Fall 2015

ENME 2711

Paul Schilling
University of New Orleans

ENME 2711 – 001
MATERIALS AND PROCESSES IN MANUFACTURING LABORATORY
Spring 2015

CATALOG DESCRIPTION

ENME 2711 – 001 Materials and Processes in Manufacturing Laboratory

Credit Hours = 1 Contact Hours = 3 hours lab

Demonstrative and participative experiments supplementing ENME 2740 and ENME 2785 to provide a better understanding of the properties of engineering materials and processes in manufacturing. Three contact hours of laboratory per week.
Required or Elective: Required

PREREQUISITES

ENME 1781, ENME 2740. If you do not have the prerequisites for this course, we will not grade any of your submitted work and you will receive a grade of F.

TEXTBOOKS

1. ENME 2711 Laboratory Manual: Anne-Marie Joyce, Structures and Properties of Materials Laboratory Manual, 2014
2. William D. Callister, Jr., Materials Science and Engineering an Introduction, 9th edition, John Wiley and Sons, 2014 (ISBN : 978-1-118-32457-8)

STUDENT LEARNING OUTCOMES

After successfully completing this course each student will be able to:

1. Obtain data and information on the real behavior of materials under controlled conditions.
2. Understanding the practical experimental findings which will verify the theoretical findings from the Structures and Properties of Materials lecture course.
3. Demonstrate the ability to understand how to deal with experimental errors, by repeating the experiments, and compute the standard deviation of the experimental results.
4. Demonstrate the ability to write effective and clear experimental laboratory reports.

PROGRAM OUTCOMES ADDRESSED

a. An ability to apply knowledge of mathematics, science, and engineering
b. An ability to design and conduct experiments, analyze and interpret data
e. Ability to identify, formulate, and solve engineering problems
g. Ability to communicate effectively
k. Ability to use the techniques, skills, and modern engineering tools necessary for engineering practice
n. An ability to apply solid mechanics concepts to mechanical engineering practice

COURSE TOPICS

1. Strain gauge
2. Creep test
3. Impact test
4. Heat treatment and Jominy test
5. Metallography
6. Additive manufacturing

CLASS SCHEDULE
Class Meetings: EN 507, 12:40 PM – 3:20 PM, Wednesday

COURSE COORDINATOR CONTACT INFO & OFFICE HOURS
Dr. Paul Schilling, EN 909 Phone: 280-6632, Email: pschilli@uno.edu
Office Hours: MW 9:00 AM – 11:00 PM

TEACHING ASSISTANT
Anne-Marie Joyce, EN 511 Email: ajoyce2@uno.edu

CRITERIA FOR GRADING, GRADING STANDARDS
Laboratory reports (80% of the final grade); quizzes/tests/other reports (20% of the final grade). Attendance and participation are factored into the laboratory report grades.

Letter grades: ≥90% - A; 80-89% - B; 70-79% - C; 60-69% - D.

ATTENDANCE POLICY
Attendance is required. Students should be in class on time and must sign in on a sign-in sheet passed around during class. Students will lose participation points for not attending class. Cell phones should be turned off before class begins.

ACADEMIC INTEGRITY
Academic integrity is fundamental to the process of learning and evaluating academic performance. Academic dishonesty will not be tolerated. Academic dishonesty includes, but is not limited to, the following: cheating, plagiarism, tampering with academic records and examinations, falsifying identity, and being an accessory to acts of academic dishonesty. Refer to the UNO Judicial Code for further information. The Code is available online at www.uno.edu/studentaffairs/sa-documents/studentcodeofconduct.pdf.

ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES
It is University policy to provide, on a flexible and individualized basis, reasonable accommodations to students who have disabilities that may affect their ability to participate in course activities or to meet course requirements. Students who seek accommodations for disabilities must contact the Office of Disability Services prior to discussing their individual needs for accommodation with their instructors.

STATEMENT ON CLASSROOM CONDUCT
You are in a professional school and are expected to conduct yourself in a professional manner. This includes being punctual, courteous, and respectful to your classmates. You must be respectful to the teaching assistants. Proper laboratory conduct must be observed, including safety guidelines, proper care and use of equipment, and exact attention to instructions from the instructors and/or teaching assistants.

SCHEDULE **W 12:40 p.m. – 3:20 p.m.**

Date	Description
19 – Aug	Introduction/Instructions Lecture – Impact
26 – Aug	Preparation – Read Impact Experiment Quiz – Impact Procedure **Laboratory Experiment – Impact**
2 – Sep	Report due – Impact Preparation – Study Impact Experiment Preparation – Read Rapid Prototyping Experiment Quiz – Impact Experiment Lecture – Rapid Prototyping/Excel
9 – Sep	**Laboratory Experiment – Rapid Prototyping**
16 – Sep	Preparation – Read Strain Gauge Experiment Lecture – Strain Gauge
23 – Sep	Quiz – Strain Gauge Procedure **Laboratory Experiment – Strain Gauge**
30 – Sep	Report due – Strain Gauge Preparation – Study Strain Gauge Experiment Quiz – Strain Gauge Experiment Preparation – Read Creep Experiment Lecture – Creep
7 – Oct	Quiz – Creep Procedure **Laboratory Experiment – Creep**
14 – Oct	Break
21 – Oct	Report due – Creep Preparation – Study Creep Experiment Quiz – Creep Experiment Preparation – Read Heat Treatment Experiment Lecture – Heat Treatment
28 – Oct	Quiz – Heat Treatment Procedure **Laboratory Experiment – Heat Treatment**
4 – Nov	**Group I:** Preparation – Read Metallography Experiment **Laboratory Experiment –Metallography**
11 – Nov	**Group II:** Preparation – Read Metallography Experiment **Laboratory Experiment –Metallography**
18 – Nov	Group I: Heat Treatment/Metallography Report due Intralox tour
25 – Nov	Group II: Heat Treatment/Metallography Report due (Thanksgiving Week)
2 – Dec	Quiz – Heat Treatment /Metallography