

Official TCC Course Syllabus

Discipline Prefix: EGR	Course Number: 140	Course Title: Statics	
	Course Section: D019		
Credit Hours: 3	Lecture Hours: 3	Clinical Hours:	Lab Hours:
Contact Hours: 3	Studio Hours:	Semester: Summer 2014	
Meeting Days/Time/Location: Tuesdays and Thursdays 1:00 –3:30pm , Room 1101, Tri-Cities Center. Note that this is a special 8-week session: Meets Tuesday, May 20 – Tuesday, July 10. The final exam will be given on July 10.			

Instructor Information

Name: Paul E. Gordy, PE

Office Location: H-115, Advanced Technology Center

Office Hours: As posted on office door and on course Blackboard site

Contact Information: 757-822-7175

Course Website (optional): www.faculty.tcc.edu/PGordy

Blackboard site: <http://learn.vccs.edu>

Instructor email address (college or VCCS): PGordy@tcc.edu

Course Information

Course Description

Introduces mechanics of vector forces and space, scalar mass and time, including S.I. and U.S. customary units. Teaches equilibrium, free-body diagrams, moments, couples, distributed forces, centroids, moments of inertia analysis of two- force and multi-force members and friction and internal forces.

Prerequisites and/or Co-requisites

Prerequisites: EGR 120

Co-requisites: MTH 174

Required Course Texts and Supplementary Materials

Lecture notes are an important source of information for this course. Material covered in lecture may not be found in the textbook. The student should download the instructor's lecture presentation online from the course Blackboard site and print them to bring to class. If any lectures are missed, the student should obtain notes from class discussions from another student.

Textbook: Engineering Mechanics: Statics, 13/E, by Hibbeler. Pearson Higher Education, 2010. Textbook is bundled with: Mastering Engineering with E-Book Student Access Kit, 1E (ISBN: 9780132915786)

Online Homework Access: Note that Mastering Engineering must be used for online homework submission in this course. If a student purchases a textbook that does not include Mastering

Calculator: A graphics calculator like the TI-89, TI-92, HP-50 or the TI Inspire CAS is strongly recommended although any scientific calculator is sufficient. The calculators listed have the capability to perform vector math, solution of simultaneous equations, operations with complex numbers and unit conversions.

Course Learning Outcomes

After the completion of this course, students will be able to:

- Analyze and solve problems in statics through the logical application of the basic principles of classical mechanics
- Use vector operations in the solution of problems in mechanics
- Use the inductive learning process through the use of simple engineering applications
- Apply skills in mathematics and science to solving technical problems
- Formulate computer programs to solve problems in statics using Microsoft Excel or MATLAB.

Topics Covered in the Course

- Statics of particles: Resultants of forces using vectors
- Rigid bodies: Equivalent systems of forces
- Equilibrium of rigid bodies
- Distributed forces: Centroids and centers of gravity
- Analysis of structures: Trusses, frames, and machines
- Forces in beams and cables
- Friction
- Distributed forces: Moments of inertia

Description of Assignments/Assessments

Homework:

- Critical importance: Homework is an extremely important part of this course. It is doubtful that you will do well on tests without working many example problems.
- Online submission: All homework must be completed online through the Mastering Engineering website using the access code that comes with your Student Study Pack. Some of the problems are randomized, so each time the problem is accessed, different values will be used. You will be given 5 chances to enter the correct answers for each problem. There is no penalty for using hints, although a small bonus is given for not using hints. Some tutorial problems may count as extra credit.
- Late homework: Mastering Engineering will deduct 20% per day for late homework.
- Use good practices: Note that only *answers* are submitted online. However, you should still solve your problems neatly and clearly. It is recommended that you print each problem, work it out neatly, and then submit the answers. Working problems neatly is helpful so that:
 - You will have good study materials for the tests
 - You will have clear work to show the instructor if you have questions.
- Getting help on homework: Feel free to stop by the instructor's office with questions on homework. You can also contact the instructor by email. It is sometimes difficult to explain a problem with text, so consider scanning your homework problem and attaching it to an email. Be sure to use your TCC email address as other email addresses may be blocked by our email system. Students are encouraged to work together to a limited extent; however, the work should be essentially your own. You might also check the Tutoring Lab on the Virginia Beach Campus to see if they have any tutors for EGR 140 this semester (free service).

Computer Problems:

Two computer assignments will be given in this course. Problems will be assigned where computer solutions are required. The intent of these problems is to allow the student to use the power of the computer to solve problems that would be too tedious or too complex to perform by hand (such as investigating the effect of varying a parameter in a problem). Most chapters in the text have some problems that are designated as computer problems. The assigned computer problems must be solved using MATLAB or Excel unless otherwise approved by the instructor. The instructor will provide some example solutions (using MATLAB and Excel).

Grade Policy

Course grades will be computed based on the following percentages:

Test #1 (Chapters 1-3)	15%
Test #2 (Chapters 4-5)	15%
Test #3 (Chapter 6)	15%
Test #4 (Chapters 9-10 & Section 4.9) - take-home test	15%
Final Exam (comprehensive, including Ch. 8)	19%
Homework Problems (10 assignments, drop 1)	15%
Computer Problems	6%

Grades will be assigned according to the following percentages:

90 - 100	A
80 - 89	B
70 - 79	C
60 - 69	D
0 - 59	F

Final grades are made available to each student within the Student Information System (SIS) now web delivered via MyTCC or SIS.

Based on the progression of the course, the grade distribution for each assignment may change. However, if changes are made, I will notify students in a timely manner and in writing.

Course Schedule

The following course schedule may change due to the progression of the course. The course schedule may change at the discretion of the instructor; however, students will be notified in writing when any changes/additions are made to the schedule.

Tentative Course Outline and Weekly Schedule

Date	Text Sect.	Topic	Homework Problems
T, 5-20	1, 2.1-5	Introduction, Scalars and Vectors, Vector Addition, Cartesian Vectors, Unit Vectors, direction angles	
R, 5-22	2.5-9	Unit vectors, direction angles, position vectors, dot products, vectors along a given line Introduction to Mastering Engineering due by 11:59pm Assignment #1 (Chapter 1) due by 11:59pm	Intro to Mastering Engineering shows you how to use the homework website and counts as a homework grade. 7 problems in Assignment #1
T, 5-27	3.1-4	2D and 3D equilibrium of a particle Example computer problem. Pass out Computer Assignment #1. Assignment #2 (Chapter 2) due by 11:59pm	18 problems + 7 extra credit problems in Assignment #2
R, 5-29	4.1-4.5	Cross products. Moment of a force in 2D and 3D. Moment of a force about a specific axis Assignment #3 (Chapter 3) due by 11:59pm	15 problems + 57 extra credit problems in Assignment #3
T, 6-3	4.6-4.8	Couples. Moment of a couple. Force-couple systems. Test # 1 (Chapters 1-3) – No books, no notes	
R, 6-5	5.1-5	Free-Body Diagrams. Equilibrium in 2D. 2-force and 3-force members. Constraints. Assignment #4 (Chapter 4) due by 11:59pm	17 problems+ 5 extra credit problems in Assignment #4
T, 6-10	5.6-7	Equilibrium in 3D Computer Assignment #1 due in class (-10 if late)	
R, 6-12	6.1-4	Simple Trusses. Common types of trusses. Method of Joints. Method of Sections. Zero-force members. Assignment #5 (Chapter 5) due by 11:59pm	14 problems+ 4 extra credit problems in Assignment #5
T, 6-17	6.4-6	Method of Sections. Frames. Machines. Test #2 (Chapters 4 & 5) – No books, no notes Substitute instructor	