



Official TCC Course Syllabus

Table with course details: Discipline Prefix: EGR, Course Number: 140, Course Title: Statics, Credit Hours: 3, Lecture Hours: 3, Clinical Hours, Lab Hours, Contact Hours: 3, Studio Hours, Semester: Fall 2019, Meeting Days/Time/Location: Mondays and Wednesdays 5:45 -7:00 pm, Room H-164, Advanced Technology Center, Virginia Beach Campus

Instructor Information

Name: Paul E. Gordy, PE
Office Location: H-115, Advanced Technology Center
Office Hours: As posted on office door and on course CANVAS site
Contact Information: 757-822-7175
Course Website (optional): www.faculty.tcc.edu/PGordy
CANVAS 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 264 (or MTH 174)

General Education Core Competencies Supported by this Course

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

- Critical Thinking: A competent critical thinker evaluates evidence carefully and applies reasoning to decide what to believe and how to act.
Professional Readiness: Professional Readiness is the ability to work well with others and display situationally and culturally appropriate demeanor and behavior. Degree graduates will demonstrate skills important for successful transition into the workplace and pursuit of further education.
Quantitative Literacy: Quantitative Literacy is the ability to perform accurate calculations, interpret quantitative information, apply and analyze relevant numerical data, and use results to support conclusions. Degree graduates will calculate, interpret, and use numerical and quantitative information in a variety of settings.

Required Course Texts and Supplementary Materials

- **Lecture notes:** This is 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 CANVAS 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, 14/E*, by Hibbeler. Pearson Higher Education, 2010. Textbook is bundled with: Mastering Engineering with E-Book Student Access Kit, 1E (ISBN: 9780134267029)
- **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 Engineering, then they must purchase an access code online. The course ID for Summer 2019 is **MEGORDYEGR140FA19**.
- **Calculator:** A graphics calculator like the TI-89, TI-92, HP-50, HP Prime, 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 textbooks (or is purchased online). Some of the problems are randomized, so each time the problem is accessed, different values will be used. You will be given 6 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.
- **Homework Notebook:** Note that only *answers* are submitted online. However, you must still solve your problems neatly and clearly and put them in a notebook where they will be checked before each test in the course. Print each problem, work it out neatly, submit the answers, and put the problem in the notebook.. Organizing the problems in a 3-ring binder is recommended. 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.
 - You can refer to the problems in later courses where you will be expected to know techniques covered in this course. The notebook is also great for studying for the FE exam.

- 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 (there are phone apps that will convert a picture directly to a much smaller pdf). 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).
- Homework grades: You can check your current homework average in Mastering Engineering. At the end of the semester, the instructor will transfer your homework average from Mastering Engineering to CANVAS.

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 Assignments (Mastering Engineering)	13%
Homework Notebook (Mastering Engineering)	2%
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

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

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

M, 8-19	1, 2.1-2	Introduction, Scalars and Vectors, Vector Addition,	
W, 8-21	2.2-6	Cartesian Vectors, Unit Vectors, direction angles	
M, 8-26	2.6-8	Unit vectors, direction angles, position vectors Intro to Mastering Engineering due by 11:59pm	11 problems in Intro to ME (easy!)
W, 8-28	2.8-9	Dot products, vectors along a given line	
M, 9-2		TCC closed (Labor Day)	
W, 9-4	3.1-2	2D equilibrium of a particle Assignment #1 (Chapter 1) due by 11:59pm	6 problems + 5 extra credit problems in Assignment #1
M, 9-9	3.3-4	3D equilibrium of a particle Example computer problem. Pass out Computer Assignment #1.	
W, 9-11	4.1-4	Cross products. Moment of a force in 2D and 3D. Assignment #2 (Chapter 2) due by 11:59pm	18 problems + 7 extra credit problems in Assignment #2
M, 9-16		Moment of a force about a specific axis	
W, 9-18	4.4-6	Assignment #3 (Chapter 3) due by 11:59pm Couples. Moment of a couple. Force-couple systems.	12 problems +6 extra credit problems in Assignment #3
M, 9-23	4.6-8	Test # 1 (Chapters 1-3) – No books, no notes Turn in homework notebook before the test for grading.	
W, 9-25	5.1-4	Free-Body Diagrams. Equilibrium in 2D.	
M, 9-30	5.4-5	2-force and 3-force members. Constraints. Assignment #4 (Chapter 4) due by 11:59pm	20 problems + 3 extra credit problems in Assignment #4
W, 10-2	5.6-7	Equilibrium in 3D	
M, 10-7	5.6-7	Equilibrium in 3D Computer Assignment #1 due in class (-10 if late)	
W, 10-9	6.1-3	Simple Trusses. Common types of trusses. Method of Joints.	
M, 10-14	6.3-4	Method of Sections. Zero-force members.	
W, 10-16		Test #2 (Chapters 4 & 5) – No books, no notes Assignment #5 (Chapter 5) due by 11:59pm Turn in homework notebook before the test for grading.	9 problems + 7 extra credit problems in Assignment #5

