Sam Houston State University

Huntsville, Texas

COLLEGE OF SCIENCE AND ENGINEERING TECHNOLOGY

Department of

ENGINEERING TECHNOLOGY

ETEC 4367-01 (3 credit hours/4 contact hours)

Engineering Materials Technology

Syllabus for Spring 2018

Days and Time: M W 1:00 p.m.- 2:50 p.m.

Location: Pirkle Engineering Technology Center 210 A

Instructor: Dr. Nibert Saltibus

Office: PETC 420 A

Email: nes021@shsu.edu

Office (Tel.): 936-294-1201

Office Hours: M W 8:00 a.m.-11:30 a.m., R 8:00 a.m. to 11 a.m., and by appointment.

Textbook: Material Science and Engineering: An Introduction, 9th Edition
Authors: William D. Callister, Jr. & David G. Rethwisch
ISBN: 978-1-118-32457-8

Course Description:
This course provides an introductory investigation of engineering materials, their mechanical and other physical properties, processing, selection and application. Emphases include atomic structure and interatomic bonding, structure of crystalline solids, diffusion, stress and strain analysis, materials testing, and material failure.

Course Objectives (not limited to):- The student should be able to:

- Understand fundamental concepts underlying material science
- List the major classifications of solid materials
- Understand atomic structure and atomic bonding in solids
- Understand the structure of crystalline solids
- Comprehend fundamental concepts of mechanical properties of metals such as stress-strain behavior
- Understand the various types of imperfections in solids
- Understand important processes such as diffusion
- Recognize various types of tests used in materials testing
- Recognize types of failure such as fracture, fatigue, and creep failure
- Comprehend the structures and properties of ceramics, and understand the application and processing of ceramics
- Understand polymer structures, and the characteristics, application, and their processing
- Understand the fundamentals of composite materials
- Understand the fundamental concepts of corrosion and degradation of materials, including the various forms of corrosion
- Understand the fundamentals of the electrical and thermal properties of materials
- Perform various analysis and computations pertaining to the study of engineering materials

Homework

Assignments will be given during the semester to assess the student's understanding of the various concepts that a covered under a particular topic/chapter. All assignments are to be submitted on time. There are no exceptions, except for reasons beyond the control of the student, such as health problems.

Exams

A total of three exams will be issued in the semester. Two during the semester and the third will be the final.

Project

There will be a group project assigned for this course. The main purpose of the project is for the student to conduct further studies of the various concepts that are covered during the semester. The student do have the option of selecting topics that may not necessarily be discussed in the semester. The project is to make use of a presentation in the form of a power-point and a report. The power-point presentation will be presented toward the end of the semester. Likewise, the report is to be submitted at that time.

Project/Writing Center (Resource)

Students are advised to utilize the writing center on campus to assist with their report writing, especially, proper citations of works used in their reports. The writing center is located in room 111 of the Farrington building on campus.

Grading System

A	90-100
B	80-89
C	70-79
D	60-69
F	0-59

Course Evaluation

Assignments:	20%
Exam 1:	20%
Exam 2:	20%
Project/Power Point Presentation:	20%
Exam 3-Final Exam:	20%

Course Schedule and Topics to be covered in Class

Course Schedule		Topics
1-17-18	Wednesday	Review of Syllabus Course/ Introduction/Chapter 1
1-22-18	Monday	Atomic Structure and Interatomic Bonding
1-24-18	Wednesday	Atomic Structure and Interatomic Bonding
1-29-18	Monday	The Structure of Crystalline Solids
1-31-18	Wednesday	The Structure of Crystalline Solids
2-5-18	Monday	The Structure of Crystalline Solids/Imperfections in Solids
2-7-18	Wednesday	Imperfections in Solids
2-12-18	Monday	Diffusion
2-14-18	Wednesday	Diffusion
2-19-18	Monday	Diffusion/Review for Exam 1
2-21-18	Wednesday	**Exam 1**
2-26-18	Monday	Mechanical Properties of Metals
2-28-18	Wednesday	Mechanical Properties of Metals
3-5-18	Monday	Dislocation and Strengthening Mechanisms
3-7-18	Wednesday	Failure
3-12-18	Monday	*Spring Recess*
3-14-18	Wednesday	*Spring Recess*
3-19-18	Monday	Failure
3-21-18	Wednesday	Structures and Properties of Ceramics
3-26-18	Monday	Applications and Processing of Ceramics
3-28-18	Wednesday	Applications and Processing of Ceramics/Review for Exam 2
4-2-18	Monday	**Exam 2**
4-4-18	Wednesday	Polymer Structures
4-9-18	Monday	Characteristics, Application, and Processing of Polymers
4-11-18	Wednesday	Composites
4-16-18	Monday	Corrosion and Degradation of Materials
4-18-18	Wednesday	Corrosion and Degradation of Materials
4-23-18	Monday	Corrosion and Degradation of Materials

4-25-18	Wednesday	Electrical Properties/Thermal Properties
4-30-18	Monday	Project Submission and Presentation
5-2-18	Wednesday	Review for Exam 3
5-7-18 to 5-10-18	Monday to Thursday	Finals Week (**Exam 3**/Final Exam)

Class Participation:
Class participation is strongly encouraged in this class.

