

PELLISSIPPI STATE TECHNICAL COMMUNITY COLLEGE
MASTER SYLLABUS

**SPECIAL PROJECTS: MET
MET 2610**

Class Hours: 2.0

Credit Hours: 4.0

Laboratory Hours: 6.0

**Date Revised: Spring
00**

NOTE: This course is not designed for transfer credit.

Catalog Course Description:

A projects-based course in which the students and the instructor identify a research design problem to be pursued by the students.

Entry Level Standards:

Students entering this course should have sophomore class standing in one of the following engineering technology disciplines: Mechanical Engineering Technologies (MET), Electrical Engineering Technology (EET), or Computer Integrated Drafting and Design Technology (CIDD). Any exceptions must be approved by the program coordinator.

Prerequisite:

Sophomore class standing

Textbook(s) and Other Reference Materials Basic to the Course:

Textbook: None

Handouts: Instructor generated

Resources: Library, Internet, Subject Matter Experts, Industrial partners

Supplies: (1) 1.5" 3-ring binder

(2) 3 2" diskette, 1.44M, IBM formatted

I. Week/Unit/Topic Basis:

Week	Topic
1	Course Introduction; Project Planning & Logistics
2-5	Design Criteria & Considerations
6-11	Production and Assembly
12-13	Inspection (parts & assemblies)
14-15	Functional Testing & Analysis
16	Presentations & Reports; Final Exam Period

II. Course Objectives*:

- A. Apply basic skills and knowledge of mechanical design. I-V
- B. Apply basic skills and knowledge of manufacturing. I-V
- C. Apply basic skills and knowledge of quality control. I-V
- D. Apply basic skills and knowledge of electrical engineering technologies. III-V
- E. Apply basic skills and knowledge of computer integrated drafting. III-V
- F. Work in a multi-disciplinary team to create a product. V
- G. Present results and findings in a professional and formal manner. IV

*Roman numerals after course objectives reference goals of the Engineering and Media Technologies department.

III. Instructional Processes*:

Students will:

1. Work in a team environment to accomplish assigned tasks. *Communication Outcome, Personal Development Outcome, Problem Solving and Decision Making Outcome, Information Literacy Outcome, Transitional Strategies, Active Learning Strategies*
2. Research and review pertinent historical and current information in the fields of study as they relate to the project. *Communication Outcome, Problem Solving and Decision Making Outcome, Technological Literacy Outcome, Information Literacy Outcome, Active Learning Strategies*
3. Maintain contact and give progress reports to the industrial partners and vendors associated with the project. *Communication Outcome, Technological Literacy Outcome, Information Literacy Outcome, Transitional Strategies, Active Learning Strategies*
4. Create, design, evaluate, and revise prototype design to determine the final product design in conjunction with the industrial partners. *Problem Solving and Decision Making Outcome, Technological Literacy Outcome, Numerical Literacy Outcome, Information Literacy Outcome, Transitional Strategies, Active Learning Strategies*
5. Acquire materials and tooling, determine manufacturing processes, setup a production schedule, produce parts and subassemblies with associated drawings and schematics required to produce a final working product. *Problem Solving and Decision Making Outcome, Technological Literacy Outcome, Numerical Literacy Outcome, Information Literacy Outcome, Transitional Strategies, Active Learning Strategies*
6. Develop a quality control test plan complete with documents and charts, and institute strategies for data collection associated with product inspection and reliability. *Communication Outcome, Problem Solving and Decision Making Outcome, Technological Literacy Outcome, Numerical Literacy Outcome, Information Literacy Outcome, Transitional Strategies, Active Learning Strategies*
7. Develop and write a resource manual to include instructions for installation, operations, and periodic maintenance for the product. *Communication Outcome, Problem Solving and Decision Making Outcome, Technological Literacy Outcome, Numerical Literacy Outcome, Transitional Strategies, Active Learning Strategies*

8. Present information and findings on the project and product formally in both written and oral formats. *Communication Outcome, Information Literacy Outcome, Transitional Strategies, Active Learning Strategies*

*Strategies and outcomes listed after instructional processes reference Pellissippi State's goals for strengthening general education knowledge and skills, connecting coursework to experiences beyond the classroom, and encouraging students to take active and responsible roles in the educational process.

IV. Expectations for Student Performance*:

Upon successful completion of this course, the student should be able to:

1. Identify, explain, and apply mechanical design concepts to include the following areas of study: statics; strengths of materials; fluid power application; mechanical elements and systems; part print production, and work scheduling. A, F, G
2. Identify, explain, and apply manufacturing concepts, such as: process and tooling selection; material acquisition; part programming and production, work handling and scheduling. B, F, G
3. Identify, explain, develop, and apply quality control practices as they relate to the following: test plan development; destructive and nondestructive testing procedures; statistical process control (SPC); coordinate measuring techniques and programming; and data collection and analysis. C, F, G
4. Identify, explain, and apply electrical and electronic concepts to include the following areas of study: AC and DC circuits, microprocessors, and rotating machinery (e.g. motors, servo drives, and generators) D, F, G
5. Identify, explain, and apply computer drafting and design concepts to include the following: three-view orthographic drawings, auxiliary and section views, assembly drawings, fluid power schematics, and electrical diagrams. E, F, G
6. Develop information and write technical reports and related documents, such as feasibility studies, progress reports, test plans, control charts, forms, and final inspection analysis documents. A, B, C, D, E, F, G
7. Present findings formally as a team to an evaluation committee or peer group. A, B, C, D, E, F, G

*Letters after performance expectations reference the course objectives listed above.

V. Evaluation:

A. Evaluation Procedures:

Project Production--40 points
Project Report--25 points

B. Laboratory Expectations:

N/A

C. Field Work:

Project Presentation--25 points
Guidelines and requirements for the project will be developed by the instructor and students.

D. Other Evaluation Methods:

Participation--10 points

Based on instructor observation during the course, each student will be evaluated on participation activities. Evaluation parameters to include active participation in team discussions, being prepared, efficient use of lab time, striving to achieve more than minimum requirements, and regular attendance.

E. Grading Scale:

A	92-100
B+	88-91
B	83-87
C+	79-82
C	74-78
D	65-73
F	Below 65

VI. Policies:

A. Attendance Policy:

Pellissippi State Technical Community College expects students to attend all scheduled instructional activities. As a minimum, students in all courses must be present for at least 75 percent of their scheduled class and laboratory meetings in order to receive credit for the course (Pellissippi State Catalog). Individual departments/programs/ disciplines, with the approval of the vice president of Academic and Student Affairs, may have requirements that are more stringent.

B. Academic Dishonesty:

Cheating on an assigned project will not be tolerated and will result in immediate dismissal and automatic failure of the course. Assistance from other students is encouraged during the learning stages of the course, but each student is responsible for completing his/her own course assignments.

C. 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 will result in automatic failure of the course.

Counseling: Counseling is available during posted office hours or by appointment.