



Instructor: Evan Vargas
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Office Hours in Levelland Campus:
 M: 11:30-2:00 W: 11:00-1:30 F: 9:00-12:00
Or by Appointment

Engineering 2302 – Dynamics
Section 001: Tuesday/Thursday 2:30-4:15 PM
Room: Building 2, 226, Reese Campus

Course Information

- Textbook** *Engineering Mechanics: Dynamics (13th OR 14th Edition)* by Hibbeler, 2017, Pearson
- Materials** Pencils, erasers, and paper
- Description** This course is the first in the dynamics sequence of three courses: ENGR-2302 Dynamics, Systems & Vibrations, and Control of Dynamic Systems.
- Purpose** Reinforce the isolation of free body diagrams and apply vector forms of the laws of elementary mechanics as well as stressing differential equation nature of dynamic models. Conservation equations of mechanics to analysis of motion. Provide an introduction to simulation based design analysis
- Requirements** A student should attend all class sessions, take notes, participate in class, complete all homework assignments, pass classroom quizzes, and pass examinations.
- Learning Outcomes**
1. Six step process for formulating solutions to dynamics problems
 2. Apply free body diagrams and utilize simple differential equations
 3. Kinematics and kinetics of particles and rigid bodies
 4. Newton’s law of motion
 5. Force, Acceleration, Work, Energy, Impulse, Momentum
 6. Linear and Angular aspects
 7. 3-D Kinematics and kinetics of rigid bodies
 8. Vibrations

Grading

Weights	Homework	10%	Grading Scale	90-100	A
	Quiz	10%		80-89	B
	Exams (4)	15% each		70-79	C
	Final Exam	20%		60-69	D
	Total	100%		0-59	F

- Homework Assignments** Homework will be assigned daily/weekly via class or Blackboard. Homework will be collected at the beginning of class without receiving penalty. Late homework will be accepted as follows.
1. -15% for tardiness
 2. -50% for next class period
 3. -100% otherwise

Quizzes Quizzes will be given once a week and will contain material pertaining to Homework and previous lecture material. No make-up quizzes will be allowed.

Exams Exams will cover material from Homework, Quizzes, and Lectures as indicated by the course itinerary. Examinations will be a combination of open answer, fill in the box, and/or multiple choice. Students need only bring pencils, lead, and erasers. No other material will be required unless stated in class.

Cell phones, smart watches, tablets, computers, etc. **are not allowed** and students will be asked to remove their device(s) or leave the class. Students seen with and using unapproved devices will receive an automatic 0 for the exam and be dropped.

Final Exam A **comprehensive** final exam will be given at the end of the semester. Failure to attempt the final exam will result in a failing grade for the course. The final exam will be given on **Tuesday May 7th 2019 from 1:00 PM to 3:00 PM**. Conflicting test schedules must be worked out with instructors.

Classroom Policies

Disclaimer The instructor reserves the right to amend any class policies as deemed necessary by the instructor or South Plains College and will announce any changes in class. If a student has any questions about a change in policy ask the instructor.

Class Cancellation Policy In the event of class being canceled by the school/instructor, the student will be responsible for the lecture material missed. The class will continue on the following class day. All information will be on Blackboard and/or sent via email to be accessed by the student.

Attendance Policy Students are expected to attend all classes in order to be successful in this course. The student will be administratively withdrawn from the course when absences become excessive. **If a student is reported absent for three days during the semester without prior consent to instructor or for emergency reasons, that student will be dropped from the course.** If a student should be absent during the schedule class times the student must notify the instructor otherwise any work will be forfeited.

Withdrawal To withdraw from this class, the student will need to go to the Admissions and Records office either on the Levelland campus or the Reese Center campus, and fill out a drop notification form.

Email Policy The instructor will only acknowledge, respond, and send emails to your assigned SPC email. This ensures the intended recipient receives all correspondence from the instructor.

Final Grading Policy All grades are rounded from the tenths place, e.g. 80.5 = 81, 80.49 = 80. Upon the submission of grades at the end of the semester. **ALL GRADES ARE FINAL**

Returning Grades Policy The instructor will attempt to return grades by the next class meeting; however, the instructor reserves the right to have at least one (1) week to grade assignments and post grades from the due date.

Diversity Statement In this class, the teacher will establish and support an environment that values and nurtures individual and group differences as well as engagement and interaction. Understanding and respecting multiple experiences and perspectives will serve to challenge and stimulate all of us to learn about others, about the larger world and about ourselves. By promoting diversity and intellectual exchange, we will not only mirror society as it is, but also model society as it should and can be.