M,10-21	6.4-6	Method of Sections. Frames. Machines.	
W, 10-23	9.1-4	Center of gravity, center of mass, and centroids.	
M, 10-28	9.1-4	Finding centroids using composite shapes and using integration.	
W, 10-30	9.1-4	Centroids of volumes and lines. Assignment #6 (Chapter 6) due by 11:59pm	15 problems + 7 extra credit problems in Assignment #6
M, 11-4		Test #3 (Chapters 6) – No books, no notes Turn in homework notebook before the test for grading.	
W, 11-6	4.9	Distributed loads.	
M, 11-11	9.1-4 10.1-5	Centroids vs Center of Gravity Moments of inertia. Parallel-axis theorem. Finding moments of inertia using composite shapes and using integration.	
W, 11-13	10.1-5	Moments of inertia. Parallel-axis theorem. Finding moments of inertia using composite shapes and using integration.	
M, 11-18	10.1-5	Finding moments of inertia using composite shapes. Assignment #7 (Chapter 9 & 4.9) due by 11:59pm Test #4 posted on Canvas (Take-home test on Chapters 9 & 10 and Section 4.9)	13 problems + 4 extra credit problems in Assignment #7
W, 11-20	8.1-4	Dry friction. Coefficients of friction. Block and plane friction. Friction with wedges and screws	
M, 11-25	8.5-6	Belt friction. Axle friction. Test #4 due Turn in homework notebook with the test for grading.	8 problems + 6 extra credit problems in Assignment #8
W, 11-27		TCC closed (Thanksgiving break)	
M, 12-2	7.1-3	Internal forces in members. V and M diagrams Assignment #8 (Chapter 10) due by 11:59pm	
W, 12-4		Review for final exam. Assignment #9 (Chapter 8) due by 11:59pm	
M, 12-9		Computer Assignment #2 due in class Extra credit project due in class Final Exam – Comprehensive + Chapters 7 & 8 Assignment #10 (Chapter 7) due by 11:59pm Open-book, open-notes Turn in homework notebook before the test for grading.	12 problems + 4 extra credit problems in Assignment #9 3 problems + 2 extra credit problems in Assignment #10

CANVAS and Course Communication

Students should check CANVAS and their VCCS student email accounts regularly at least every 24 hours. The best way to reach the instructor is by email. The instructor will generally respond within 24 hours, although often much sooner.

Course Policies & Procedures

Attendance Policy

All students are expected to be present and on time at all scheduled class and laboratory meetings. Instructors are not required to admit a student who arrives late to the classroom. A student who adds a class or registers after the first day of classes is counted absent from all class meetings missed.

If a student is absent more than 15 percent of scheduled instructional time, attendance may be defined as unsatisfactory. This calculation includes absences occurring during the add/drop period. See also the Withdrawal Policy in this syllabus for more information. Per the college's attendance policy, faculty have the right to develop a more stringent policy as well. Students who do not attend or participate in class by the deadline to drop for tuition refund may be deleted from the course.

Late Work/Make-up Exam Policy:

All homework will have a specific due dates in Mastering Engineering. Mastering Engineering will deduct 20% per day for late homework. No homework will be accepted other than through Mastering Engineering.

Computer Assignments will be accepted late with a 10-point penalty. No computer assignments will be accepted after the final exam.

