MTSE 5160/MEEN 5800/ MEEN 4800
Creep and Fatigue in Engineering Design and Systems Performance

Instructor

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Phone Number: 940-565-2594
Office Hours: Virtual online Zoom meeting, By appointment on Mondays 11:00 AM-12:00 PM and Wednesdays 2:00 -3:00 PM or by appointment on a different time.
Email: Reza.Mirshams@unt.edu
Communication Expectations: Please ask general questions regarding the course during the class hours.

Email Communications: All email communications must be through your UNT assigned email box. You should write MSET/MEEN -Fall 2021 in the subject line. I will not reply emails from yahoo, Gmail, Outlook, Hotmail, etc. If you have a private question, please contact me via email and I will respond within 24 hours on weekdays (usually sooner) or you can request a private meeting. Please do not expect a response over the weekend. Please use my phone number as a last resort - but also, please use it if you need to!

Course Description

3 Credit hours (3 hours weekly class remote meeting remote lecture)

Course Catalog Description

3 credit hours, Creep and fatigue of engineering materials, introduction to continuum mechanics, deformable bodies, crystalline plasticity, cyclic loading and deformation, high temperature and rate dependent deformation, service life prediction, creep/fatigue/environment interactions, creep, and fatigue fracture mechanisms, sliding, rolling, fretting, methods of analysis and case studies

Course Structure

All teaching aspects of this course will be delivered by remote live streaming. Each module in the Canvas is the topic in this course and it has been linked to the digital version of the textbook. The class hours are 2:30 PM – 3:50 PM on Tuesdays and Thursdays.

Required Background

Graduate Standing, Undergraduate knowledge in Mechanics of Materials and Engineering Materials.

Course Learning Objectives

Engineers and engineering technologists design products and the processing systems for their production. As materials are required for production of the designed components, engineers...
and engineering technologists should be knowledgeable about the properties and performance of materials in service.

Learning Outcomes
Fundamentals of engineered materials
Understand plasticity in materials
Understand dynamic loading and fatigue in materials
Understand creep phenomenon in materials
Understand materials failures
Understand life assessment of materials in engineered systems

Required Textbook and Supplemental References

Textbook and Supplemental References

Textbook:
“Mechanical Behavior of Materials,”
Authors: Norman E. Dowling, Stephen L. Kampe, Milo V. Kral
Edition: 5th, 2019
Publisher: Pearson Higher Education, www.pearson.com

(unt.bncollege.com) or the publisher website (http://www.pearsonhighered.com/)

Supplemental References

Topics to be covered
1. Deformation in solid materials
2. Micro and nano scales deformation in solids
3. Fundamentals of fracture mechanics and mechanisms
4. Cyclic loading and deformation
5. Effect of temperature and loading rate
6. Creep and rupture
7. Life assessment of parts in mechanical systems

Course Technology & Skills

Minimum Technology Requirements
- Laptop or Desktop Computer
- Reliable internet access
- Speakers
- Microphone
- Plug-ins
- Microsoft Office Suite
- Reading and saving files in pdf format
• Canvas Technical Requirements (https://clear.unt.edu/supported-technologies/canvas/requirements)

Computer Skills & Digital Literacy
• Using Canvas
• Using email with attachments
• Downloading and installing software
• Using spreadsheet programs
• Using presentation and graphics programs

Technical Assistance
Part of working in the online environment involves dealing with the inconveniences and frustration that can arise when technology breaks down or does not perform as expected. Here at UNT we have a Student Help Desk that you can contact for help with Canvas or other technology issues.

UIT Help Desk: UIT Student Help Desk site (http://www.unt.edu/helpdesk/index.htm)
Email: helpdesk@unt.edu
Phone: 940-565-2324
In Person: Sage Hall, Room 130
Walk-In Availability: 8am-9pm
Telephone Availability:
• Sunday: noon-midnight
• Monday-Thursday: 8am-midnight
• Friday: 8am-8pm
• Saturday: 9am-5pm
Laptop Checkout: 8am-7pm

For additional support, visit Canvas Technical Help (https://community.canvaslms.com/docs/DOC-10554-4212710328)

Rules of Engagement
See these Engagement Guidelines (https://clear.unt.edu/online-communication-tips) for more information.

