

Course Syllabus

Instructor	Dr. Arash Noshadravan (Dr. Noshad) 702C CEOB (Civil Engineering) noshadravan@tamu.edu
Catalogue Description	CVEN 363. Engineering Mechanics: Dynamics. (2-2). Credit 3. Application of first principles to model dynamic particles and rigid body systems with ordinary differential equations; solutions to models using analytical and numerical approaches; interpreting solutions/performance measures; linear vibrations; modeling of civil engineering systems and evaluating dynamic response to natural hazards.
Lectures	TR 8:00-8:50 am, Civil Engineering Lab (CVLB) 421
Laboratory	TR 9:00-9:50 am, Civil Engineering Lab (CVLB) 421
Office Hours	TR 11:00 am-12:00 pm and appointments as required
Prerequisite	CVEN 302, CVEN 305 and MATH 308
Textbook	<i>Engineering Mechanics - Dynamics</i> , by R. C. Hibbeler 14 th ed. (ISBN 10:0133915387)
Course Objectives	<p>The objective of this course is to obtain an understanding of particle and planar rigid body kinematics and kinetics; develop an understanding of Newton's laws of motion and the ability to apply energy and momentum methods to particles and rigid bodies in planar motion; obtain an introductory knowledge of vibrations in one degree of freedom systems. At the end of this course the student should be able to:</p> <ul style="list-style-type: none"> • Describe the kinematic and kinetic analyses for particles and systems of particles. • Employ momentum and energy methods for particles and systems of particles. • Describe the kinematic and kinetic analyses for planar rigid bodies. • Employ the momentum and energy methods for planar rigid bodies. • Discuss the fundamental of vibrations in one degree of freedom systems.

Grading

Collected in-class exercises	10 %
Homework	10 %
Unit Exams	50 %
Final Exam	30 %
Total	100%

A: $P \geq 90$; B: $90 > P \geq 80$; C: $80 > P \geq 70$; D: $70 > P \geq 60$; F: $60 > P$

- Beason's Grading Rubric ([here](#)) will be used to score students' work.
- There is no possibility for extra credit in any form; everyone is treated equally.

Homework

I will begin each class period by listing the day's reading and a homework assignment. Unless indicated otherwise, the homework assignments made during the week are due at the first class meeting of the following week. Please observe these format rules in preparing your work:

- (i) engineering paper (an acceptable engineering paper can be found [here](#) as an example)
- (ii) one problem per page
- (iii) list the problem number on the top left of each page
- (iv) STAPLE TOGETHER ALL THE ASSIGNED PROBLEMS FOR THE WEEK
- (v) in the upper right corner of the first page, write the date the assignment is due.

A problem copied from another student is a violation of the Aggie Honor Code. You may collaborate, but you must write up your work independently. Problems obviously copied from a solutions manual will receive no credit.

In-class exercises (ICE)	We will distribute an exercise for you to work through during the lab sessions. Sometimes I will lead you through the steps necessary to complete it. Sometimes I'll only provide an occasional hint. And sometimes you're on your own. But in any case, free interaction among students, as well as peer mentors/TAs is expected and strongly encouraged.
Unit Exams	We will cover selected material from 9 chapters of the Hibbeler book. The material breaks down nicely into about 4-5 well defined units. After completing a unit, I will test you over the material with an exam which typically will run up to 60 minutes, sometimes shorter, depending on material covered. I will try to provide at least a one week heads-up through in class and eCampus notifications for each of these.
Final Exam	Closed book and notes, with appropriate formula sheets provided. Exam will be comprehensive and administered according to the official schedule of final exams.
Missed Work	There will be no make-up work in this course, except as noted in the last sentence of this paragraph. If you should miss an in-class exercise, unit exam, or fail to turn in a homework assignment you will receive a grade of zero unless resulting from a university excused cause (see http://student-rules.tamu.edu/rule07). In the case of a university excused absence, you may communicate the date(s) missed via email either before or after the absence. If excused, the missed grade will be replaced by an "Exempt" in the eCampus gradebook. I will drop your lowest homework and in-class exercise grades before computing your averages. A missed unit exam is, in general, unacceptable without prior arrangement. If in my judgement the number of missed unit exams for any student becomes excessive, I reserve the right to administer make up exams at a mutually agreed upon date.
Distribution of Graded Materials	Graded materials may be returned by passing them out in a single file folder, and each student has to retrieve her/his own paper. In an effort to return graded work in a timely manner, it is assumed that each student has waived his or her right to privacy in this instance only. If you do not wish to have your homework paper returned in class, you must notify the professor in writing, and will instead personally pick up graded work from the grader assigned to this class/or from instructor's office , upon presentation of a photo ID.
Gradebook Errors	Your grades will be available to you in eCampus. Any mistakes made in recording your grades should be reported by email promptly. An attached scan of the paper in question will facilitate the correction.
Re-Grading Policy	Great care is taken to ensure that your homework problems and exams are graded correctly, fairly and consistently. However, there may be instances when a mistake has been made in grading your work. <u>Any re-grade request must be submitted in writing within one week after it has been returned to you. The written request must explain in detail where you believe you deserve points back.</u> You must then sign this statement. Any work submitted after this one-week period will not be re-graded. The entire problem is then open for a re-grade; your new score may be higher or lower than before. Discussions about grading will not be conducted in person. However, I will be happy to discuss the material and concepts covered in the problem with you during office hours. This policy includes major exams.
Academic Dishonesty	Cheating on quizzes and exams will not be tolerated. Cheating will be reported and handled in accordance with the Aggie Honor System Process. All examinations will be closed book; "looking at another student's examination or using external aids (for example, books, notes, conversation with others, or electronic storage devices)" during these examinations is a violation of Texas A&M Aggie Honor Code, Cheating. <i>"An Aggie does not lie, cheat, or steal or tolerate those who do."</i> Students are expected to understand and abide by the Aggie Honor Code presented on the web at: http://www.tamu.edu/aggiehonor No form of scholastic misconduct will be tolerated. Academic misconduct includes cheating, fabrication, falsification, multiple

submissions, plagiarism, complicity, etc. These are more fully defined on the above web site. Violations will be handled in accordance with the Aggie Honor System Process described on the web site.

Special Accommodations

Any student needing special accommodations - please discuss your situation with me during the first week of class.

Americans with Disabilities Act

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit <http://disability.tamu.edu>.

It is your responsibility to contact the Office of Disability Services and notify me early in the semester if you intend to exercise your rights under the ADA. The Office of Disability Services is in complete charge of administering the ADA provisions. The Office of Disability Services has very strict rules regarding scheduling and timing. You must clear your participation in the ADA program with the Office of Disability Services early in the semester.

Topical Coverage

- Kinematics of particles
 - Kinetics of particles: forces and accelerations
 - Kinetics of particles: energy and momentum
 - Kinematics of rigid bodies
 - Plane motion of rigid bodies: forces and accelerations
 - Plane motion of rigid bodies: energy and momentum
 - Mechanical vibrations
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