

Lecture: Wednesday: 9:00 – 9:50 Roberts 209

Labs: Tuesday & Thursday EPS 136

ETME 310-05: 8:00 – 9:50

ETME 310-02: 11:00 – 12:50

ETME 310-04: 1:10 – 3:00

Instructor: Dr. John R. Davis

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Office Hours: Posted outside my office and on my website

Web Site: <http://www.coe.montana.edu/met/faculty/davis/default/htm>
Follow the link to ETME 310

Prerequisites: ETME 203 or equivalent, or TE 230 for non-majors.
ETME 216 or course instructor approval

Textbook & Laboratory Supplies:

Textbook: Machining and CNC Technology

Fitzpatrick, M. McGraw-Hill NY, NY. 2005. (ISBN 0-07-829860-1)

Laboratory Supplies:

- 1) OSHA approved (Standard 29 CFR – 1910.133) clear safety glasses or impact resistant prescription glasses with side shields (ANSI Z87.1-1989)
 - 2) 0” – 6” Range calipers (0.001 inch resolution) ⊗
 - 3) 0” – 1” range micrometer (0.0001 inch resolution) ⊗
- ⊗ Optional, but highly recommended.

Entrance Expectations: This course focuses on the fundamentals of machining and machine tools along with safe work practices. As such, the student is expected to bring to the class good knowledge of:

- 1) Interpreting dimensioned multi-view drawings.
- 2) Basic understanding of manufacturing processes.
- 3) Written and oral communication skills.
- 4) Problem solving skills.

Course Objectives:

The objective of this course is to provide the student with knowledge in the areas of industrial safety, machining and machine tools as practiced in the field of mechanical engineering technology. Upon completion of this course, the student will demonstrate the ability to:

- 1) Identify and remediate unsafe work practices within a shop environment.
- 2) Perform a variety of machining operations on both an engine lathe and vertical milling machine.
- 3) Apply tolerances, fits, surface finish requirements, and material selection to a given parts or assembly.
- 4) Determine machine tool speeds, feeds, and depth of cuts for various machining applications.
- 5) Understand machine code (G&M code) for (CNC) machine tools.

Special Needs Information:

Students with special needs or requiring special accommodations should connect the instructor or the campus Disabled Student Services Office at the earliest opportunity.

Student Conduct:

Students are expected to conduct themselves in accordance with the MSU Student Conduct Guidelines (http://www2.montana.edu/policy/student_conduct/), including the area of academic honesty, behavior, and responsibility.

Assessment & Evaluation:

Course outcomes will be evaluated, and the final letter grades (no curve) will be based on the following criteria:

- 1) Professionalism: (10%)
 - Attendance at required lectures and laboratories
(Absence must be excused in advance)
- 2) In Class Assignments
 - Homework (15%)
 - Quizzes (15%)
- 3) Final Evaluation: Take Home Final Exam
 - Final Exam (10%)
- 4) Laboratory (50%)
 - Lathe Project and Report (25%)
 - Milling Project and Report (25%)
(Project 75%, Formal Report 25%)

Grade Distribution:

- 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

ETME 310 Lecture Schedule

Week	Date	Lecture Topic
1	8/26	Course Introduction & Lab Requirements & Section 1: Professionalism in Manufacturing
2	9/2	Section 5: Before and after Machining (Sec: 1 Quiz)
3	9/9	Section 6: The Science and Skill of Measuring
4	9/16	Section 9: Cutting Tool Geometry (Sec: 6 Quiz)
5	9/23	Section 10: Drilling & Operations Machines (Sec: 9 Quiz)
6	9/30	Section 11: Turning Operations (Sec: 10 HW Due)
7	10/7	Section 11: Turning Operations Continued
8	10/14	Section 12: Mills and Milling Operations (Sec: 11 HW Due)
9	10/21	Section 12: Mills and Milling Operations Continued
10	10/28	Section 14: Technical Screw Threads (Sec: 12 HW Due)
11	11/4	Section 15: Metallurgy for Machinist (Sec: 14 HW Due & Sec: 14 Quiz)
12	11/18	Final Exam Handed Out (Sec: 15 Quiz)
13	11/25	Thanksgiving, No Lecture
14	12/2	Final Exam Due in Class

ETME 310 Laboratory Schedule

Week	Date	Laboratory Topic
1	8/27	Laboratory Introduction and Equipment Overview
2	9/1 & 9/3	Lathe & Milling Machine Practice (PPE ^① Required) Five Basic Measuring Tools Overview
3	9/8 & 9/10	Lathe and Milling Machine Projects Begin
4	9/15 & 9/17	Project Work Continued
5	9/22 & 9/24	Project Work Continued
6	9/29 & 10/1	Project Work Continued
7	10/6 & 10/8	Project Work Continued
8	10/13 & 10/15	Project Work Continued Switch Machines on 10/20
9	10/20 & 10/22	Project Work Continued
10	10/27 & 10/29	Project Work Continued
11	11/3 & 11/5	Project Work Continued
12	11/10 & 11/12	Project Work Continued
13	11/17 & 11/19	Project Work Continued
14	11/24	Project Work Continued (No Lab on 11/26 – Thanksgiving)
15	12/1 & 12/3	Project Work Continued on 12/1: Lab Clean-up on 12/3

① PPE: Personal Protective Equipment

NOTE: ALL Projects, Final Reports & Take Home Final Due to Me no later than Friday, December 4th by 1:00 pm. Early Submissions are Welcome & Highly Encouraged!!!!