Teaching Methodology
Lecture, Problem Solving, Case Studies, Homework. Homework assignments will be assigned every one to two weeks and due within a week by submission on Canvas.

EVALUATION GRADE WEIGHT PERCENT

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
<td>10%</td>
</tr>
<tr>
<td>Homework Assignments (average 5 highest scores)</td>
<td>30%</td>
</tr>
<tr>
<td>Midterm Exam (Thursday March 4th, Class Hour)</td>
<td>30%</td>
</tr>
<tr>
<td>Final Exam (Tuesday April 27, 1:30-3:30 PM)</td>
<td>30%</td>
</tr>
</tbody>
</table>

| Total                                          | 100%   |
GRADING SCALE
A:  90% - 100%
B:  75% - 89%
C:  60% - 74%
D:  50% - 59%
F:  Below 55%

Course Evaluation
Student Perceptions of Teaching (SPOT) is the student evaluation system for UNT and allows students the ability to confidentially provide constructive feedback to their instructor and department to improve the quality of student experiences in the course.

Course Policies
Attendance Policy
Attendance of the lecture classes is required and it will be recorded,

Attendance policy is required per UNT policy. Visit the University of North Texas’ Attendance Policy (http://policy.unt.edu/policy/15-2-) to learn more.

COVID-19 Impact on Attendance
While attendance is expected as outlined above, it is important for all of us to be mindful of the health and safety of everyone in our community, especially given concerns about COVID-19. Please contact me if you are unable to attend class because you are ill, or unable to attend class due to a related issue regarding COVID-19. It is important that you communicate with me prior to being absent so I may make a decision about accommodating your request to be excused from class.

If you are experiencing any symptoms of COVID-19 (https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html) please seek medical attention from the Student Health and Wellness Center (940-565-2333 or askSHWC@unt.edu) or your health care provider PRIOR to coming to campus. UNT also requires you to contact the UNT COVID Hotline at 844-366-5892 or COVID@unt.edu for guidance on actions to take due to symptoms, pending or positive test results, or potential exposure. While attendance is an important part of succeeding in this class, your own health, and those of others in the community, is more important.

Class Materials for Remote Instruction
Additional remote instruction may be necessary if community health conditions change or you need to self-isolate or quarantine due to COVID-19. Students will need access to a webcam and microphone to participate in fully remote portions of the class. Information on how to be successful in a remote learning environment can be found at https://online.unt.edu/learn.

Statement on Face Covering
Face coverings are required in all UNT facilities. Students are expected to wear face coverings during Laboratory hours of this class. If you are unable to wear a face covering due to a disability, please contact the Office of Disability Access to request an accommodation. UNT face covering requirements are subject to change due to community health guidelines. Any changes will be communicated via the instructor.
Class Participation
Engagement, participation, and interaction are important elements of the learning process. To that end, Class practice problems solving will not have any points toward the final course grade, however, it will be a sign of class participation and engagement.

Examination Policy
1. Your Webcam and audio should be on during quizzes and exams for my communication with you. You can use UNT computer room and wi-fi facility if you do not have stable internet connection to a hotspot, wi-fi, audio, or webcam.
2. Grades for the course will be assigned as it has been shown above based on the Evaluation Values. There will NOT be curving of the exam scores or total scores for assigning a grade.
3. No make-up will be given for the scheduled exams, unless the student has a legitimate excuse documented properly (e.g., letter from court clerk that he/she must appear in a court, letter from physician that he/she is sick).
4. Requests for a review of a graded exam problem must be submitted during the following class hour after which the grade is posted. In this matter, the review is not limited to a single problem requested by the student. Upon review, the exam score may increase, remain the same, or decrease.