Class Format:
Lectures/Lab exercises.
Lab exercises and demonstration may include testing of materials such as asphalt and analysis of thin walled cylindrical pressure vessel. Lab work evaluation will be included with assignments.

Personal Conduct in Classrooms and Laboratories:
Refer to **Student Guidelines**, "Code of Conduct and Discipline."
Only language that is conducive to the learning environment will be tolerated in the class. If a student uses language that is not conducive, the student will be cautioned. If the student repeats the use of the unacceptable language in the learning environment, the student will be referred to the Chair of the Engineering Technology department or the student's respective department Chair.
No food (water and acceptable liquid is permitted) is allowed during class sessions, and neither (food & water) is permitted during sessions in the lab. The student will be allowed to exit the classroom temporarily to eat if and when the need arises.

Academic Honesty:
The University expects all students to engage in all academic pursuits in a manner that is above reproach. Students are expected to maintain complete honesty and integrity in the academic experiences both in and out of the classroom. Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action. The University and its official representatives may initiate disciplinary proceedings against a student accused of any form of academic dishonesty including, but not limited to, cheating on an examination or other academic work which is to be submitted, plagiarism, collusion and the abuse of resource materials.

Students are to attempt their own work, except, where permission is given by the instructor for students to work in groups or to be assisted by each other.

Students engaged in academic dishonesty will be will be referred to the Chair of the Engineering Technology department or the student's respective department chair.

Class Attendance:
1. Regular and punctual attendance is expected of each student at Sam Houston State University.
2. Each faculty member will keep a written record of student attendance.
3. Attendance will be defined as the entire class period, or until the professor has ended the class, or given permission to leave. Students who depart from class early or come to class very late would have to provide a valid excuse beforehand to the instructor.

4. A student shall not be penalized for three or fewer hours of absences when examinations or other assigned class work has not been missed; however, at the discretion of the instructor, a student may be penalized for more than three hours of absences.
5. Excused absences must be documented by the student with a letter of confirmation from the sponsoring student organization, professor or doctor, or otherwise. Exemptions will include participation in departmental activities when prior approval is attained from the Department Chair.
6. No exams or assignments, or any other related academic work, will be issued to students at alternative times unless arrangements are made with the professor/instructor before the scheduled activity occurs.
7. Class absences will be recorded and counted only from the actual day of enrollment for the individual student in that specific class.

Missed Work Due to Excused or Unexcused Absences:
It is the student's responsibility to find out and get the class notes and/or assignments given and have it submitted on time.

Students with Disabilities Policy:

It is the policy of Sam Houston State University that individuals otherwise qualified shall not be excluded, solely by reason of their disability, from participation in any academic program of the university. Further, they shall not be denied the benefits of these programs nor shall they be subjected to discrimination. Students with disabilities that might affect their academic performance should register with the Office of Services for Students with Disabilities located in the Lee Drain Annex (telephone 936-294-3512, TDD 936-294-3786, and e-mail disability@shsu.edu). They should then make arrangements with their individual instructors so that appropriate strategies can be considered and helpful procedures can be developed to ensure that participation and achievement opportunities are not impaired.

SHSU adheres to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations for students with disabilities. If you have a disability that may affect adversely your work in this class, then I encourage you to register with the SHSU Services for Students with Disabilities and to talk with me about how I can best help you. All disclosures of disabilities will be kept strictly confidential. NOTE: No accommodation can be made until you register with the Services for Students with Disabilities. For a complete listing of the university policy, see:http://www.shsu.edu/dept/academic-affairs/documents/aps/students/811006.pdf

Religious Days Policy:
Section 51.911(b) of the Texas Education Code requires that an institution of higher education excuse a student from attending classes or other required activities, including examinations, for the observance of a religious holy day, including travel for that purpose. A student whose absence is excused under this subsection may not be penalized for that absence and shall be allowed to take an examination or complete an assignment from which the student is excused within a reasonable time after the absence.
University policy 861001 provides the procedures to be followed by the student and instructor. A student desiring to absent himself/herself from a scheduled class in order to observe (a) religious holy day(s) shall present to each instructor involved a written statement concerning the religious

holy day(s). This request must be made in the first fifteen days of the semester or the first seven days of a summer session in which the absence(s) will occur. The instructor will complete a form notifying the student of a reasonable timeframe in which the missed assignments and/or examinations are to be completed.

Academic Policy Statement 100728 Use of Telephones and Text Messagers in Academic Classrooms and Facilities:

The use by students of electronic devices that perform the function of a telephone or text messager during class-time may be prohibited if deemed disruptive by the instructor to the conduct of the class. Arrangements for handling potential emergency situations may be granted at the discretion of the instructor. Failure to comply with the instructor's policy could result in expulsion from the classroom or with multiple offenses, failure of the course.

Any use of a telephone or text messager or any device that performs these functions during a test period is prohibited, except when expressly permitted by the instructor. These devices should not be present during a test or should be stored securely in such a way that they cannot be seen or used by the student. Even the visible presence of such a device during the test period will result in a zero for that test. Use of these devices during a test is considered de facto evidence of cheating and could result in a charge of academic dishonesty (see student code of conduct http://www.shsu.edu/students/guide/StudentGuidelines2010-2012.pdf#page=29).

Cellphones or similar electronic devices are not permitted during class time.

Important Notice:

The above course schedule, policies, and assignments in this course are subject to change by the instructor or by mutual agreement between the instructor and the students.