1: Course Logistics

- Semester: Spring 2020
- Section: 010  Section: 01Z  Section: 02Z
- Class days: Tuesday & Thursday  Lab Day: Wednesday  Lab Day: Tuesday
- Class time: 11:00-11:50 am  Lab time: 3:00-5:50 pm  Lab time: 2:00-4:50 pm
- Location: VIN 287  Location: HSEL 109  Location: HSEL 109

2: Instructor Information

- Instructor: Gustavo Vargas Silva, PhD
- Email: gustavo.vargas-silva@angelo.edu
- Phone: (325) 486-5540
- Office: Vincent Building 270
- Office Hours: See Engineering Homepage

3: Required Materials

The textbook listed below is recommended only. The notes provided in class may be sufficient to learn the required material; however, I would prefer that you have a Statics textbook available for reference. The concepts presented in this course may be more challenging than those in physics and calculus and the use of a textbook for extra clarification may be required. There are numerous textbooks/editions available that are suitable. The class notes will reference sections in the recommended textbook.


It is also recommended that you purchase a binder to organize your notes for the class. The class primarily uses handouts, which are posted to Blackboard and need to be printed and brought class.

4: Prerequisites

- CHEM 1411 General Chemistry
- ENGR 2332 Mechanics of Materials

5: Course Description

The chemical bonding and microstructural properties of different types of engineering materials (i.e. Metals, Ceramics, Polymer, Composites). You will learn several standard techniques to evaluate material and mechanical properties for polymers, and different types of metals. You will improve your technical writing skills through preparation of group laboratory reports. (3 credit hours with 2 Lecture hours and 3 Lab hours per week).

6: Student Learning Outcomes

When you complete this class, you should be able to:

1. Perform standard experiments commonly used in engineering and describe mechanical properties of different engineering materials (polymers, different metallic alloys, wood).
2. Describe, analyze, and interpret experimental data, design specimen, perform error analysis, develop stress-strain relationships, evaluate variability to determine statistical significance.
3. Describe the interatomic bonding, chemical structures, and microstructure that affects the mechanical properties of different engineering materials.
4. Describe the crystal structure, imperfection, and defects in different engineering materials that are driving the dominant failure mechanism.
5. Describe the mechanism of crack propagation for both ductile and brittle fracture modes; determine the fatigue and creep lifetime of engineering components.
6. Describe the application and processing technique for different engineering materials.
7. Communicate laboratory results in oral presentations and written reports.

7: Course Outcome Mapping

The mapping of the Student Learning Outcomes for the course to the ABET Criterion 3 Student Outcomes is shown in Table 1.

Table 1: Student Outcomes from ABET Criterion 3

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8: Course Delivery (Synchronous Remote Sessions)

To maintain academic quality while accommodating social distancing needs this semester, this course will use a split delivery model that combines face-to-face teaching with remote instruction.

The goal is to provide face-to-face instruction to students who want to return to campus, while also allowing students who may need to learn remotely to participate via virtual class sessions.

How Does It Work?

Your class will be divided and you will be placed into a smaller group of students to maintain physical distancing requirements in our assigned classroom space.

Your assigned group will receive a schedule of in-person class meetings. This schedule is not flexible. For instance, if you are supposed to attend class on a Monday, you cannot elect to go on Wednesday with another class group instead.

When you are not in the physical class, you will attend live remote sessions at the same time as our scheduled course. You will also be expected to complete coursework via Blackboard.

Please refer to this Health and Safety web page for updated information about campus guidelines as they relate to the COVID-19 pandemic.

9: Course Structure, Communication, Policies

This course has two significant components: two 1-hour lectures per week and one 3-hour lab session per week. On-time attendance of lab sessions is required.
For each lecture, you are expected to have read the assigned textbook material ahead of time, and to be ready to engage with the lesson materials (through in-class exercises, discussions, and activities).

Faculty will respond to email and/or telephone messages within 24 hours during working hours Monday through Friday. Weekend messages may not be returned until Monday.

Written communication via email: All private communication will be done exclusively through your ASU email address. Check frequently for announcements and policy changes. In your emails to faculty, include the course name and section number in your subject line.

Virtual communication: Office hours and/or advising may be done with the assistance of the telephone, Collaborate, Skype, etc.

Lesson materials will be organized on the Blackboard website for the course. You are expected to have access to the lesson handouts during class by either printing the handouts or having them available for modification on your computer/tablet. The handouts only outline the material for a given class and will need to be completed during class for the student to have the relevant information.

Attendance at lectures is required. Some of the material presented will correlate with the textbook, but other material will not and/or may be presented differently. You are responsible for all topics that are covered in class.

Important course announcements and changes will be sent by email via Blackboard. Students are expected to regularly check their Angelo State University email for these messages.