Disabilities Statement Students with disabilities, including but not limited to physical, psychiatric, or learning disabilities, who wish to request accommodations in this class should notify the Disability Services Office early in the semester so that the appropriate arrangements may be made. In

accordance with federal law, a student requesting accommodations must provide acceptable documentation of his/her disability to the Disability Services Office. For more information, call or visit the Disability Services Office at Levelland (Student Health & Wellness Office) 806-716-2577, Reese Center (Building 8) 806-716-4675, or Plainview Center (Main Office) 806-716-4302 or 806-296-9611

Religious Holy Days	Section 51.911, Texas Education Code, South Plains College will allow a student who is absent from class for the observance of a religious holy day to take an examination or complete an assignment scheduled for that day within seven (7) calendar days after the absence. Students are required to file a written notification of absence with each instructor within the first fifteen (15) days of the semester (Friday, February 1st 2019) in which the absence will occur. Forms for this purpose are available in the Student Services Office along with instructions and procedures. "Religious holy days" means a holy day observed by a religion whose place of worship is exempt from property taxation under Section 11.20, Tax Code.
Sexual Misconduct	It is important for students to know that all faculty members are mandated reporters of any incidents of sexual misconduct. Faculty cannot keep information about sexual misconduct confidential if students share that information. SPC offers advisors that students can confidentially seek out in the Health & Wellness Center. These advisors have the best interest in students and information can be accessed on campus or even in the local community.
Campus Concealed Carry	Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in South Plains College buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and South Plains College policy, license holders may not carry a concealed handgun in restricted locations. For a list of locations and Frequently Asked Questions, please refer to the Campus Carry page at: https://www.southplainscollege.edu/campuscarry.php
Academic Honesty	Students are expected to uphold the ideas of academic honesty; all work that is submitted for grading must be your own. Violation of this policy will result in an F for the assignment(s) and the student dropped with an F letter grade. For more details on what is considered cheating, see the South Plains College catalog.
Equal Opportunity	South Plains College strives to accommodate the individual needs of all students in order to enhance their opportunities for success in the context of a comprehensive community college setting. It is the policy of South Plains College to offer all educational and employment opportunities without regard to race, color, national origin, religion, gender, disability, or age.
Recording Devices	Students are not allowed to use recording devices such as audio or video during class unless approved by the instructor
Resources	Students may utilize free tutoring provided by SPC. Tutoring is available at all SPC campus locations. Please consult with the instructor for further information.
Non-Discrimination Statement	South Plains College does not discriminate on the basis of race, color, national origin, sex, disability or age in its programs and activities. The following person has been designated to handle inquiries regarding the non-discrimination policies: Vice President for Student Affairs, South Plains College, 1401 College Avenue, Box 5, Levelland, TX 79336. Phone number 806-716-2360.

Course Itinerary Planned schedule; subject to change as necessary.

Week 1	January 15	Introduction, Particle Kinematics , Rectilinear Continuous/Erratic Motion
	January 17	General Curvilinear Motion, Projectile Motion, Rectangular Components
Week 2	January 22	Curvilinear Normal and Tangential Components, Cylindrical Components
	January 24	Motion Analysis of Two Particles, Relative Motion of Translating Axes
Week 3	January 29	Particle Kinetics: Force/Acceleration , Newton's Second Law, Eq. of Motion
	January 31	Rectangular Coordinates, Normal, Tangential, and Cylindrical Coordinates
Week 4	February 5	Examination 1
	February 7	Particle Kinetics: Work and Energy , Work of a force
Week 5	February 12	Principle of Work and Energy, For System of Particles, Power and Efficiency
	February 14	Conservative Forces and Potential Energy, Conservation of Energy
Week 6	February 19	Particle Kinetics: Impulse and Momentum , Linear Impulse and Momentum
	February 21	System of Particles, Con. of Momentum for Systems, Impact
Week 7	February 26	Angular Momentum, Motion Relation and Principles, Fluid Streams
	February 28	Examination 2
Week 8	March 5	Rigid Body Kinematics , Planar Rigid-Body Motion, Translation
	March 7	Rotation about fixed Axis, Motion Analysis, Relative-Motion: Velocity
Week 9	March 19	Instantaneous center of zero velocity, Relative-Motion: Acceleration
	March 21	Rigid Body Kinetics: Force/Acceleration , Mass Moment of Inertia
Week 10	March 26	Kinetic Eqs of Motion, Translation,
	March 28	Rotation about fixed axis, General Plane Motion
Week 11	April 2	Examination 3
	April 4	Rigid Body Kinetics: Work/Energy , Kinetic Energy
Week 12	April 9	Work of Force, Work of a couple moment
	April 11	Principle of Work/Energy, Conservation of Energy
Week 13	April 16	Rigid Body Kinetics: Impulse/Momentum , Linear and Angular Momentum
	April 18	Principle of Impulse and Momentum,
Week 14	April 23	Conservation of Momentum, Eccentric Impact
	April 25	Examination 4
Week 15	April 30	Vibrations , Undamped Free Vibration, Energy Methods, Forced Vibration
	May 2	Final Examination Review
Week 16	May 7	Final Exam: 1:00-3:00 PM