

**PELLISSIPPI STATE COMMUNITY COLLEGE
MASTER SYLLABUS**

**SHOP PRACTICES W/LAB
MET 1022**

Lecture/Lab Hours: 4

Credit Hours: 3

Date Revised: Spring 2017

Catalog Course Description

An introductory course in the theory, set-up, and operation of basic machine tools and the use of measuring equipment.

Prerequisites:

None

Co-requisites

None

Textbooks and Other Supplies

Textbooks

Access codes for Immerse2Learn

Safety glasses

References

Machine Tool Technology: Repp & Mc Carthy, Glencoe Publishing Company, 5th Edition, 1984.

Machinery's Handbook: Oberg, Jones, & Horton, Industrial Press, 23rd Edition, 1990.

Basic Shop Measurement: Hoffman, John Wiley & Sons, 1983

Week/Unit/Topic Basis

Week	Topic
1-3	Measurement, Inspection and Set-up
4-6	Milling and Set-up
7-8	Turning and Set-up

9	Screw Threads
10-11	Drilling, Boring and Reaming
12	Sawing and Shaping
13-14	Grinding and Abrasives
15	Final Exam Period

Engineering Technology General Outcomes (Educational objectives)

- I. Apply basic engineering theories and concepts creatively to analyze and solve technical problems.
- II. Utilize with a high degree of knowledge and skill equipment, instruments, software, and technical reference materials currently used in industry.
- III. Communicate effectively using developed writing, speaking, and graphics skills.
- IV. Assimilate and practice the concepts and principles of working in a team environment.
- V. Obtain employment within the discipline or matriculate to a four year program in engineering or industrial technology.

Engineering Technology Concentration Competencies

NOTE: At the program level all 6 competencies apply to roman numerals I – V of the Engineering Technology General Outcomes (Educational objectives) listed above.

Students will

- A. Apply the knowledge, techniques, skills, and modern tools for the concentration of study to specifically defined engineering technology activities.
- B. Demonstrate the knowledge of mathematics, science, engineering and technology to engineering technology problems using developed practical knowledge.
- C. Conduct and report the results of standard tests and measurements, and conduct, analyze and interpret experiment or project results.
- D. Function effectively as a member of a technical team.
- E. Identify, analyze and solve specifically defined engineering technology-based problems.
- F. Employ written, oral and visual communication in a technical environment

Course Goals

NOTE: Capital letters after course goals reference goals of the Engineering Technology Program.

The course will

1. Enhance understanding of basic inspection. measuring and gaging concepts.
(A,B,C,E,F)

2. Develop knowledge and skills to set-up, maintain and functionally operate a standard milling machine. (A,B,C,E,F)
3. Develop knowledge and skills to set-up, maintain and functionally operate a standard lathe. (A,B,C,E,F)
4. Enhance understanding of basic sawing, drilling and grinding concepts. (A,B,C,E,F)
5. Enhance skills to communicate technical information. (C,F)

Expected Student Learning Outcomes

NOTE: Numbers after Expected Student Learning Outcomes reference the course goals listed above.

The student will

- a. Identify a variety of gages and measuring instruments. (1)
- b. Calibrate and operate a variety of standard and electronic measuring equipment. (1)
- c. Calculate allowance for mating parts. (1)
- d. Calculate and set-up angles using gage blocks and a sine bar. (1)
- e. Identify properties for a surface roughness tolerance (Metric and English). (1)
- f. Identify a variety of milling machines, attachments and cutters. (2)
- g. Apply factors and calculate (Metric & English) feeds and speeds for a standard milling machine. (2)
- h. Set-up, machine to tolerance, and inspect a part manufactured on a standard milling machine. (1, 2, 4)
- i. Identify a variety of lathes, attachments, and cutters. (3)
- j. Apply factors and calculate (Metric & English) feeds and speeds for a standard lathe. (3)
- k. Identify and associate function of a variety of threads. (3)
- l. Calculate thread depth and pitch. (3)
- m. Set-up, machine to tolerance, and inspect a part manufactured on a standard lathe. (1, 3, 4)
- n. Associate concepts and perform basic sawing, drilling, and reaming operations. (2, 3, 4)
- o. Identify and associate the basic principles used in grinding. (4)
- p. Document technical information in a neat and orderly format. (5)
- q. Complete assignments based on oral and written instructions. (5)

Evaluation

Evaluation of both classroom and laboratory work is required in this course. Total evaluation will be based on the following point distribution.

Testing Procedures

Unit Exams

~50 points

5 – 7 exams will be administered during the course. They will include discussion questions, short answer questions, true/false questions, and problem solving.

Laboratory Experiences

Guidelines and requirements for each project will be provided by the instructor.

Project 1: NIMS 2.2	10 points
Project 2: NIMS 2.1	10 points
Project 3: Mill Block/Drill	10 points
Project 4: Lathe: Step Shaft	10 points
Project 5: Lathe: Plumb Bob	10 points
Other Projects: as assigned	10 points each

Field Work

N/A

Other Evaluation Methods

N/A

Grading Scale

Final grade for this course will be based on the following alphabetical/numerical scale.

A	93-100
B+	88-92
B	83-87
C+	79-82
C	74-78
D	65-73
F	Below 65

Policies

Attendance Policy

Pellissippi State expects students to attend all scheduled instructional activities. As a minimum, students in all courses (excluding distance learning courses) must be present for at least 75 percent of their scheduled class and laboratory meetings in order to receive credit for the course. Individual departments/programs/disciplines, with the approval of the vice president of Academic Affairs, may have requirements that are more stringent. In very specific circumstances, an appeal of the policy may be addressed to the head of the department in which the course was taken. If further action is warranted, the appeal may be addressed to the vice president of Academic Affairs.

Academic Dishonesty

Academic misconduct committed either directly or indirectly by an individual or group is subject to disciplinary action. Prohibited activities include but are not limited to the following practices:

- Cheating, including but not limited to unauthorized assistance from material, people, or devices when taking a test, quiz, or examination; writing papers or reports; solving problems; or completing academic assignments.
- Plagiarism, including but not limited to paraphrasing, summarizing, or directly quoting published or unpublished work of another person, including online or computerized services, without proper documentation of the original source.
- Purchasing or otherwise obtaining prewritten essays, research papers, or materials prepared by another person or agency that sells term papers or other academic materials to be presented as one's own work.
- Taking an exam for another student.
- Providing others with information and/or answers regarding exams, quizzes, homework or other classroom assignments unless explicitly authorized by the instructor.
- Any of the above occurring within the Web or distance learning environment.

Please see the Pellissippi State Policies and Procedures Manual, Policy 04:02:00 Academic/Classroom Conduct and Disciplinary Sanctions for the complete policy.

Accommodations for Disabilities

Students that need accommodations because of a disability, have emergency medical information to share, or need special arrangements in case the building must be evacuated should inform the instructor immediately, privately after class or in her or his office. Students must present a current accommodation plan from a staff member in Disability Services (DS) in order to receive accommodations in this course. [Disability Services](http://www.pstcc.edu/sswd/) (<http://www.pstcc.edu/sswd/>) may be contacted via [Disability Services email](#) or by visiting Alexander 130.

Other Policies

Safety and Equipment Abuse

Repeated safety violations will result in a reduction of final grade, at the instructor's discretion. Flagrant violations which result in equipment damage or personal injury could result in automatic failure of the course.