Academic integrity is expected from all students at all times in accordance with Part I, Section B.1 of the Angelo State University Code of Student Conduct.

Respect for your fellow classmates is required. Do not act in a manner that may distract others, including but not limited to: talking during lecture, texting, receiving obnoxious phone calls, watching YouTube videos, eating noisily, listening to loud music, walking to the front of the room during lecture just to turn your homework in because you were late to class, etc… If you need to do any of these activities, you are free to leave the classroom.

10: Professionalism

Professional engineering standard apply in this class. You are expected to demonstrate a behavior consistent with the conduct of an individual practicing in the engineering profession. You are expected to: (1) come prepared for class; (2) respect faculty and peers; (3) demonstrate responsibility and accountability for your own actions; (4) demonstrate sensitivity and appreciation for diverse cultures, backgrounds, and life experiences; (5) offer and accept constructive criticism in a productive manner; (6) demonstrate an attitude that fosters professional behavior among peers and faculty; (7) be punctual to class meetings; (8) maintain a good work ethic and integrity; and (9) recognize the classroom as a professional workplace.

11: Graded Material

11.1: Final Grades

| Homework/In-Class Assignments: | 10% |
| Exam I: | 16% |
| Exam II: | 16% |
| Exam III: | 16% |
| Lab Reports | 30% |
11.2: Grading Scale
All grades will be assigned on an absolute scale as a minimum. The instructor reserves the right to adjust the weights given to the assignments/homework/exams listed above. Any adjustments will be applied evenly to the entire class and never to the detriment of your grade.

The instructor will determine letter grades for the course using his professional judgment, and the following standards as described in the University Catalog:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Excellent work</td>
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<tr>
<td>B</td>
<td>Good work</td>
</tr>
<tr>
<td>C</td>
<td>Average work</td>
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<tr>
<td>D</td>
<td>Poor work</td>
</tr>
<tr>
<td>F</td>
<td>Failing work</td>
</tr>
</tbody>
</table>

11.3: Class Attendance, Participation, Timeliness, and In-Class Assignments
Students are expected to arrive to class on time and adequately prepared, meaning that any assigned readings and/or homework are already completed by the time the class period begins.

In-class assignments will be given periodically during lecture to help identify student understanding of the material.

Students may work together on in-class assignments, but may have to turn in his or her own problem work.

If you will be absent, please make prior arrangements with the instructor. Make-up participation or in-class assignments will not be given.

11.4: Homework
Homework should be turn-in at the beginning of the class on the day it is due (course schedule).

Late homework may not be accepted for full credit.

Neatness counts! As an engineer and a professional, your work will often be read and scrutinized by others. In some instances, it could be a legal document or a piece of evidence in a court of law. It is your responsibility that the work you prepare is presented in a legible, methodical, and logical manner.

Homework grades will primarily be based on thoroughness, neatness and completeness.

Any handwritten homework should be performed on one side of 8.5” x 11” engineering computation paper, either the “green” paper or a black and white copy of it (available on Blackboard). All pages must be stapled together.

Each problem should be performed on a separate page.

The solution should include: the problem statement, solution steps, and answer. Key intermediate values should be indicated by underlining or some other means, and the final answer should be boxed/circled.

Units should be included with all answers.

Sketches/diagrams should be made with a straight edge.

Name, date, and problem info should be included on each page. See the example homework solution posted to Blackboard, which meets all of these requirements.

Students may collaborate to complete the homework; however each student must turn in his/her own assignment for grading. Direct copying of other’s work is not allowed and may be subject to disciplinary actions.
Graded exams, homework and/or lab reports will be returned individually.

11.5: Exams

Make-up exams will only be given for extenuating circumstances, unless prior arrangements with the instructor are agreed upon. Proof, such as a doctor’s note or other official document, may be required for unexcused absences during an exam.

Exams will not be open textbook or notes, but a formula sheet will be provided. Details will be discussed closer to the exam time.

Exams I and II, will be 2 hours long and will be given during the class periods indicated on the course schedule. The exam III will be given during the university specified exam time, which for this course will be Saturday, November 21, 2020 from 10:30 to 12:30 p.m.

12: Classroom and University Policies and Student Support

12.1: General Policies

All students are required to follow the policies and procedures presented in the Angelo State University Student Handbook and Angelo State University Catalog.

12.2: Student Disability Services

ASU is committed to the principle that no qualified individual with a disability shall, on the basis of disability, be excluded from participation in or be denied the benefits of the services, programs or activities of the university, or be subjected to discrimination by the university, as provided by the Americans with Disabilities Act of 1990 (ADA), the Americans with Disabilities Act Amendments of 2008 (ADAAA), and subsequent legislation.

