\\_bor\\_ksu\\_student\\_policies.php](https://curriculum.kennesaw.edu/resources/federal_bor_ksu_student_policies.php)

- **Academic Affairs - KSU Student Resources for Syllabus:**  
[https://curriculum.kennesaw.edu/resources/ksu\\_student\\_resources\\_for\\_course\\_syllabus.php](https://curriculum.kennesaw.edu/resources/ksu_student_resources_for_course_syllabus.php)
- **Note to Faculty:** The KSU faculty handbook requires the Academic Integrity Policy in the course syllabus.
- **Note to Faculty and Students:** The Office of the Provost will work to keep the policies and links in this document as accurate as possible.

## Academic Integrity Statement

Every KSU student is responsible for upholding the provisions of the Student Code of Conduct, as published in the Undergraduate and Graduate Catalogs. Section 5c of the Student Code of Conduct addresses the university's policy on academic honesty, including provisions regarding plagiarism and cheating, unauthorized access to university materials, misrepresentation/falsification of university records or academic work, malicious removal, retention, or destruction of library materials, malicious/intentional misuse of computer facilities and/or services, and misuse of student identification cards. Incidents of alleged academic misconduct will be handled through the established procedures of the Department of Student Conduct and Academic Integrity (SCAI), which includes either an "informal" resolution by a faculty member, resulting in a grade adjustment, or a formal hearing procedure, which may subject a student to the Code of Conduct's minimum one semester suspension requirement. See also [KSU Student Code of Conduct](#).

## Electronic Communication

The University provides all KSU students with an "official" email account with the address "students.kennesaw.edu" or "kennesaw.view.usg.edu" (in D2L). As a result of federal laws protecting educational information and other data, this is the sole email account you should use to communicate with your instructor or other University officials.

## Contacts to get Help:

- D2L Technical Support, go to <http://uits.kennesaw.edu/> or call 470-578-3555
- D2L Brightspace website at <http://d2l.kennesaw.edu/>
- KSU Help Desk Phone Number: 470-578-3555.
- KSU Distance Learning at <http://distancelearning.kennesaw.edu/>
- Accessibility policy of all technologies:  
<https://policy.kennesaw.edu/content/web-accessibility-policy-statement>

## Additional Resources:

- Remote access to Library Resources at <http://www.kennesaw.edu/library/DI/dl.html>
- You can find The USG Copyright Policy at <http://www.usg.edu/copyright/>
- [Other help for student success at http://sss.kennesaw.edu/](http://sss.kennesaw.edu/)
- Academic support services and student services at (<http://kennesaw.edu/currentstudents.php>)
- KSU CETL Thank a Teacher at <http://cetl.kennesaw.edu/thank-a-teacher>
- The KSU Writing Center helps students in all majors improve their writing. Experienced, friendly writing assistants help with topic development, revision, research, documentation, grammar, and more. For more information or to make an appointment, visit [writingcenter.kennesaw.edu](http://writingcenter.kennesaw.edu) or stop by English Building, Room 242 (Kennesaw campus) or Johnson Library, Room 121 (Marietta campus).

## Course Schedule:

See Schedule distributed separately to faculty. It should be copied into the syllabus before distributing to students.