

Syllabus

Introduction to Materials Science and Engineering MME 2303

Course Description:

This course will introduce the properties of engineering materials and relationships to their structure, behavior, and processing. Concepts of materials testing and the measurement of properties will be described. The process for selection of materials for engineering applicants based on the interrelationships between structure properties, processing, and performance will be developed over the course of the semester.

Prerequisites: MME1301 and CHEM1305/1105, with a grade of "C" or better.

Professor: Darren M. Cone

Office: Prospect Hall – Room 120
E-mail: dmcone@utep.edu
Phone: 747-5785

Office Hours:

Monday and Wednesday 1:30 - 3:00 pm. Please email an appointment request if unable to meet during regular office hours.

Class Meeting Times and Location:

Tuesday and Thursdays 1:30 - 2:50 pm, Room 204 in the Liberal Arts Building.

Student Deliverables and Grade Weight:

60% Exams (x3) (20% each)
20% Homework
20% Final Exam (Thursday May 16, 2019 1:00 - 3:45pm)

Textbook and Other Readings:

Materials Science and Engineering: An Introduction (9th edition), Callister, John Wiley & Sons, Inc (2014). ISBN: 9781118324578

Note that you are free to utilize the 10th edition of this textbook, if desired. (ISBN: 9781119529712). Course content will align with both editions of this text.

You may need to use internet resources and books available in the UTEP library for some assignments, and I will provide supplemental literature as part of the course material, as required.

Course Outline:

1. History and definition of Materials Science and Engineering
2. Paradigm of Materials Science and Engineering
3. Atomic Structure and Bonding in Solids
4. Metallic Structures
5. Mechanical Tests and Performance Measurement
6. Crystalline Defects and Dislocations
7. Deformation, Strengthening and Failure Mechanisms in Metals
8. Phase Diagrams and Kinetics of Phase Transformation
9. Correlation of Properties with Microstructure
10. Metal Alloy Types and their Properties and Applications
11. Ceramic Material Types and their Properties and Applications
12. Polymer Material Types and their Properties and Applications

University OneDrive for Business:

All course materials (syllabus, lecture materials, presentations, supporting documentation, etc.) will be made available via a dedicated share folder on OneDrive for Business. All registered UTEP students have access to Microsoft Office 365, of which OneDrive for Business is a core component. **It is the responsibility of each student in this course to ensure access to their OneDrive for Business account, utilizing the UTEP IT Help Desk if necessary.** For more information see:

https://www.utep.edu/irp/technologysupport/ServiceCatalog/ACCT_OneDrive.html

Cheating/Plagiarism:

Cheating is unethical and not acceptable. Plagiarism is using information or original wording in a paper or reference without giving credit to the source of that information or wording: it is also not acceptable. You may not submit work for this class that you did for another class. If you are found to be cheating or plagiarizing, you will be subject to disciplinary action, per UTEP catalog policy.

Refer to <http://www.utep.edu/dos/acadintg.htm> for further information.

Disabilities:

I will make any reasonable accommodation for students with limitations due to disabilities, including learning disabilities. Please see me personally before or after class in the first two weeks or make an appointment to discuss any special needs you might have. If you have a disability and need classroom accommodations, please contact The Center for Accommodations and Support Services (CASS) at 747-5148, or by email to cass@utep.edu, or visit their office located in UTEP Union East, Room 106. For additional information, please visit the CASS website at www.sa.utep.edu/cass.