Walters State Community College
Course Syllabus for ENGR 2110, “Engineering Statics”
Fall 2014

Instructor: Dr. Sean M. Cordry, Associate Professor of Physics
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Office Hrs: Posted outside instructor’s door
Dpt. Contact: (423) 585-6865 (Division Assistant), FAX: (423) 585-2762


Catalog Course Description: A study of forces, moments, vector quantities, static equilibrium with applications to structures, friction, center of gravity, and second moments. (Prerequisite: MATH 1920) 3 hours lecture

Welcome!
Hello, and welcome to “Engineering Statics.” This four-credit course begins your introduction to physics as an academic discipline. The class will be divided into four sections: Forces – Basics – a review of forces as vector quantities, Static Equilibrium – forces and moments in equilibrium, Forces and Structures – how structures respond to different forces, and finally, Geometry of Structures – computing important geometric quantities of structures.

Student Learning Outcomes
Here are your student learning outcomes; in other words, these are the things you should know how to do at the end of the semester.

1. Forces – Basics (Units, Vector Addition, Vector Scalar Products, Forces, Translational Equilibrium, Free-body Diagrams)
   a. Correctly solve a variety of vector mathematics problems involving addition and scalar products; provide an geometrical interpretation of the scalar product.
   b. Draw appropriate free-body diagrams, indicating the correct forces acting on the object of interest.
   c. Apply the concept of translational equilibrium to solve a variety of multi-force situations.

2. Static Equilibrium (Vector cross-product, Moments, Force-Couple Systems, Rigid-body Equilibrium)
   a. Correctly solve a variety of cross-product vector problems.
   b. Determine the net moment created by multiple forces acting on an object at different points of contact.
   c. Reduce complex force application scenarios to a force-couple system.
   d. Apply the concept of rotational equilibrium to solve a variety of multi-force situations.

3. Forces and Structures (Trusses, Method of Joints, Method of Sections, Internal Forces, Shear, Distributed Forces, Dry Friction, Wedges, Screws)
   a. Apply the Method of Joints and the Method of Sections to analyze the internal forces in simple trusses.
   b. Calculate the net force and moment on structures resulting from a distributed load.
   c. Explain the role of dry friction in wedges and screws; solve a variety of static problems involving friction.

4. Geometry of Structures (Center of Mass, Centroids, Moments of Inertia)
   a. Determine the center of mass for well-defined objects – including composite objects, using appropriate mathematical tools including the theorems of Pappus and Guldinus.
   b. Calculate the moment of inertia about various axes for a well-defined object.
Performance Indicators
In order to issue you a grade for your learning, I have to have some indicators that give me a basis for judging what you’ve learned. There will be reading quizzes, tests, homework, a laboratory grade, and a final exam. The table below shows how the various “events” will be incorporated into your final grade.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>%</th>
<th>Details</th>
<th>If missed (excused)…</th>
</tr>
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<tbody>
<tr>
<td>Tests</td>
<td>30</td>
<td>Covers conceptual and definitive aspects of recent material. Tests are not cumulative. All tests must be taken to pass the course.</td>
<td>Missed tests are handled on a case-by-case basis. Students should provide notice at least a week in advance; generally, tests will be made-up within a week of the original test date.</td>
</tr>
<tr>
<td>Final Exam</td>
<td>20</td>
<td>Comprehensive exam broadly covering all topics of course content.</td>
<td>Consultation with the department chair and the division dean will be required. Notice must be given two weeks in advance.</td>
</tr>
<tr>
<td>Pasta Project</td>
<td>10</td>
<td>Details will be given at a later date. Students will construct a model using pasta and Superglue®.</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Lab Work</td>
<td>10</td>
<td>Students will engage in a variety of lab experiences; some of these will require post-lab analysis to be turned in via eLearn.</td>
<td>See instructor.</td>
</tr>
<tr>
<td>Mastering Engineering Online</td>
<td>30</td>
<td>Students will need to purchase a homework account with Mastering Engineering. Instructions for doing this are posted on eLearn, along with the appropriate course code.</td>
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The following performance levels will be used for issuing grades.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Minimum Percent</th>
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<tbody>
<tr>
<td>A</td>
<td>≥90</td>
</tr>
<tr>
<td>B</td>
<td>80</td>
</tr>
<tr>
<td>C</td>
<td>70</td>
</tr>
<tr>
<td>D</td>
<td>60</td>
</tr>
<tr>
<td>F</td>
<td>&lt;60</td>
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If you feel that there has been an error in the grading of an individual test or assignment, please let me know within a week of getting it back; I will certainly correct any errors in grading, and I’m happy to consider giving additional credit where it is merited. If you are over-awarded credit, you may consider it a fortuitous gift of Chance; i.e., if you get five points, but only deserved two, I won’t take those extra three points away from you.

