

ME 411 MANUFACTURING METHODS OF ENGINEERING MATERIALS - SPRING 2014

Catalog

Description: ME 411 Manufacturing Methods for Engineering Materials. Overview of manufacturing processes with emphasis on the fabrication of materials from the processing and equipment viewpoint. This course presents a broad study of the many manufacturing processes utilized in the production of a wide variety of products and components. Insight into the multitude of processing factors which influence the practical design of manufactured parts to achieve the advantages of maximum economy, accuracy and automation in everyday production.

Prerequisites: ME 312 and Engineering 350A.

Lecture: MW 02:00 – 02:50 P.M. A 0111

Instructor: Dr. Tarig A. Hassan, tarig@siu.edu

Office: Engr B 116

Phone: 618-453-7006

Office Hours: MW 9:00 to 10:00 A.M. (or by appointment).

Teaching

Assistant: Sean Stout, sstout@siu.edu

Textbook: “Introduction to Manufacturing Processes”, Third Edition, John A. Schey, McGraw-Hill

Course

Objectives: To introduce students basic manufacturing techniques for producing metals, ceramics, polymers, energy products, and semiconductors. General topics in manufacturing and industrial engineering are also covered, including rapid prototyping, six-sigma/design of experiments, design for manufacturing, lean manufacturing, and field trip.

Topics Covered:

Lectures:

1. Attributes of Manufactured Products
2. Materials in Design and Manufacturing
3. Six Sigma
4. Design of Experiments
5. Rapid Prototyping

Videos:

1. Metal Forming Processes
2. Casting and Heat Treatment
3. Plastic Molding

4. Computer-Aided Processes
5. Powder Metallurgy
6. Quality Control
7. Rapid Prototyping
8. Nanotechnology
9. Design for Manufacturing
10. Lean Manufacturing
11. Alternative Energy Systems

Administration of the Course:

Attendance will be taken for the classes.

Homework assignments are to be turned in at the beginning of class on due dates. Slipping your homework under my door or the TA's door or dropping it in the mailbox is unacceptable.

Academic dishonesty will not be tolerated. You are studying to enter a respected profession and the highest ethical standard is expected of you. Your work should be your own. For the homework assignments, you are encouraged to consult other students, the TA or the instructor if you run into problems. **Consulting is allowed but not copying.**

Also, your homework, tests, exams, reports etc are viewed as exercises in technical communication. Hence, correct procedure and effective presentations are important. As practicing engineers, your work will be read by other engineers. It should be easy to do so.

The overall course grade will be based on scores obtained as shown below:

Homework/Assignments/quizzes	30%
Tests	40%
Projects	30%

There will be a 5% bonus for class attendance and participation. Any student who is absent from a class for **ANY** reason shall lose one attendance point. The same will be the case if the professor decides that a student is late enough not to benefit adequately from a class.

The maximum loss in this bonus *attendance points* is of course 5%.

GRADES:	A	90 – 100%
	B	80 – Less than 90%
	C	70 – Less than 80%
	D	60 – Less than 70%
	F	Less than 60%

TEST SCHEDULE/DATES

Due dates for the homework and projects will be given when they are assigned. Test dates to be determined.

Note: The Instructor reserves the right to make any necessary changes in this course program as the need arises.

SIUC EMERGENCY PROCEDURES

Southern Illinois University Carbondale is committed to providing a safe and healthy environment for study and work. Because some health and safety circumstances are beyond our control, we ask that you become familiar with the SIUC Emergency Response Plan and Building Emergency Response Team (BERT) program. Emergency response information is available on posters in buildings on campus, available on BERT's website at www.bert.siu.edu, Department of Public Safety's website www.dps.siu.edu (disaster drop down) and in the Emergency Response Guidelines pamphlet. Know how to respond to each type of emergency.

Instructors will provide guidance and direction to students in the classroom in the event of an emergency affecting your location. **It is important that you follow these instructions and stay with your instructor during an evacuation or sheltering emergency.** The Building Emergency Response Team (BERT) will provide assistance to your instructor in evacuating the building or sheltering within the facility.