ETME 216 – MANUFACTURING PROCESSES LAB  

SPRING 2014

EPS-136
Tuesday 8:00 – 9:50
Thursday 8:00 – 9:50 / 1:10 – 3:00

Instructor:  Dr. John R. Davis  
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Office Hours: TBD

Web Site: http://www.coe.montana.edu/met/faculty/davis/default.htm  Follow the link to MET 256

Prerequisites:  ETME 255 – Manufacturing Processes (or currently enrolled)

Textbook:  ETME217/ETME 216 Lab Manual: Download from web site

Goals/Objectives:

The overall objective of the lab is to gain a practical understanding of various manufacturing processes in a hands-on environment. Lab notebooks will be maintained and reports will be generated reflecting an engineering experiment format focusing on the proper writing and reporting methods. Experiments and simulation of manufacturing processes related to topics covered in ETME 215 (Manufacturing Processes Course) will be set-up and performed. The lab projects will coincide with the ETME 215 course materials as closely as possible.

Specific Objectives:

- Develop a practical understanding of basic manufacturing processes and capabilities of each.
- Set-up and conduct engineering experiments related to various manufacturing processes.
- Maintain lab notebooks in an engineering format.
- Generation of formal lab reports reflecting experiments performed.
- Enhance ability to determine what is given and what to find.
- Learn to make engineering judgments.
- Extend basic knowledge to solve manufacturing processes related problems.
- Emphasize the problem solving process and application techniques.
- Analyze data from experiments performed and reach conclusions.
- Require adherence to assignment deadlines.
- Improve team working skills through group assignments.

Lab Conduct & Attire:

Students will conduct themselves in a productive manner at all times. Come on time and ready to participate in the experiments whether team or individual. Wear clothing that is protective and can get dirty. The following clothing items are not allowed in the lab: open toe shoes, shorts, skirts/dresses, etc. Anyone showing up wearing these items will not be allowed to participate in the lab session.

GRADING:

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
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</thead>
<tbody>
<tr>
<td>Lab Reports</td>
<td>40%</td>
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<tr>
<td>Lab Summaries &amp; Memos</td>
<td>40%</td>
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<tr>
<td>Lab Participation</td>
<td>20%</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>100%</strong></td>
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Note: The 2 formal reports will be done with the opportunity for a re-write on the first one to improve your grade. You will have 2 weeks to complete them. Summaries on experiments will be due 1 week after the experiment is completed.

~ Late turned in items will be docked 5 points per day late. ~
~ Lab Experiment Topics ~

Week 1  
No Labs  
1/9

Week 2  
Introduction to Manufacturing Lab & General Safety Training  
1/14 – 1/16

Week 3  
Metal Casting Experiment  
1/21 – 1/23

Week 4  
Metal Casting Experiment (Continued)  
1/28 – 1/30

Week 5  
Plastic Injection Molding Experiment  
2/4 – 2/6

Week 6  
Powder Metal Experiment  
2/11 – 2/13

Week 7  
Powder Metal Experiment (Continued)  
2/18 – 2/20

Week 8  
Metal Forming Experiment  
2/25 – 2/27

Week 9  
Metal Forming Experiment (Continued)  
3/4 – 3/6

Week 10  
Metal Forming Experiment (Continued)  
3/18 – 3/20

Week 11  
Turning Optimization Experiment  
3/25 – 3/27

Week 12  
Metrology  
4/1 – 4/3

Week 13  
Metrology (Continued)  
4/8 – 4/10

Week 14  
Metrology (Continued)  
4/15 – 4/17

Week 15  
Make-up Week  
4/22 – 4/24