

AME 324 L (1 unit)
Mechanics of Materials Lab
Spring 2010

Section 2 Mon 5:00pm-7:50pm AME S402

Section 1 Tues 5:00pm-7:50pm AME S402

Office Hours: Mon 3:30 pm -4:30 pm

Tues 3:30 pm -4:30 pm

Office Hours Location: AME 330 N

Group: A or B

Lab Team: 1 2 3 4

Description: Characterization of engineering materials for stress-strain relations, deformation, hardness, strength, fracture, and cyclic fatigue. The course comprises of hands-on experience with instruments, specimens, recording and interpretation of data, and formal engineering report writing.

Prerequisite(s): or Concurrent registration, A ME 324A, MSE 331R.

Instructor

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Instructor

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TA

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Textbook: The labs posted on the website will provide the necessary information.

Additional information concerning strength of materials can be found in your AME 324A textbook.

Website: Link available on AME site (<http://www.ame.arizona.edu/courses/courses.php>)

Course Objectives: The purpose of this laboratory course is to reinforce the knowledge gained in MSE 331R and AME 324A by providing hands-on experience with the type of equipment commonly used in labs in engineering development and research as well as the types of test used to determine the strength of materials.

Class Format: The class will be divided into groups (A and B) and lab teams (1-4). The schedule provided in the syllabus and the website indicates what days each group has lab. and the lab book includes a schedule for the lab for each team. The teams will be assigned on the first day of class. Everyone will be responsible for their own lab report.

Class Requirements

1. Attendance to lab sessions is required. If you do not complete the in class lab you will not get any credit for the write-up. Please contact me if you will not be able to make the lab at the scheduled time. Arrangements can be made to attend the other sections lab if a valid reason is given for missing your lab period.
2. All assignments will be turned in with your **Name, Section, Group, and Team.**
Items turned in without these items will not be graded!

3. Short pre-lab write-ups are to be turned in at the beginning of each lab session. These short write-ups will discuss topics related to the activities of each lab. Present the information in a manner that you would use in a work setting, such as a memo to your boss. (2% or 15% total).
4. Lab reports will be due eight days after your lab by **high noon**. So if you have lab on Mondays then your lab is due the following Tuesday. You can turn your labs in at the **drop box on the third floor AME North Building with the AME 324L tag**. There are two styles of lab reports in the class, a full lab report and a memo style report. Find additional information on how to prepare each style on the class website.
 - a. Memo Lab Reports – These reports should be written in a memo style and should discuss the findings of the lab and answer the questions posed in the lab instructions. (2 reports at 10% or 20% total) These are the first and last lab reports of the semester.
 - b. Full Lab Reports- These reports provide the reader with all the information required to recreate the experiment if needed. The content required in the reports is discussed on the class webpage and example reports are given. All of your rotating labs will be the full lab report style (5 reports at 13% per lab or 65% total)

Dress Requirements: Close toed shoes are required for all labs. (If you are wearing anything else you will be required to leave) Substantial shoes, pants, and long sleeved shirts are required for the heat treatment lab, which is the final lab of the semester.

Academic Integrity

All students taking this course are bound under the Code of Academic Integrity. Students should familiarize themselves with this code, which can be found at:

<http://catalog.arizona.edu/policies/974/acacode.htm>

Labs are to be completed as groups, but lab reports and pre-labs are individual assignments! Any reports or parts of reports that are copied will result in a zero for everyone involved. Copying from Wikipedia and including this in your prelab/lab is cheating. If you use something from a source please cite it. No exceptions. **If you are caught cheating or plagiarizing, you will fail the course and your violation of the University of Arizona Academic Code of Integrity will be reported to the Dean of Students.**

Students with Disabilities:

If you anticipate issues related to the format or requirements of this course, please meet with me. I would like us to discuss ways to ensure your full participation in the course. If you determine that formal, disability-related accommodations are necessary, it is important that you be registered with Disability Resources (621-3268; drc.arizona.edu) and notify me of your eligibility for reasonable accommodations. We can then plan how best to coordinate your accommodations.