After one week of being returned, all assigned scores are “locked-in” and will not be changed.

Class Time and Classroom Expectations
My task is something like a museum guide: you will get a general idea about a museum display on your own, but the guide will point out the especially interesting aspects and overlooked details. Similarly, I will focus classroom time on the more difficult concepts and ideas. Most of the time I will try to have active things for us to do, so bring your calculator and come prepared to participate. It will be rare when I just give you a straight lecture where you will just sit and take notes.

My expectations for you are no different than you would have for yourself attending a concert: you would want to arrive on-time; you would want a good seat; you would want to pay close attention so you didn’t miss anything; you would expect others to allow you to enjoy the concert; in short, you would want to maximize your experience. So how do you maximize your experience in class? Be on time. Get a good seat. Pay close attention. Allow others to pay attention.

I also don’t expect any more or less from you than I do from myself:
1. **I’ll come to class ready.** You can too by reading the sections before class. I won’t be a textbook with lips, so you’ll need to keep up with the reading. **Always** start your reading by looking at the pictures first and then reading the summary; this will give your brain a mental map of the information that is coming in.
2. **I won’t sleep through class.** You should make sure you get plenty of rest. Studies show that a lack of sleep leads to memory retention problems and a decrease in analytical thinking ability.
3. **I will give you my full attention.** Please give me yours. “Texting” or “surfing the web” during class is rude and unacceptable. You have chosen to come to class. I will make it worth your time; you should too.

4. I’ll often have something to drink – and sometimes a snack, but I’ll always take care of my trash and leave the room clean. If you want to bring a snack or drink, that’s fine; just make sure that the next person to sit at your desk can’t tell.

5. **I won’t talk about you behind your back.** If I should do or say something that seems strange or out-of-line, please come talk to me about it. (If you feel awkward talking to me about it, please talk with Dr. Jeffrey Horner; he’ll keep your identity anonymous and relay your concern to me.)

**Always bring your calculator.**

I look forward to having a good semester with you. It will be a great adventure!

I reserve the right to make changes to this syllabus in the event that I might deem such necessary to enhance the learning experience of all students.

Sean M. Cordry
Course Ground Rules

All students attending Walters State Community College, regardless of the time, location, or format of the class, must abide by the rules and regulations outlined in the current Walters State Catalog/Student Handbook and the current Walters State Timetable of Classes. The Catalog/Student Handbook and the Timetable of Classes are online at: http://ws.edu

Students must attend the first day of on-ground class or contact the instructor prior to the first class. Failure to do this may result in being dropped from the class. Excessive absences may substantially lower the course grade.

Students enrolled in web courses must follow the course attendance policy defined for online attendance during the first week of class and throughout the term. Failure to do this may result in being dropped from the class during week one OR may result in the accrual of absences which may negatively impact the student’s grade in the course.

Plagiarism, cheating, and other forms of academic dishonesty are prohibited. The minimum penalty for cheating is a “0” (zero) on the examination or assignment. Academic dishonesty may result in an “F” for the course. Additional information can be found in the WSCC Catalog/Student Handbook at: http://ws.edu.

Students with disabilities must register with Student Support Services each semester in the Student Services Building, Room U134 (phone 423-585-6892) if they need any special facilities, services, or consideration.

