



Soules College of Business
Department of Technology
TECH 1320: Industrial Materials
Course Syllabus



Dr. Heshium Lawrence **FALL 2019**
hlawrence@uttyler.edu (best option)

Office: Soules Bldg 225.03
Time: TU TH 9:30 a.m.-10:50 p.m.
Office Hours: M-4-6 and TH-4-6 or by appointment
(70% lecture – 30% lab)

Course Description

An introduction to the basic characteristics of industrial materials. This course provides students with an insight into the nature of materials and how material attributes can be tested and altered.

Textbook-Optional

Bruce, R.G., Dalton, W. K., Neely, J. E., and Kibbe, R. R. 2004. Modern materials and manufacturing processes. Up Saddle River, NJ: Pearson/Prentice Hall.

Course Objectives

At the end of this course, students will be able to:

1. Understand the relationship between the properties of materials and their application.
2. Be able to perform basic tests of the physical properties of materials.
3. Apply the concepts of the heat treatment of metals.
4. Understand the application of crystal structures and phase diagrams to material properties.

Student Learner Outcomes

1. Demonstrate how to use materials testing equipment by successfully completing tests to specified industry standards.
2. Demonstrate a comprehensive knowledge of materials testing by earning passing scores on quizzes and exams.
3. Demonstrate an understanding of metallurgy by successfully completing required laboratory assignments.
4. Demonstrate a fundamental knowledge of metallurgy by earning passing scores on exams and quizzes.

Course Competencies

1. Computer-Based Skills – the student will complete written assignments using the word processor.
2. Communication Skills – the student will exhibit a mastery of both written and oral skills in completion and presentation of the assigned projects.
3. Interpersonal Skills – the student will interact in class discussion to clarify thinking regarding industrial materials and their properties.
4. Problem Solving (Critical Thinking) – the student will use conceptual thinking to analyze and finish laboratory activities.
5. Ethical Issues in Decision Making and Behavior- the student will gain an appreciation of the ethics involved with the application of substandard materials.
6. Personal Accountability for Achievement – the student will complete projects at the time designated by the instructor and will enter into class discussion.
7. Competence in Technology Principles
 - a. Competence in major field and grounding in other major technology major core areas – the student will be able to identify industrial materials through their classification codes.
 - b. Exposure to and appreciation for industrial experiences such as industrial tours, work-study options and cooperative education, senior seminars – Students will use materials testing laboratory equipment and complete tests routinely performed in industry.

Course Requirements

Daily Quizzes	200
Lab Activities	200
Midterm exam	200
Class Participation/Attendance	100
Final Exam	300

TOTAL POINTS = 1000

Grade Scale Breakdown:

A=90 - 100%
B=80 - 89%
C=70 - 79%
D=60 - 69%
F=BELOW 60%

Lecture/Laboratory Materials:

Students will be required to provide the following:

1. Paper to take notes
- *3. **Lecture hand outs (printed out prior to class)**
4. Pen and pencil
5. Scantrons (Exam type) #882-ES

Course Policies:

Content for examinations will be taken from lectures, demonstrations, reading assignments, laboratory exercises and any audio-visual materials used, i.e. films, tapes, slides, etc.

Make up examinations are the student's responsibility. No excuses will be accepted after the exam is given. The instructor must be notified **prior** to the scheduled exam. If not, the student forfeits his/her right to take the exam. Quizzes will not be made up unless a **prior** acceptable excuse for an absence has been received by the instructor.

Attendance:

Attendance is mandatory and will be taken at every scheduled class and laboratory period. No make-ups unless:

1. Organized university trip.
2. Illness or death in **immediate** family (mother, father, brother and/or sister).
3. Illness of student.

Each one of these will require either a **doctor's statement** or a **signed** statement from the individual in charge of the trip.

A student will lose a letter grade in the course each time s/he is absent or late 3 times. Any student entering the classroom 1 second after the scheduled starting time will be considered late.

Late Work:

All work not turned in on time will have an automatic reduction in value to 50% of its full value. **Work that is not turned in by the next class will NOT be accepted.** Exceptions to this will be as per University Policy concerning absences from class. If you know an assignment will be late for a valid reason, inform your instructor in advance to avoid unnecessary penalty.

Format for Reports:

Each laboratory report will be placed in a folder, arranged in such that the reader can easily examine the contents. Any materials that are hard to read or require special handling to get at will not be graded. The cover must contain the following:

1. Assignment Title
2. Your Name
3. Course Name and Number
4. The Date

Your grade will reflect the quality of the presentation.

