.ETME 216 – MANUFACTURING PROCESSES LAB SPRING 2017

Barnard Hall-115
Tuesday 8:00 – 9:50 Mr. Glenn Foster
Tuesday 1:10 – 3:00 Dr. John Davis
Thursday 1:10 – 3:00 Dr. John Davis

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

Web Site: http://www.montana.edu/jdavis/ Follow the link to ETME 216

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:		
	Lab Reports	30%
	Lab Summaries	30%
	Lab Memos	30%
	Lab Participation	10%
	TOTAL:	**100%**

Lab Reports: There will be 2 formal lab reports during the semester. These will be a team effort composed by the members on the team that conducted the experiment. The reports will be due 2 weeks after the conclusion of the experiment. There will be an opportunity to Re-Write the first lab report to improve the grade. All the members of the team that wrote the lab report will receive the same grade.

Lab Summaries: There will be 2 lab summaries during the semester. These will be a team effort composed by the members on the team that conducted the experiment. The summaries will be due 1 week after the conclusion of the experiment. All the members of the team that wrote the lab summary will receive the same grade.

Lab Memos: There will be 2 lab memos during the semester. These will be an individual effort and will be due 1 week after the conclusion of the experiment

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

The following grades will be applied based on the student average attained during the course:

Average	**Letter Grade**
100 – 93	**A**
92 – 90	**A-**
89 – 87	**B+**
86 – 83	**B**
82 – 80	**B-**
79 – 77	**C+**
76 – 73	**C**
72 – 70	**C-**
69 – 67	**D+**
66 – 63	**D**
62 – 60	**D-**
59 – 0	**F**

~ Lab Experiment Topics ~

Week 1	**No Labs** **1/12**
Week 2	**Introduction to Manufacturing Lab & General Safety Training** **1/17 – 1/19**
Week 3	**Metal Casting Experiment** **1/24 – 1/26**
Week 4	**Metal Casting Experiment (Continued)** **1/31 – 2/2**
Week 5	**Plastic Injection Molding Experiment** **2/7 – 2/9**
Week 6	**Powder Metal Experiment** **2/14 – 2/16**
Week 7	**Powder Metal Experiment (Continued)** **2/21 – 2/23**
Week 8	**Metal Forming Experiment** **2/28 – 3/2**
Week 9	**Metal Forming Experiment (Continued)** **3/7 – 3/9**
Week 10	**Metal Forming Experiment (Continued)** **3/21 – 3/23**
Week 11	**Turning Optimization Experiment** **3/28 – 3/30**
Week 12	**Metrology** **4/4 – 4/6**
Week 13	**Metrology (Continued)** **4/11 – 4/13**
Week 14	**Metrology (Continued)** **4/18 – 4/20**
Week 15	**Make-up Week** **4/25 – 4/26**