Students in need of tutoring assistance are encouraged to contact the Office of Student Tutoring located as follows:
- Morristown Campus - Student Services Building Room L107 – (423) 585-6920
- Greeneville Campus – Room 420 - (423) 798-7982
- Sevierville Campus - Marshall-Maples Hall Room 118 – (865) 286-2787
- Claiborne Campus – Room 123A (423) 851-4761

Specific tutoring assistance in mathematics and writing is available in-person and online as follows:
- Morristown Campus – Mathematics Lab – MBSS 222 - (423) 585-6872
  o http://ws.edu/academics/mathematics/learning-lab
- Morristown Campus – English Learning Lab – HUM 120 – (423) 585-6970
  o https://www.ws.edu/academics/humanities/writing-lab

Students who need assistance with computing and technology issues should contact the IET Helpdesk by phone at Morristown: 423-318-2742 Greeneville: 423-798-8186 or Sevierville: 865-286-2789 or on-line access at: http://helpdesk.ws.edu/.

Students receiving any type of financial aid or scholarship should contact the Financial Aid Office before making any changes to their schedule. Schedule changes without prior approval may result in loss of award for the current term and future terms.

Students who have not paid fees on time and/or are not correctly registered for this class and whose names do not appear on official class rolls generated by the Walters State student information system (StarNET) will not be allowed to remain in class or receive credit for this course.

Electronic devices must not disrupt the instructional process or college-sponsored academic activity. Use of electronic devices is prohibited unless use of the device is relevant to the activity
and use is sanctioned by the faculty member in charge. Electronic devices that are not relevant to the activity or sanctioned by the faculty member in charge should be set so that they will not produce an audible sound during classroom instruction or other college-sponsored academic activity.

For information related to the cancellation of classes due to inclement weather, please check the college’s Web site at [www.ws.edu](http://www.ws.edu) or call the college’s student information line, 1-800-225-4770, option 1; InfoConnect, (423) 581-1233, option 1045; the Sevier County Campus, (865) 774-5800, option 7; or the Greeneville/Greene County Campus (423) 798-7940, option 4. Also, please monitor local TV and radio stations for weather-related announcements. For additional information on this policy see the college catalog at: [http://ws.edu](http://ws.edu)

Dual Enrollment students attending on a high school campus should refer to the high school inclement weather cancellations.

In the event of a pandemic or other college-declared critical event that impacts the college's ability to proceed with academic course activities as planned, the college reserves the right to alter this course plan. In the event of a pandemic or other event, please refer to the college’s home web page, [www.ws.edu](http://www.ws.edu) or call InfoConnect, (423) 581-1233 for further information.

Regular class attendance is a student's obligation for any course regardless of format. (See the Walters State Catalog/Student Handbook) If a student misses class, it is his or her responsibility to contact the instructor regarding missed assignments and/or activities and to be prepared for the next class assignment.

All forms of student Financial Aid may be jeopardized or lost due to the lack of Satisfactory Academic Progress in one or multiple courses. Lack of Satisfactory Academic Progress may negatively impact a student's degree/certificate completion pace and further jeopardize Financial Aid eligibility.

**WSCC Catalog Notification Statement:**
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**Alternative Teaching Plan**
In the event of a pandemic or other college-declared critical event, the lead faculty member for this course will use eLearn to communicate with the students. If the lead faculty member is affected by this event, another member from the teaching team will assume instruction for the course. The course will continue utilizing an online format of instruction and testing.

General Education Core Competency (CC) courses – ENGL 1010, SPCH 2010, MATH 1530 or 1630 or 1710, and CPSC 1100 or MGMT 1100 – must be completed by the time the student completes 30 hours of college credit towards a degree at Walters State Community College. Completion of the courses with a passing grade is the primary form of documentation of competency. Alternate methods of documentation are described in the College Catalog (“General Education Competency Requirements”).
Drop Dates for Current Term
The last day to drop a course or withdraw from the college-full term for Fall 2014 term is November 5, 2014.

The last day to drop a course or withdraw from the college-full term for Spring 2015 term is April 2, 2015.

ATTENTION: The Natural Science faculty members are concerned with proper academic advising of students in ALL Pre-Professional programs. It is our explicit desire to help you with any advising problems you may encounter.