Assignment Policy
The University is committed to providing a reliable online course system to all users. However, in the event of any unexpected server outage or any unusual technical difficulty which prevents students from completing a time sensitive assessment activity, the instructor will extend the time windows and provide an appropriate accommodation based on the situation. Students should immediately report any problems to the instructor and contact the UNT Student Help Desk: helpdesk@unt.edu or 940.565.2324 and obtain a ticket number. The instructor and the UNT Student Help Desk will work with the student to resolve any issues at the earliest possible time.

Instructor Responsibilities and Feedback
I will provide guidance for improving your performance and learning. I will provide feedback on your problem-solving approaches.

Syllabus Change Policy
This syllabus is subject to change at any time during the semester with changes to be announced during the class hours and posted in the Canvas.

UNT Policies
Academic Integrity Policy
Academic Integrity Standards and Consequences. According to UNT Policy 06.003, Student Academic Integrity, academic dishonesty occurs when students engage in behaviors including, but not limited to cheating, fabrication, facilitating academic dishonesty, forgery, plagiarism, and sabotage. A finding of academic dishonesty may result in a range of academic penalties or sanctions ranging from admonition to expulsion from the University. [Insert specific sanction or academic penalty for specific academic integrity violation.]
ADA Policy
UNT makes reasonable academic accommodation for students with disabilities. Students seeking accommodation must first register with the Office of Disability Accommodation (ODA) to verify their eligibility. If a disability is verified, the ODA will provide a student with an accommodation letter to be delivered to faculty to begin a private discussion regarding one’s specific course needs. Students may request accommodations at any time, however, ODA notices of accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of accommodation for every semester and must meet with each faculty member prior to implementation in each class. For additional information see the ODA website (https://disability.unt.edu/).

Prohibition of Discrimination, Harassment, and Retaliation (Policy 16.004)
The University of North Texas (UNT) prohibits discrimination and harassment because of race, color, national origin, religion, sex, sexual orientation, gender identity, gender expression, age, disability, genetic information, veteran status, or any other characteristic protected under applicable federal or state law in its application and admission processes; educational programs and activities; employment policies, procedures, and processes; and university facilities. The University takes active measures to prevent such conduct and investigates and takes remedial action when appropriate.

Emergency Notification & Procedures
UNT uses a system called Eagle Alert to quickly notify students with critical information in the event of an emergency (i.e., severe weather, campus closing, and health and public safety emergencies like chemical spills, fires, or violence). In the event of a university closure, please refer to Canvas for contingency plans for covering course materials.

Retention of Student Records
Student records pertaining to this course are maintained in a secure location by the instructor of record. All records such as exams, answer sheets (with keys), and written papers submitted during the duration of the course are kept for at least one calendar year after course completion. Course work completed via the Canvas online system, including grading information and comments, is also stored in a safe electronic environment for one year. Students have the right to view their individual record; however, information about student’s records will not be divulged to other individuals without proper written consent. Students are encouraged to review the Public Information Policy and the Family Educational Rights and Privacy Act (FERPA) laws and the University’s policy. See UNT Policy 10.10, Records Management and Retention for additional information.

Acceptable Student Behavior
Student behavior that interferes with an instructor’s ability to conduct a class or other students’ opportunity to learn is unacceptable and disruptive and will not be tolerated in any instructional forum at UNT. Students engaging in unacceptable behavior will be directed to leave the classroom and the instructor may refer the student to the Dean of Students to consider whether the student's conduct violated the Code of Student Conduct. The University's expectations for student conduct apply to all instructional forums, including University and electronic classroom, labs, discussion groups, field trips, etc. Visit UNT’s Code of Student Conduct (https://deanofstudents.unt.edu/conduct) to learn more.
Access to Information - Eagle Connect
Students’ access point for business and academic services at UNT is located at: my.unt.edu. All official communication from the University will be delivered to a student’s Eagle Connect account. For more information, please visit the website that explains Eagle Connect and how to forward e-mail Eagle Connect (https://it.unt.edu/eagleconnect).