The Office of Student Affairs is the designated campus department charged with the responsibility of reviewing and authorizing requests for reasonable accommodations based on a disability, and it is the student’s responsibility to initiate such a request by contacting Ms. Dallas Swafford, Director of Student Disability Services, at 325-942-2047 or Dallas.Swafford@angelo.edu, or visit the Student Disabilities Services website.

12.3: Title IX Statement

Angelo State University is committed to the safety and security of all students. If you or someone you know experience sexual harassment, sexual assault, domestic or dating violence, stalking, or discrimination, you may contact ASU’s Title IX Coordinator: Ms. Michelle Boone, Director of Title IX Compliance, at 325-486-6357, or Michelle.Boone@Angelo.Edu.

12.4: Observance of Religious Holy Day

A student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence. See ASU Operating Policy 10.19 Student Absence for Observance of Religious Holy Day for more information.

12.5: Incomplete Grade Policy

It is policy that incomplete grades be reserved for student illness or personal misfortune. Please contact faculty if you have serious illness or a personal misfortune that would keep you from completing course work. Documentation may be required. See ASU Operating Policy 10.11 Grading Procedures for more information.
12.6: Student Conduct Policies

12.6.1: Academic Integrity

Students are expected to maintain complete honesty and integrity in all work. Any student found guilty of any form of dishonesty in academic work is subject of disciplinary action and possible expulsion from ASU.

The College of Science and Engineering adheres to the Statement of Academic Integrity.

12.6.2: Plagiarism

Plagiarism is a serious topic covered in ASU’s Academic Integrity policy in the Student Handbook. Plagiarism is the action or practice of taking someone else’s work, idea, etc., and passing it off as one’s own. Plagiarism is literary theft.

In your discussions and/or your papers, it is unacceptable to copy word-for-word without quotation marks and the source of the quotation. It is expected that you will summarize or paraphrase ideas giving appropriate credit to the source both in the body of your paper and the reference list.

Papers are subject to be evaluated for originality via Turnitin. Resources to help you understand this policy better are available at the ASU Writing Center.

12.6.3: Copyright Policy

Students officially enrolled in this course should make only one printed copy of the given articles and/or chapters. You are expressly prohibited from distributing or reproducing any portion of course readings in printed or electronic form without written permission from the copyright holders or publishers.

12.6.4: Required Use of Masks/Facial Coverings

As a member of the Texas Tech University System, Angelo State University has adopted the mandatory Facial Covering Policy to ensure a safe and healthy classroom experience. Current research on the COVID-19 virus suggests there is a significant reduction in the potential for transmission of the virus from person to person by wearing a mask/facial covering that covers the nose and mouth areas. Therefore, in compliance with the university policy students in this class are required to wear a mask/facial covering before, during, and after class. Faculty members may also ask you to display your daily screening badge as a prerequisite to enter the classroom. You are also asked to maintain safe distancing practices to the best of your ability. For the safety of everyone, any student not appropriately wearing a mask/facial covering will be asked to leave the classroom immediately. The student will be responsible to make up any missed class content or work. Continued non-compliance with the Texas Tech University System Policy may result in disciplinary action through the Office of Student Conduct.

13: Course Specific Information

13.1: Photo/Video Policy

Lectures, classroom activities, and laboratory experiments throughout the course may be photographed/filmed by the instructor for educational purposes pertaining to research and scholarship. Personally identifying information will not be used. An informed consent form and copyright release form will be forthcoming.

Some pictures/videos may be included on social media by the ENGR department and/or professor. In general, students will be informed prior to public posting of this content.

Students are allowed to take photos/videos of lectures and classroom activities provided the following conditions are met:
• The capturing of the photo/video is not disruptive to other students or the professor.
• The photos/videos are for personal use only (not posted publicly), unless otherwise discussed.
• Fun photos/videos are shared with the professor 😊

14: Instructor Prerogative

The instructor reserves the right to change the policies and procedures of this course when he deems it necessary. Any such changes will be implemented fairly and will typically not be a detriment to your grade. The instructor will notify you of any such changes in a timely manner.

15: Modifications to the Syllabus

This syllabus, including grade evaluation and course schedule, is subject to modification. In particular, the COVID-19 pandemic may require significant changes in course delivery and content on potentially short notice.
16: Course Outline

The course outline is presented in Table 3. Detailed homework assignments along with updates to this schedule will be provided via Blackboard.

Table 2: Course Lesson Outline

<table>
<thead>
<tr>
<th>Week</th>
<th>Lecture</th>
<th>Date</th>
<th>Topic</th>
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17: End Notes: Complete Hyperlinks From Syllabus

1 [https://blackboard.angelo.edu/](https://blackboard.angelo.edu/)
3 [https://blackboard.angelo.edu/](https://blackboard.angelo.edu/)