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Uttyler.edu/engineering

MENG 3319 – Materials Science and Manufacturing
Course Syllabus

Semester / Year	Fall 2024
Catalog Description	Introduction to materials science including the structure of metals and polymers, the testing of mechanical properties of materials, the relationship between material properties, structure and processing techniques, and the capabilities and limitations of modern manufacturing methods. Two one-hour lectures and one three-hour lab per week.
Prerequisites	C or better in CHEM 1311 and CHEM 1111 or equivalent, MENG 1301 or completion of a Computer Aided Drafting course
Section Number	030, 031L, 033L
Instructor Name	Ola Al-Shalash
Contact Information	**Office:** Houston Engineering Center: HEC **A212** **E-mail:** oalshalash@uttyler.edu
Class Type / Location	Face-to-face **030:** HEC A218 **031L:** HEC B223 **033L:** HEC B223
Class Time	**030:** Mon. & Wed. 9:05 AM - 10:00 AM **031L:** Mon 2:00 PM - 4:45 PM **033L:** Wed 2:00 PM - 4:45 PM
Office Hours	**Mondays and Wednesdays:** 10:15 pm – 11:45 pm or by appointment
No. of Credits	3 credits
Required Textbook	Materials Science and Engineering: An Introduction, William D. Callister and David G. Rethwisch, 10th Edition, 2018, ISBN# 9781119405498
Optional References	Class Handout
Additional Rules and Requirements	AI is permitted only for specific assignments or situations, and appropriate acknowledgment is required.
Evaluation Method	Grading: Exam 1 **15** % Exam 2 **15** % Final Exam **20** % Homework **20** % Attendance & Course Participation **5** % Lab Reports **25** %
Grading Policy / Scale	Letter grades, *scale:* ***A**: 90 – 100; **B**: 80 – 89; **C**: 70 – 79; **D**: 60 – 69; **F**: < 60* **Grade appeal**

	Grades can be appealed by sending an email then meeting the instructor during office hours, but no later than three days after the grade has been posted. Moreover, students may appeal any grade reduction to the instructor if valid excuse with documentation is provided.
Important Events / Dates	**Census date:** September 9 **Last day to withdraw:** November 4 **Final Exam:** During the final Exam week
Attendance / Makeup policy/ other rules	• Attendance is expected per university policy. Regular attendance is highly recommended. It is imperative if you want to do well in this course. • Attendance will be taken and regularly checked using Canvas. Students who come to class after attendance is taken will be considered absent. • In case you have to miss a class, it is your responsibility to keep up with the class work and be informed of all announcements made in the class. • Students will not be permitted to leave the classroom during lectures except for extreme emergencies. • No email submission of assignments, HomeWorks, etc. All assignments MUST be submitted to Canvas for grading. • No makeups unless students provide a university accepted excused absence with proper documentation justifying the absence. • Questions involving knowledge covered in class will be answered if the student proves that they have tried to come up with the answer. Solution to homework will not be given. However, students can work on the right solution by checking their work with the instructor. • Student with SAR status should contact the UT Tyler Office of Student Accessibility and Resources for exam arrangements. • Any minor violation of the Student Behavior (see below) by a student as deemed by the instructor will result in a full letter grade reduction for each incident while any major violation(s), such as cheating and plagiarism, by a student as deemed by the instructor will result in automatic failing grade in the course. • The use of cellular phones during lectures is prohibited. If a student uses the cellular phone (call, text, internet), he/she will be asked to leave the classroom and penalties of missing the class will apply. It is highly recommended to keep your cellular phone off. • No food is allowed in the classroom. • Late submissions of assignments/ Homework (e.g. if due at 11:59:00 pm, then any time after such as 11:59:30 pm is late) will result in **20 % deduction** per day from the graded score. • Given this is a professional, educational setting you are expected to dress and behave appropriately. A positive, mature attitude/behavior is expected from the students in all classes. Students disturbing directly or indirectly the class or other students will be asked to leave the classroom with the consequences associated to an absence. • Students are encouraged to utilize any tutoring services available if needed and come prepared to each week's class. Each student is expected to work with the group in a professional manner in case of any group activities. It is important to communicate clearly and professionally of any concerns or issues to the instructor.

	• Canvas should be the primary mode of contacting the instructor so check the Canvas announcements and discussion board to check for information about the course. In addition, university provided patriots email should be the official communication method and you should check your email regularly. Use the above email address or Canvas messaging if you want to email the instructor. Please use **MENG 3319- your section, your question or concern title** in the email subject line. Please allow the instructor at least one to two business days to respond to your email. Emails with improper language will not be answered. Emails with the same concerns or questions from multiple students will be answered/covered during class time. • The syllabus is subject to change during the semester as deemed necessary. Students will be notified for any major changes.
Course Learning Outcomes / ABET & PEOs relation	By the end of this course, students will be able to: 1. Explain atomic structure, crystal structures, and types of defects in metals. 2. Describe common processing techniques through strain hardening, diffusion, and solution hardening of metal alloys. 3. Describe common structures, properties, processing methods, and applications of polymer and ceramics. 4. Perform mechanical testing and metallographic procedures to report material properties and microstructures of various metal alloys in laboratory reports.
Tentative Topics	Atomic Structure, Imperfections, Diffusion, Mechanical Properties, Dislocation, Phase Diagram, Forming/Casting, Ceramics, Polymers, Biomaterials.
University Policies	https://www.uttyler.edu/offices/academic-affairs/files/syllabus-information.pdf