Student Evaluation Administration Dates
Student feedback is important and an essential part of participation in this course. The student evaluation of instruction is a requirement for all organized classes at UNT. The survey will be made available during weeks 13, 14 and 15 of the long semesters to provide students with an opportunity to evaluate how this course is taught. Students will receive an email from "UNT SPOT Course Evaluations via IASystem Notification" (no-reply@iasystem.org) with the survey link. Students should look for the email in their UNT email inbox. Simply click on the link and complete the survey. Once students complete the survey they will receive a confirmation email that the survey has been submitted. For additional information, please visit the SPOT website (http://spot.unt.edu/) or email spot@unt.edu.

Sexual Assault Prevention
UNT is committed to providing a safe learning environment free of all forms of sexual misconduct, including sexual harassment sexual assault, domestic violence, dating violence, and stalking. Federal laws (Title IX and the Violence Against Women Act) and UNT policies prohibit discrimination on the basis of sex, and therefore prohibit sexual misconduct. If you or someone you know is experiencing sexual harassment, relationship violence, stalking, and/or sexual assault, there are campus resources available to provide support and assistance. UNT’s Survivor Advocates can assist a student who has been impacted by violence by filing protective orders, completing crime victim’s compensation applications, contacting professors for absences related to an assault, working with housing to facilitate a room change where appropriate, and connecting students to other resources available both on and off campus. The Survivor Advocates can be reached at SurvivorAdvocate@unt.edu or by calling the Dean of Students Office at 940-565-2648. Additionally, alleged sexual misconduct can be non-confidentially reported to the Title IX Coordinator at oeo@unt.edu or at (940) 565 2759.

Important Notice for F-1 Students taking Distance Education Courses

Federal Regulation
To read detailed Immigration and Customs Enforcement regulations for F-1 students taking online courses, please go to the Electronic Code of Federal Regulations website (http://www.ecfr.gov/). The specific portion concerning distance education courses is located at Title 8 CFR 214.2 Paragraph (f)(6)(i)(G).

The paragraph reads:

(G) For F-1 students enrolled in classes for credit or classroom hours, no more than the equivalent of one class or three credits per session, term, semester, trimester, or quarter may be counted toward the full course of study requirement if the class is taken on-line or through distance education and does not require the student's physical attendance for classes, examination or other purposes integral to completion of the class. An on-line or distance education course is a course that is offered principally through the use of television, audio, or computer transmission including open broadcast, closed circuit,
cable, microwave, or satellite, audio conferencing, or computer conferencing. If the F-1 student's course of study is in a language study program, no on-line or distance education classes may be considered to count toward a student's full course of study requirement.

**University of North Texas Compliance**

To comply with immigration regulations, an F-1 visa holder within the United States may need to engage in an on-campus experiential component for this course. This component (which must be approved in advance by the instructor) can include activities such as taking an on-campus exam, participating in an on-campus lecture or lab activity, or other on-campus experience integral to the completion of this course.

If such an on-campus activity is required, it is the student’s responsibility to do the following:

1. Submit a written request to the instructor for an on-campus experiential component within one week of the start of the course.

2. Ensure that the activity on campus takes place and the instructor documents it in writing with a notice sent to the International Student and Scholar Services Office. ISSS has a form available that you may use for this purpose.

Because the decision may have serious immigration consequences, if an F-1 student is unsure about his or her need to participate in an on-campus experiential component for this course, s/he should contact the UNT International Student and Scholar Services Office (telephone 940-565-2195 or email internationaladvising@unt.edu) to get clarification before the one-week deadline.

**Student Verification**

UNT takes measures to protect the integrity of educational credentials awarded to students enrolled in distance education courses by verifying student identity, protecting student privacy, and notifying students of any special meeting times/locations or additional charges associated with student identity verification in distance education courses.

See [UNT Policy 07-002 Student Identity Verification, Privacy, and Notification and Distance Education Courses](https://policy.unt.edu/policy/07-002).

