El Paso Community College
Syllabus
Part II
Official Course Description

SUBJECT AREA	**Engineering**
COURSE RUBRIC AND NUMBER	**ENGR 2301**
COURSE TITLE	**Statics**
COURSE CREDIT HOURS	**3 3 0** **Credits Lec Lab**

I. Catalog Description

Provides a calculus-based study of composition and resolution of forces, equilibrium of force systems, friction, centroids, and moments of inertia. **Prerequisite: MATH 2413. (3:0).**

II. Course Objectives

Upon satisfactory completion of this course, the student will be able to

A. Resolve a system of forces into components.
B. Find the resultant of a system of forces using Newton's first law.
C. Calculate the internal forces in a member due to external forces.
D. Calculate the total moment about a specific point.
E. Determine the moment of a couple.
F. Determine the resultant of a force and couple system.
G. Draw free body diagrams and calculate the corresponding reactions in 2-D and 3-D.
H. Find the internal forces in frames and machines.
I. Find the centroid and moments of inertia of simple and composite cross sectional areas.
J. Determine the shear and moment diagrams and equations on beams.

III. THECB Learning Outcomes (ACGM)

Upon successful completion of this course, students will:

1. State the fundamental principles used in the study of mechanics.
2. Define magnitude and directions of forces and moments and identify associated scalar and vector products.
3. Draw free body diagrams for two- and three-dimensional force systems.
4. Solve problems using the equations of static equilibrium.
5. Compute the moment of force about a specified point or line.
6. Replace a system of forces by an equivalent simplified system.
7. Analyze the forces and couples acting on a variety of objects.
8. Determine unknown forces and couples acting on objects in equilibrium.
9. Analyze simple trusses using the method of joints or the method of sections.

10. Determine the location of the centroid and the center of mass for a system of discrete particles and for objects of arbitrary shape.
11. Analyze structures with a distributed load.
12. Calculate moments of inertia for lines, areas, and volumes.
13. Apply the parallel axis theorem to compute moments of inertia for composite regions.
14. Solve problems involving equilibrium of rigid bodies subjected to a system of forces and moments that include friction.
15. Solve problems involving dry sliding friction, including problems with wedges and belts.

IV. Evaluation

A. Grading

It is recommended that four examinations be given, including the final examination.

Quizzes and/or homework may also be assigned, and the grades on these may be included in the final average.

The weight given to exams, quizzes, and homework is at the discretion of the instructor.

Grades will be assigned based on student's average, using the scale below:

A = 90 - 100%
B = 80 - 89%
C = 70 - 79%
D = 60 - 69%
F = Below 60%

B. I and W Grades

Incomplete (I) grades will be given at the instructor's discretion and only under special circumstances.

The instructor is not obligated to issue a "W" (Withdrawal) grade. Students who wish to withdraw must submit the proper paperwork to the registrar prior to the "drop" deadline. A grade of "W" cannot be issued at the end of the semester.

V. Disability Statement (Americans with Disabilities Act [ADA])

EPCC offers a variety of services to persons with documented sensory, mental, physical, or temporary disabling conditions to promote success in classes. If you have a disability and believe you may need services, you are encouraged to contact the Center for Students with Disabilities to discuss your needs with a counselor. All discussions and documentation are kept confidential. Offices located: VV Rm C-112 (831-2426); TM Rm 1400 (831-5808); RG Rm B-201 (831-4198); NWC Rm M-54 (831-8815); and MDP Rm A-125 (831-7024).

VI. 6 Drop Rule

Students who began attending Texas public institutions of higher education for the first time during the Fall 2007 semester or later are subject to a 6-Drop limit for all undergraduate classes. Developmental, ESL, Dual Credit and Early College High School classes are exempt from this rule. All students should consult with their instructor before dropping a class. Academic assistance is available. Students are encouraged to see Counseling Services if dropping because exemptions may apply. Refer to the EPCC catalog and website for additional information.