Schedule

Section # 1 Tuesday

Group A

Lab	Week	Dates
Lab Intro & Syllabus	1	Jan. 19
Lab # 1 – Coke Can Lab	2	Jan. 26
Lab # 2 – Rotation #1	3	Feb. 2
Lab # 1 Due	3	Feb. 3
Lab # 2 Due	4	Feb. 10
Lab # 3 – Rotation # 2	5	Feb. 16
Lab # 3 Due	6	Feb. 24
Lab # 4 – Rotation # 3	7	Mar. 2
Lab # 4 Due	8	Mar. 10
Spring Break	9	Mar. 16
Lab # 5 – Rotation # 4	10	Mar. 23
Lab # 5 Due	11	Mar. 31
Lab # 6 – Rotation # 5	12	Apr. 6
Lab # 6 Due	13	Apr. 14
Lab # 7 – HTH	15	Apr. 27
Lab # 7 Due	16	May 5

Group B

Lab	Week	Dates
Lab Intro & Syllabus	1	Jan. 19
Lab # 1 – Coke Can Lab	2	Jan. 26
Lab # 1 Due	3	Feb. 3
Lab # 2 – Rotation #1	3	Feb. 9
Lab # 2 Due	5	Feb. 17
Lab # 3 – Rotation # 2	6	Feb. 23
Lab #3 Due	7	Mar. 3
Lab # 4 – Rotation # 3	8	Mar. 9
Spring Break	9	Mar. 16
Lab # 4 Due	10	Mar. 22
Lab # 5 – Rotation # 4	11	Mar. 30
Lab # 5 Due	12	Apr. 7
Lab # 6 – Rotation # 5	14	Apr. 20
Lab # 7 - HTH	15	Apr. 27
Lab # 6 Due	15	Apr. 28
Lab # 7 Due	16	May 5

Section # 2 Monday

Group A

Lab	Week	Dates
Syllabus and Lab #1	1	Jan. 25
Lab # 2 – Rotation # 1	2	Feb. 1
Lab # 1 Due	3	Feb. 2
Lab # 2 Due	3	Feb. 9
Lab # 3 – Rotation # 1	4	Feb. 15
Lab # 3 Due	6	Feb. 23
Lab # 4 – Rotation # 2	7	Mar. 1
Lab # 4 Due	8	Mar. 9
Spring Break	9	Mar. 15
Lab # 5 – Rotation # 3	10	Mar. 22
Lab # 5 Due	11	Mar. 30
Lab # 6 – Rotation # 4	12	Apr. 5
Lab # 6 Due	13	Apr. 13
Lab # 7 – HTH	15	Apr. 26
Lab # 7 Due	16	May 4

Group B

Lab	Week	Dates
Syllabus and Lab #1	1	Jan. 25
Lab # 1 Due	2	Feb. 2
Lab # 2 – Rotation # 1	3	Feb. 8
Lab # 2 Due	5	Feb. 16
Lab # 3 – Rotation # 1	6	Feb. 22
Lab #3 Due	7	Mar. 2
Lab # 4 – Rotation # 2	8	Mar. 8
Spring Break	9	Mar. 15
Lab # 4 Due	10	Mar. 22
Lab # 5 – Rotation # 3	11	Mar. 29
Lab # 5 Due	12	Apr. 6
Lab # 6 – Rotation # 4	14	Apr. 19
Lab # 7 - HTH	15	Apr. 26
Lab # 6 Due	15	Apr. 27
Lab # 7 Due	16	May 4

Lab	Team # 1	Team # 2	Team # 3	Team # 4
1	Coke Can	Coke Can	Coke Can	Coke Can
2	Tension	Structures	Beam Bending	Strain
3	Thermal Expansion	Tension	Structures	Beam Bending
4	Strain	Thermal Expansion	Tension	Structures
5	Beam Bending	Strain	Thermal Expansion	Tension
6	Structures	Beam Bending	Strain	Thermal Expansion
7	Heat Treat/Hardness	Heat Treat/Hardness	Heat Treat/Hardness	Heat Treat/Hardness