Classroom Behavior

TCC is committed to maintaining a social and physical environment conducive to carrying out its education mission. Therefore, all members of the TCC community are expected to demonstrate standards for civility.

Be moderate in speaking. Loud, obscene, argumentative, or threatening speech is disruptive to teaching and learning and is offensive to others. It has no place in an academic setting

Resolve any disagreements in a positive, non-combative manner. Request the assistance of college authorities if needed.

Show respect for the comfort of others in an educational setting by observing acceptable standards for personal cleanliness and dress.

Electronic Devices

Cell phones, pagers, and other communication devices are prohibited from use in classrooms, laboratories, and libraries, unless authorized by the appropriate faculty or staff. Although soundless communication devices such as cell phones and pagers are permissible in classrooms, college offices, and/or meeting rooms, they must not be answered during class.

Inclement Weather/Emergent Hazardous Conditions

Tidewater Community College uses TCC Alerts to immediately contact and inform faculty, staff and students of a major crisis or emergency. TCC Alerts delivers important emergency alerts, notifications, and updates via:

Email (work, home, other)

Text Message via Cell phone

Pager

When an incident or emergency occurs, authorized senders will be instantly notified via TCC Alerts. TCC Alerts is a personal connection to real-time updates, instructions on where to go, what to do, or what not to do, who to contact, and other important information. New users may register via the link on the College's [Closings & Emergencies](https://www.tcc.edu/closings-emergencies) webpage (<https://www.tcc.edu/closings-emergencies>).

All students are encouraged to sign up for TCC Alerts as soon as possible. If you have already subscribed, please verify your contact information is up-to-date in TCC Alerts.

Disposition of Classes for Emergency Shutdown of the College

In the event of an emergency shutdown of the college, the president and the executive staff may elect to conclude the term in session if eighty-five percent or more of that term has been completed. If the term in session is concluded, faculty shall compute final grades of students based on coursework completed at that point.

Academic Policies & Procedures

Students are responsible for being aware of the policies, procedures, and student responsibilities contained within the current edition of the TCC Catalog and Student Handbook.

Withdrawal Policy

Students who wish to withdraw without academic penalty should contact a counselor to determine the appropriate procedure. Withdrawals through completion of 60 percent of a session will result in a W grade. After 60 percent of a session is completed, a withdrawal will result in a grade of F in a credit course or a grade of U in a developmental course, except under mitigating circumstances that must be documented by the instructor and approved by the academic dean. Dynamic session classes have unique refund and withdrawal dates. Contact a campus Enrollment Services Office for more information, or visit the Academic Calendar website (URL provided in Important Websites section).

A student who drops after the last day to withdraw does not receive a 'W'. He/she receives an 'F', in which case there is both an academic and financial penalty. A student who withdraws by the deadline faces a financial penalty, but not an academic penalty.

09/04/2019	Deadline to drop for tuition refund
10/24/2019	Deadline to withdraw without academic penalty and to receive a grade of W for the course

Academic Integrity

TCC will expect students to demonstrate personal and academic integrity, to be open to new ideas, and to share in a community where individuals from diverse backgrounds and cultures help one another grow intellectually, socially, and personally.

TCC expects students to achieve, not just to get by. And while many caring and talented faculty and staff are here to help, students must take responsibility for their own learning. Students should strive for a high level of academic performance and to be responsible, contributing citizens within the college and in outside communities. Above all, TCC wants students to develop a love of learning that will last a lifetime, along with a life-long interest in maintaining emotional and physical wellness.

Student Outcomes Assessment Requirement

Work products submitted by students to fulfill course requirements may be used by the college to evaluate its academic programs and general education requirements.

Plagiarism and Academic Misconduct

Academic misconduct includes, but is not limited to, the following actions: cheating on an examination or quiz—either giving or receiving information; copying information from another person for graded assignments; using unauthorized materials during tests; collaboration during examinations; buying, selling or stealing examinations; arranging a substitute for oneself during examinations; substituting for another person, or arranging such a substitution; plagiarism—the intentional or accidental presentation of another's words or ideas; collusion with another person or persons in submitting work for credit in class or lab, unless such collaboration is approved in advance by the instructor.