Cell Phones:

Cell phones are to be seen and not heard. Make sure you turn off your cell phone during class or turn it to the vibrator mode. A ringing cell phone is a distraction and is inappropriate for the classroom. Allowing your cell phone to ring and then answering it is very rude. It is not fair to your fellow classmates who have paid for this course. **Please be considerate and make sure your cell phone is turned off during any of your classes. Students will be asked to leave for the day if this behavior continues.**

Discrimination:

The policy of this department is to make your college experience as pleasant as possible. However, if at any time you feel that you are being discriminated against, belittled, or not treated appropriately, please notify the instructor either anonymously or in-person **immediately** after class. It is not the intention of any of the faculty in this department to make your college experience an unpleasant one. Remember, the first step in the process is to inform the instructor so s/he can be made aware of the problem and take corrective action. If the problem continues to persist, please inform the chair of the department. The dean can then be notified if the problem continues to exist after a few days. A grievance can then be filed in the Office of Student Services if there has still

been no change in the instructor's behavior. **It should be noted that filing a grievance is a serious act and should NOT be done so just because you received a bad grade on an exam or in the course. Communication is an effective tool to solve problems and is rarely used enough. Most people are not deliberately trying to upset you, they are just not aware of your vantage point.**

Talking:

While the instructor is talking, it is understood that no one should be talking. Students talking in class prevent other students from hearing the instructor and learning the material that is required to pass the course. If you are caught talking then you will **earn a zero on your daily quiz** grade. On the second offense, **you will be asked to leave**. This behavior is rude and disruptive and most students who talk in class typically earn lower grades. It should be noted, that students who have been granted permission to talk by the instructor should not be interrupted as well.

Offensive Language:

Any type of offensive language will not be tolerated in the classroom or laboratory. How you speak to your friends outside the classroom is your business, however, when you are in the classroom you must follow the University of Texas rules of conduct. **You will be asked to leave if your language or conduct is offensive.**

Disability Statement:

"If you have a disability, including a learning disability, for which you request an accommodation, please contact Ida MacDonald in the Disability Support Services office so that the appropriate arrangements may be made. In accordance with federal law, a student requesting accommodation must provide documentation of his/her disability to the Disability Support Services counselor. For more information, call or visit the Student Services Center located in the University Center, Room 282. The telephone number is 566-7079 (TDD 565-5579)."

Academic Dishonesty Statement:

"Academic dishonesty, such as unauthorized collusion, plagiarism and cheating, as outlined in the Handbook of Operating Procedures, University of Texas at Tyler, will not be tolerated. University regulations require the instructor to report all suspected cases of academic dishonesty to the Dean of Students for disciplinary action. In the event disciplinary measures are imposed on the student, it becomes part of the students' official school records. Also, please note that the handbook obligates you to report all observed cases of academic dishonesty to the instructor.

Grade Replacement:

If you are repeating this course for a grade replacement, you must file intent to receive grade forgiveness with the registrar by the 12th day of class. Failure to file intent to use grade forgiveness will result in both the original and repeated grades being used to calculate your overall grade point average. A student will receive grade forgiveness (grade replacement) for only three (undergraduate student) or two (graduate student) course repeats during his/her career at UT Tyler. (2006-2008 Catalog, p. 35)

Laptop Computers:

Laptops are NOT allowed to be turned on in class. You will take notes in the Lecture Notes packet that you purchased in the Bookstore. Laptops will be confiscated by the instructor and returned at the end of class.

IDEA Statement:

If you have a disability, including a learning disability, for which you request disability support services/accommodations(s), please contact Ida MacDonald in the Disability Support Services office so that the appropriate arrangements may be made. In accordance with federal law, a student requesting accommodation must provide documentation of his/her disability to the Disability Support Services counselor. In order to assure approved services the first week of class, diagnostic, prognostic, and prescriptive information should be received 30 days prior to the beginning of the semester services are requested. For more information, call or visit the Student Services Center located in the University Center, Room 282. The telephone number is 566-7079 (TDD 565-5579). Additional information may also be obtained at the following UT Tyler Web address: <http://www.uttyler.edu/disabilityservices>.

Students Rights and Responsibilities

To know and understand the policies that affect your rights and responsibilities as a student at UT Tyler, please follow this link: <http://www2.uttyler.edu/wellness/rightsresponsibilities.php>

Grade Replacement/Forgiveness and Census Date Policies

Students repeating a course for grade forgiveness (grade replacement) must file a Grade Replacement Contract with the Enrollment Services Center (ADM 230) on or before the Census Date of the semester in which the course will be repeated. Grade Replacement Contracts are available in the Enrollment Services Center or at <http://www.uttyler.edu/registrar>. Each semester's Census Date can be found on the Contract itself, on the Academic Calendar, or in the information pamphlets published each semester by the Office of the Registrar.