**Transmission and Recording of Student Images in Electronically Delivered Courses**

1. I will not record lectures and practice sessions on Zoom or any other devices. However, face images or voices are transmitted live via videoconference or streaming media. This course will be conducted through Zoom videoconferencing.

2. **Distribution of Course materials**: State common law and federal copyright laws protect this course lectures and materials. They have my own original expression and revisions to the textbook author(s) and I record them while I deliver them in order. Whereas you are authorized to take notes in class, thereby creating a derivative work from my lecture, and/or make a print of my lecture notes/slides. The authorization extends only to making one set of notes for your own personal use and no other use. You are not authorized to record my lectures, to provide
your notes to anyone else or to make any commercial use of them without express prior permission from me.

Academic Support & Student Services

Student Support Services

Mental Health
UNT provides mental health resources to students to help ensure there are numerous outlets to turn to that wholeheartedly care for and are there for students in need, regardless of the nature of an issue or its severity. Listed below are several resources on campus that can support your academic success and mental well-being:

- [Student Health and Wellness Center](https://studentaffairs.unt.edu/student-health-and-wellness-center)
- [Counseling and Testing Services](https://studentaffairs.unt.edu/counseling-and-testing-services)
- [UNT Care Team](https://studentaffairs.unt.edu/care)
- [UNT Psychiatric Services](https://studentaffairs.unt.edu/student-health-and-wellness-center/services/psychiatry)
- [Individual Counseling](https://studentaffairs.unt.edu/counseling-and-testing-services/services/individual-counseling)

Chosen Names
A chosen name is a name that a person goes by that may or may not match their legal name. If you have a chosen name that is different from your legal name and would like that to be used in class, please let the instructor know. Below is a list of resources for updating your chosen name at UNT.

- [UNT Records](https://studentaffairs.unt.edu/records)
- [UNT ID Card](https://studentaffairs.unt.edu/id-card)
- [UNT Email Address](https://studentaffairs.unt.edu/email)
- [Legal Name](https://studentaffairs.unt.edu/records/apply-for-a-name-change)

*UNT euIDs cannot be changed at this time. The collaborating offices are working on a process to make this option accessible to UNT community members.*

Pronouns
Pronouns (she/her, they/them, he/him, etc.) are a public way for people to address you, much like your name, and can be shared with a name when making an introduction, both virtually and in-person. Just as we ask and don’t assume someone’s name, we should also ask and not assume someone’s pronouns.

You can [add your pronouns to your Canvas account](https://canvas.unt.edu/) so that they follow your name when posting to discussion boards, submitting assignments, etc.

Below is a list of additional resources regarding pronouns and their usage:

- [What are pronouns and why are they important?](https://studentaffairs.unt.edu/identity/counseling-and-testing-services/services/individual-counseling/)
- [How do I use pronouns?](https://studentaffairs.unt.edu/identity/counseling-and-testing-services/services/individual-counseling/)
- [How do I share my pronouns?](https://studentaffairs.unt.edu/identity/counseling-and-testing-services/services/individual-counseling/)
- [How do I ask for another person’s pronouns?](https://studentaffairs.unt.edu/identity/counseling-and-testing-services/services/individual-counseling/)
How do I correct myself or others when the wrong pronoun is used?

Additional Student Support Services

- Registrar (https://registrar.unt.edu/registration)
- Financial Aid (https://financialaid.unt.edu/)
- Student Legal Services (https://studentaffairs.unt.edu/student-legal-services)
- Career Center (https://studentaffairs.unt.edu/career-center)
- Multicultural Center (https://edo.unt.edu/multicultural-center)
- Counseling and Testing Services (https://studentaffairs.unt.edu/counseling-and-testing-services)
- Pride Alliance (https://edo.unt.edu/pridealliance)
- UNT Food Pantry (https://deanofstudents.unt.edu/resources/food-pantry)

Academic Support Services

- Academic Resource Center (https://clear.unt.edu/canvas/student-resources)
- Academic Success Center (https://success.unt.edu/asc)
- UNT Libraries (https://library.unt.edu/)
- Writing Lab (http://writingcenter.unt.edu/)