AET 1263, Materials Technology
(3-credit hours)
Eastern Illinois University
Fall 2011

I COURSE DESCRIPTION: An analysis of the structure and properties of materials as well as an introduction to processing principles. Emphasis will be on identification, properties, characteristics and application of materials.

PREREQUISITES: None

II COURSE OBJECTIVES
The purpose of this course is to provide a technical understanding of the nature and behavior of materials and how the properties and characteristics influence the conversion of raw materials to useful products. It is essential that the student of technology understand the importance, limitations, and potential of materials and be able to match the material with the process. At the conclusion of this course the student will be able to:

1. Identify various materials used in manufacturing.
2. Chart the origin of raw materials and the processes and industrial stock used to produce a finished product.
3. Categorize materials and processes used in manufacturing.
4. Describe the forces that affect materials.
5. Describe the nature and properties of various materials and how these properties will affect the use of these materials in various applications and using different processes of manufacturing.

III COURSE CONTENTS
An Introduction to Materials
   History of Materials
   Design Process

Structure of Materials

Physical, Chemical, and Mechanical Properties of Materials and Properties Tests
   Units of Measure and Conversion

Metals
   Ferrous
   Non-Ferrous
   Alloys

Ceramics
Polymers
  Thermoplastics
  Thermosets

Composites

Woods
  Hard
  Soft
  Engineered

Concrete

Dielectric Materials

Advanced Materials

Material Usage Issues (Pollution, Environment, and Consumption)

IV EVALUATION: The final grade is based upon the following percentages:

  100-90 = A  
  < 90-80 = B  
  < 80-70 = C  
  < 70-60 = D  
  < 60     = F

Total points will be calculated based upon these grading activities:

  2 Tests (Mid-term & Final) @ 100 points each  200 pts
  Quizzes (5 @ 10 pts each)                         50 pts
  Assignments / Group Projects (8 @ 15 pts each)    120 pts.
  Research Paper                                    75 pts.
  Total Points:                                      455 pts.

V CLASS APPROACH, POLICIES, EQUIPMENT

1. Students are expected to attend all class sessions and be attentive to lectures. Lectures provide the basis for content learning in the class. Supporting material for the class can be found using WebCT 8.0.

2. Absolutely NO LATE ASSIGNMENTS will be accepted. There will be strict adherence to this policy.

3. Quizzes will be unannounced. YOU MUST BE IN ATTENDANCE to take the quizzes. There will be no make-up allowances for the quizzes.
4. Examinations will not be made up unless prior approval is granted by the instructor.

5. The university's policy on academic integrity will be followed. This policy addresses five specific topics: conduct in subversion of academic standards, theft or unauthorized possession of examinations, submitting worked previously presented and another course, conduct which disrupts the academic environment, and complicity with others in violation of the standards. Plagiarism is the use, without adequate attribution, of another person's words or thoughts as if they were one's own.

6. Personal projects must be approved by the instructor before being undertaken by the student.

7. The instructor reserves the right to make changes to the topics or sequence of topics, schedule, assignments, grading plan, and context of the course. Assignments and schedule may be altered orally in class.

8. You are required to have your textbook with you at every class meeting.

9. You MUST read the assigned chapters as listed below in the schedule. Much of the tests and quizzes will come directly from the book and from the lectures.

VI STUDENTS WITH DISABILITIES: If you have a documented disability and wish to discuss academic accommodation, please contact the coordinator in the Office of Disability (581-6583) as soon as possible.