ETME 217 – MANUFACTURING PROCESSES LAB

EPS 136
Monday 10:00 – 11:50 / 1:10 – 3:00 @ 4:10 – 6:00 ♂
Tuesday 4:10 – 6:00 ♂
Wednesday 10:00 – 11:50 / 12:00 – 1:50 / 4:10 – 6:00 ♂
Thursday 4:10 – 6:00 ♂
Friday 12:00 – 1:50 ♂

Instructor T.B.D. ♂ David Driscoll

Instructor: Dr. John R. Davis
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Phone: 581-6530 Cell / 994-6294 Office
E-Mail: johnd@me.montana.edu
Office Hours: TBD

Web Site: http://www.coe.montana.edu/met/faculty/davis/default.htm Follow the link to ETME 217

Prerequisites: ETME 215 – Manufacturing Processes (or currently enrolled)

Textbook: ETME217/ETME216 Lab Manual: Download from the 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 date 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 follow 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>Percentage</th>
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<tbody>
<tr>
<td>Lab Reports</td>
<td>40%</td>
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<tr>
<td>Lab Summaries</td>
<td>40%</td>
</tr>
<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 and Memos 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  
1/8 – 1/9 – 11/10

Week 2  Introduction to Manufacturing Lab & General Safety Training  
1/13 - 1/14 - 1/15 – 1/16 – 11/17

Week 3  Metal Casting Experiment  
1/20 (No Class) - 1/21 - 1/22 – 1/23 – 1/24

Week 4  Metal Casting Experiment (Continued)  
1/27 – 1/28 – 1/29 – 1/30 – 1/31

Week 5  Plastic Injection Molding Experiment  
2/3 – 2/4 – 2/5 – 2/6 – 2/7

Week 6  Powder Metal Experiment  
2/10 – 2/11 – 2/12 – 2/13 – 2/14

Week 7  Powder Metal Experiment (Continued)  
2/17 (No Class) – 2/18 – 2/19 – 2/20 – 2/21

Week 8  Material Removal Experiment  

Week 9  Material Removal Experiment (Continued)  

Week 10  Material Removal Experiment (Continued)  

Week 11  Material Removal Experiment (Continued)  

Week 12  Metrology: Inspection / Measurement Experiment  

Week 13  Metrology Experiment (Continued)  

Week 14  Welding Experiment (Arc Welding)  

Week 15  Make-up Week  

~ On “No Class” days, students have the option to attend another lab session except for Material Removal Labs. ~