

**BREVARD COMMUNITY COLLEGE  
AEROSPACE TECHNOLOGY PROGRAM**

**COURSE:** ETIC 1830 MATERIALS AND PROCESSES I

**PREREQUISITES:** Introduction to Aerospace Workplace

**CLASS TIME:** Thursdays 6:00 – 8:45 pm  
**CLASSROOM:** Cocoa Campus Bldg 14 Room 192

**INSTRUCTOR:**

**CONTACT DATA:**

**TEXT:**

1. Brandt, Daniel A., Warner, J.C., Metallurgy Fundamentals Ferrous and Nonferrous. Tinely Park, IL: The Goodheart-Willcox Company, Inc. 2005. (*Purchased by Students from BCC Bookstore*)
2. Handouts from Class

**COURSE DESCRIPTION:**

This course covers the physical properties and characteristics of common materials and commodities used in the aerospace industry. Materials compatibility, basic metallurgy, and treatment processes are also covered.

**COURSE OBJECTIVES AND COMPETENCIES**

1. Identify and characterize materials and commodities
2. Demonstrate a basic knowledge of metallurgy
3. Identify uses and hazards involved in handling common materials and commodities used in the aerospace industry
4. Identify materials and compatibility/incompatibility
5. Demonstrate a knowledge of chemical processes involved in metal treatments
6. Recognize type and degree of corrosion
7. Identify symptoms and causes of metal fatigue
8. Identify a good and bad weld

**GRADING PROCEDURE:**

The course grade will be a combination of the following components:

Attendance/class participation	15%
Homework	10%
Opportunities to Excel	10%
Individual Presentation	20%
Midterm	20%
Comprehensive Final (Two-hour written exam)	<u>25%</u>
	100%

## GRADING SCALE

90 to 100	A
80 to 89	B
70 to 79	C
60 to 69	D
Below 60	F

**GRADING, ATTENDANCE POLICY, AND WITHDRAWAL POLICY WILL BE IN ACCORDANCE WITH THE STUDENT HANDBOOK AND COLLEGE CATALOG.**

### ADDITIONAL INFORMATION:

- You are responsible for all notes and materials presented in class.
- Lowest homework and opportunity to excel score will be dropped at the end of the semester.
- Late work will accepted for only two weeks after it is due but will only receive 50% credit.
- Attendance will be closely monitored. Irregular attendance would make it impossible to keep up with the material.
- Make-up exams and incompletes will not be given. Contact instructor in advance for assistance, if you absolutely must miss a test.
- Post exam reviews are mandatory and will start at the beginning of the next class session. It is very important to review the examination material for any mistakes that you might have made. Please notify the instructor if you will not be able to attend the exam review.
- Class information, grades, and other material will be posted on Angel. You are responsible to monitor Angel for class note and announcements
- Rules that apply in an aerospace environment will be enforced in the classroom
  - Cell phones will be turned **off**
  - Foreign object debris (pens, paperclips, paper, etc) and general housekeeping rules will be enforced
  - Detailed instructions will be followed verbatim
- One week advance notice will be given class will be working in the lab

**M&P 1**  
**GENERAL SCHEDULE**  
 Fall 2009  
 (NOT A PART OF SYLLABUS - FOR STUDENT CONVENIENCE ONLY)  
**SUBJECT TO CHANGE**

<b>Week</b>	<b>Date</b>	<b>Content</b>
1	20-Aug	Administrative, Math Pretest, Metallurgy 101, The Atom
2	27-Aug	Periodic Table, Interatomic Bonding Crystal Structure, Microstructure
3	3-Sep	Mechanical Properties, Mechanical Test Methods
4	10-Sep	Failure and Fatigue
5	17-Sep	Steel, Iron Carbon Phase Diagram
6	24-Sep	Time-Temperature-Transformation Diagrams, Steel Production
7	1-Oct	Heat Treatment, Forming, Review
8	8-Oct	<b>MIDTERM EXAM</b>
9	15-Oct	Aluminum and Aluminum Production
10	22-Oct	Aluminum Tempering and Forming
11	29-Oct	CRES, Inconel, Titanium
12	5-Nov	Welding and Non-Destructive Evaluation
14	12-Nov	Corrosion Mechanisms and Manifestations
15	19-Nov	Corrosion Control
16	3-Dec	Individual Presentations, Review
17	10-Dec	<b>FINAL EXAM</b>