Failure to file a Grade Replacement Contract will result in both the original and repeated grade being used to calculate your overall grade point average. Undergraduates are eligible to exercise grade replacement for only three course repeats during their career at UT Tyler; graduates are eligible for two grade replacements. Full policy details are printed on each Grade Replacement Contract.

The Census Date is the deadline for many forms and enrollment actions that students need to be aware of. These include:

- Submitting Grade Replacement Contracts, Transient Forms, requests to withhold directory information, approvals for taking courses as Audit, Pass/Fail or Credit/No Credit.
- Receiving 100% refunds for partial withdrawals. (There is no refund for these after the Census Date)
- Schedule adjustments (section changes, adding a new class, dropping without a "W" grade)
- Being reinstated or re-enrolled in classes after being dropped for non-payment
- Completing the process for tuition exemptions or waivers through Financial Aid

State-Mandated Course Drop Policy

Texas law prohibits a student who began college for the first time in Fall 2007 or thereafter from dropping more than six courses during their entire undergraduate career. This includes courses

dropped at another 2-year or 4-year Texas public college or university. For purposes of this rule, a dropped course is any course that is dropped after the census date (See Academic Calendar for the specific date).

Exceptions to the 6-drop rule may be found in the catalog. Petitions for exemptions must be submitted to the Enrollment Services Center and must be accompanied by documentation of the extenuating circumstance. Please contact the Enrollment Services Center if you have any questions.

Disability Services

In accordance with Section 504 of the Rehabilitation Act, Americans with Disabilities Act (ADA) and the ADA Amendments Act (ADAAA) the University offers accommodations to students with learning, physical and/or psychiatric disabilities. If you have a disability, including non-visible disabilities such as chronic diseases, learning disabilities, head injury, PTSD or ADHD, or you have a history of modifications or accommodations in a previous educational environment you are encouraged to contact the Student Accessibility and Resources office and schedule an interview with the Accessibility Case Manager/ADA Coordinator, Cynthia Lowery Staples. If you are unsure if the above criteria applies to you, but have questions or concerns please contact the SAR office. For more information or to set up an appointment please visit the SAR office located in the University Center, Room 3150 or call 903.566.7079. You may also send an email to cstaples@uttyler.edu

Student Absence due to Religious Observance

Students who anticipate being absent from class due to a religious observance are requested to inform the instructor of such absences by the second class meeting of the semester.

Student Absence for University-Sponsored Events and Activities

If you intend to be absent for a university-sponsored event or activity, you (or the event sponsor) must notify the instructor at least two weeks prior to the date of the planned absence. At that time the instructor will set a date and time when make-up assignments will be completed.

Social Security and FERPA Statement:

It is the policy of The University of Texas at Tyler to protect the confidential nature of social security numbers. The University has changed its computer programming so that all students have an identification number. The electronic transmission of grades (e.g., via e-mail) risks violation of the Family Educational Rights and Privacy Act; grades will not be transmitted electronically.

Emergency Exits and Evacuation:

Everyone is required to exit the building when a fire alarm goes off. Follow your instructor's directions regarding the appropriate exit. If you require assistance during an evacuation, inform your instructor in the first week of class. Do not re-enter the building unless given permission by University Police, Fire department, or Fire Prevention Services

License Holder Responsibilities: We respect the right and privacy of students who are duly licensed to carry concealed weapons in this class. License holders are expected to behave responsibly and keep a handgun secure and concealed. More information is available at <http://www.uttyler.edu/about/campus-carry/index.php>.

Tentative Schedule

AUGUST

Administrative concerns, about the course, assignments
Atomic Structures of Materials
Properties of Materials
Changing the Properties of Metals

SEPTEMBER

Mining and Extracting of Metals
Extraction and Refinement of Nonmetallic Materials
Selection and Application of Materials

OCTOBER

Material Testing Lab Tutorials
Design Specifications and Capabilities
Midterm Exam
Processing Hot Metals and Property Changes

NOVEMBER

Processing Cold Metals and Property Changes
Material Testing Lab Tutorials
Powder Metallurgy
Corrosion and Protection of Materials

DECEMBER

Finish materials testing tutorials
Review for final
Final Exam Week is 10th-14th

November 25-30 Thanksgiving Holiday

December 14 is Fall Commencement

Additional References

Colling, D. A. (2005). Industrial Materials: Metals and Alloys. Up Saddle River, NJ: Pearson/Prentice Hall.

Budinski, K. G. (2005). Engineering Materials: Properties and Selection. Up Saddle River, NJ: Pearson/Prentice Hall.

Jacobs, J. A., Kilduff, T. F. (2005). Engineering Materials Technology: Structure, Processing, Properties & Selection. Up Saddle River, NJ: Pearson/Prentice Hall.