Faculty members who have reliable evidence of academic misconduct will (1) investigate the matter, and (2) review the facts of the matter and the proposed penalty with the appropriate academic dean. They may then take one or more of the following actions:

Require the work to be accomplished again

Give no credit for the test, paper, or exercise

Assign a grade of **F**, **U**, or **W** for the course

Refer the matter to the campus Dean for Student Services or designee for possible disciplinary sanction through the college's disciplinary procedure

If the faculty member chooses to refer the matter to the campus Dean for Student Services or designee for disposition, the Plenary Disciplinary Procedure shall be followed, and the student's dismissal from the college is a possibility.

Educational Accessibility

Students who have documented, diagnosed disabilities, and who need special accommodations for tests, etc., are advised to see the Educational Accessibility Disabilities Services staff in Student Services so that the instructor may be notified of what accommodations are appropriate in each case. Requests for accommodations should be made to the designated campus Educational Accessibility counselor at least 45 days before classes begin. Documentation must be provided to support the need for accommodations.

Students who have been hospitalized (for medical or psychiatric reasons) **unexpectedly** during the semester shall contact the Office of Educational Accessibility Counselor for support and connection to college resources. If the student is incapacitated, a designee may make contact on their behalf.

For assistance with disabilities, contact the campus Educational Accessibility Counselor/Provider or the Coordinator of Educational Accessibility Services: call 822-7752, visit Student Services/Development, or visit the Educational Accessibility webpage (URL provided in Important Websites section).

Emergency Procedures

In the event of a bomb threat, tornado, or fire, students and staff may be directed to evacuate the building or move to an internal assembly area within the building. Evacuation routes are posted in each classroom. The map indicates the route to the nearest exit. Students should review the map to make sure that the exit routes for the building are clearly understood. The information regarding locations of the Emergency Assembly Areas and Internal Assembly Areas for all classrooms or spaces used on the various campuses is available on the Crisis and Emergency Management Plan (CEMP) webpage (<https://web.tcc.edu/emergency/cemp.htm>). If you require assistance during an evacuation, let your instructor know at the end of the first class.

Student Success Resources

The following resources are available to TCC students. Visit the Student Handbook webpage for more information about student services and locations.

Library

A library is located at each TCC campus and at the Visual Arts Center. These libraries are intended for research and study, and they contain materials in print and digital format to support the courses, curricula, and mission of the college. The research materials include books, newspapers, magazines, journals, DVDs, streaming media and an extensive collection of indexes, abstracts and full-text databases. Faculty members may place materials on reserve in the libraries for their students. Visit the Library webpage for more information: <http://libguides.tcc.edu/LibraryPage>

Academic Support Services

Each campus provides various kinds of academic assistance. One-on-one tutoring, math and computer labs, and other forms of individual and group assistance may be available. Students can also find free

help for writing, from short questions about commas and comma splices to a comprehensive review of research papers in progress, in the Writing Centers.

Online Learning Help Desk

Visit the following website for Canvas support: <https://www.tcc.edu/student-services/canvas-support>
Canvas offers 24/7 support for students via phone (877-875-8359) and live chat. Live chat support can be accessed from the Help menu once you log into Canvas.

TCC provides Canvas support Monday to Friday, 8:30 a.m. to 5 p.m., by phone (757-822-1470), email (canvas@tcc.edu), and [online request form](#).

Important Websites

- College Website: <https://www.tcc.edu>
- Closings and Emergencies: <https://www.tcc.edu/closings-emergencies>
- Student E-mail: <https://tcc.my.vccs.edu>
- Educational Accessibility: <https://www.tcc.edu/student-services/personal-support/students-disabilities>
- Student Handbook: <https://www.tcc.edu/studenthandbook>
- TCC Catalog: <https://www.tcc.edu/academics/catalog/>
- Class Schedule: <https://m.sis.vccs.edu/index.php/app/catalog/classSearch?institution=TC295>(or log-in to SIS for current course offerings)
- Academic Calendar: <https://www.tcc.edu/academics/calendars/>
- For current financial aid information and assistance, visit <https://www.tcc.edu/paying-for-tcc/financial-aid/> or <https://studentaid.ed.gov/>
- Library: <https://libguides.tcc.edu/LibraryPage>.