Welcome!
Hello, and welcome to “Engineering Dynamics.” This four-credit course continues your introduction to the basic physics underlying many engineering disciplines. The class will be divided into three sections: Translational Kinematics – describing and analyzing translation, Rotational Kinematics – describing and analyzing rotation, 3-D and Vibration – rotational and translation kinematics and simple harmonic motion.

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. **Translational Kinematics**
   a. Explain and demonstrate an ability to use basic kinematics equations of motion in rectangular and cylindrical coordinates.
   b. Derive equations of motion from Newton’s Second Law of Motion; solve a variety of problems involving Newton’s Second Law.
   c. Explain the concept of conservation of energy, conservative forces, and work; use these concepts to solve a variety of problems.
   d. Use conservation of momentum in a variety of contexts.

2. **Rotational Kinematics**
   a. Demonstrate an ability to use kinematics to solve a variety of rotation problems in both relative and absolute coordinates.
   b. Apply the concepts of torque and moment of inertia to solve rotation problems.
   c. Use the concept of rotational conservation of energy and rotational work.
   d. Differentiate between translational and rotational momentum and impulse; be able to apply this knowledge.

3. **3-D and Vibration**
   a. Demonstrate an ability to perform translational and rotational kinematical analysis in three spatial dimensions.
   b. Explain the concepts of simple harmonic oscillation, resonance and damping; use these concepts in a variety of problem contexts.
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>60</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>
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<tr>
<td>Online Homework</td>
<td>10</td>
<td>Homework answers will be submitted online. Certain problems must be entered in the HW Journal.</td>
<td>Not applicable.</td>
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<tr>
<td>Homework Journal</td>
<td>5</td>
<td>A dedicated Homework Journal will be required. (Use a composition book.) Entry for each problem: goal, sketch, relevant equations, constants, and worked-out solution.</td>
<td>Consultation with the department chair and the division dean will be required. Notice must be given two weeks in advance.</td>
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<tr>
<td>Final Exam</td>
<td>25</td>
<td>Comprehensive exam broadly covering all topics of course content.</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

Pretty simple:

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.
2. I won’t sleep through class. You should make sure you get plenty of rest.
3. 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.
4. 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 confidential 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
**Additional Important Information**

- Students should attend the first day of class or contact the instructor prior to the first class. Failure to do this may result in being dropped from the class.
- Plagiarism, cheating, and other forms of academic dishonesty are prohibited.
- Students with disabilities must register with Student Support Services (CCEN), Room 262 (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 in the College Center (CCEN), Room 261. The phone number is 423-585-6920.
- 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 Admissions and Records Office will not be allowed to remain in class or receive credit for this course.
- Cellular phone use during classroom interaction is prohibited. Cellular phones must be turned to the non-audible mode until after class, at which time calls can be received or checked. (See the Walters State Catalog/Handbook)
- For information related to the cancellation of classes due to inclement weather, please check the college’s Web site at 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 Center for Higher Education, (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.
- 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 or call InfoConnect, (423) 581-1233 for further information.
- Regular class attendance is a student’s obligation. (See the Walters State Catalog/Student Handbook) If for some reason a student misses class, it is his or her responsibility to see the instructor regarding missed assignments and/or activities and to be prepared for the next class. Excessive absences may substantially lower the semester grade. The college requires the instructor to keep accurate records and to report when students are not attending class.
- The wearing of hats and caps in class is not allowed! Students will be asked to remove their hats and caps.

**WSCC Catalog Notification Statement:**
All students attending Walters State Community College, regardless of the time and location 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.” A copy of the Catalog/Handbook and the “Timetable of Classes” may be obtained from the Admissions Office on the Main campus or at any of our off-campus sites. You may also access the Catalog/Handbook on-line at the following web address: http://www.ws.edu/catalog.

**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.

**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.