

PELLISSIPPI STATE TECHNICAL COMMUNITY COLLEGE
MASTER SYLLABUS

APPLIED STATICS
MET 1040

Class Hours: 3.0

Credit Hours: 3.0

Laboratory Hours: 0.0

**Date Revised: Spring
99**

Catalog Course Description:

A study of the effects of forces acting on bodies at rest. Topics include moments, equilibrium, simple trusses friction, centroids, center of gravity and moments of inertia.

Entry Level Standards:

Students entering this course must have a working knowledge of geometry, advanced algebra, and trigonometry.

Prerequisite:

MATH 1730 or 1731

Corequisite:

PHYS 1010; no corequisite for CET majors

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

Required:

Statics and Strength of Materials. Cheng, Glenco/McGraw Hill, 2nd Edition, 1997.

References:

Statics and Strengths of Materials. Bassin, Brodsky, & Wolkoff, McGraw-Hill, 4th Edition, 1988.

Statics and Strength of Materials. Morrow, Prentice-Hall, 1981.

Statics and Strength of Materials. Wolf, Merrill Publishing Company, 1988.

I. Week/Unit/Topic Basis:

Week	Topic
1	Fundamental Concepts and Principles
2-3	Resultant of Coplanar Force System
4-8	Equilibrium of Coplanar Force Systems
9-10	Analysis of Structures
11-12	Friction
13-14	Center of Gravity

15 Moments of Inertia

16 Final Exam

II. Course Objectives*:

- A. Understand the basic concepts of statics. I, IV
- B. Independently apply problem solving techniques to statics problems. I, II, IV
- C. Use outside resources, including computer software, to supplement the course. I, II, III
- D. Relate topics covered during the course to the field of engineering technology. I, IV

*Roman numerals after course objectives reference goals of the MET program.

III. Instructional Processes*:

Students will:

- 1. Use critical thinking to solve problems presented in the book and class projects. *Problem Solving and Decision Making Outcome, Numerical Literacy Outcome*
- 2. Participate in team oriented, hands-on projects on trigonometry, static equilibrium, friction, and center of gravity to facilitate cooperative learning. *Communication Outcome, Problem Solving and Decision Making Outcome, Numerical Literacy Outcome, Active Learning Strategy*
- 3. Use external resources including those at the Educational Resource Center, the Internet, interviews with professionals, etc to research the importance of statics in the field of engineering technology. A five minute oral presentation will be given to the class that describes an example where this topic is used in industry. *Communication Outcome, Information Literacy Outcome, Transitional Strategy*
- 4. Use technology available to expand upon or solve problems in the text; examples may include software packages such as Beam Analysis, Working Model, and MD Solids. *Technological Literacy Outcome*

*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. Construct free body diagrams. A, B
- 2. Solve for resultant forces. A, B
- 3. Calculate moments. A, B
- 4. Associate and apply force analysis to system equilibrium. A, B
- 5. Solve for forces in truss members using method of joints and method of sections. A, B
- 6. Solve for the frictional forces due to sliding friction, belt friction, disk friction, and rolling

resistance. A, B

7. Locate the centroid or center of gravity of both a homogeneous and non-homogeneous body. A, B
8. Calculate the moment of inertia of both two and three dimensional bodies. A, B
9. Prepare and give an oral presentation on statics that meets professional standards. D
10. Use the software available to solve specific types of statics problems. C

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

V. Evaluation:

A. Testing Procedures: 85% of grade

There will be 5-6 unit exams administered during the course. There will be a comprehensive final exam administered at the end of the course.

B. Laboratory Expectations: 10% of grade

Homework will be assigned throughout the semester and turned in the day of the unit exam. Late homework will not be accepted. Informal laboratories and demonstrations will be completed in class. Those requiring calculations will be taken up and count toward the homework grade. The presentation to the class will count towards three of the ten points.

C. Other Evaluation Methods: 5% of grade

Based on instructor observation during the course, each student will be evaluated on participation activities. Evaluation parameters to include active participation in class discussions, response to verbal questions, and regular attendance.

D. 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. Individual instructors may have requirements that are more stringent.

B. Academic Dishonesty:

Cheating on a quiz or assigned project will not be tolerated. First offense 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:

Make up Exams: As a general rule, no make-up exams will be administered during the course.

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.