Dynamics
The University of Texas at Dallas
Summer 2020 - Syllabus

Course Details

Course Number:	**MECH – 2330.0u1 (53991)**
Course Discipline:	**Mechanical Engineering**
Lecture Time Slot:	**MW 12:30 p.m. – 2:45 p.m*.**
Lecture Format:	**Online delivery:** Lectures will be delivered via **Blackboard Collaborate****. They can be accessed by logging into eLearning (note: Chrome browser is preferred). Blackboard collaborate is a link on the left side of the webpage. While it is straightforward to join a session from there, if you need further information please refer to the "Helpful links for PARTICIPANTS" section in the weblink below https://ets.utdallas.edu/elearning/resources/software/blackboard-ultra section is available at the bottom of the webpage

Teaching

Instructor: Dr. P.L.Stephan Thamban Grader/TA: TBD
Email: stephan@utdallas.edu (course in subject line, complete sentences, basic email etiquette is expected)
Office hours: W 10:00 a.m. - 12:00 p.m. (or by appointment)

Online Office-hour Session Format – Office hour sessions will be conducted online via Microsoft Teams. Students can log in using their **utdallas email account** directly by going to login.microsoftonline.com or download the Microsoft teams app and sign in with their utdallas email account. Microsoft teams is also part of the Microsoft office suite package.

Course materials requirement

You are required to be registered in the online course (for HW assignments) at www.MasteringEngineering.com and have a copy of the textbook (in regular or electronic format)

Online registration information: (@ www.MasteringEngineering.com)

Course title: DYNAMICS_SUMMER_2020_MECH-2330
Course ID: METHAMBAN9693702
ISBN-13 9780133952018

* Instructor may choose to split the lecture period to have live and pre-recorded segments to cover the material.
** Instructor considers this as the primary modality to meet with students regularly but may choose to include pre-recorded lectures on learning modules on eLearning for instruction purposes.

Textbook options:

Engineering Mechanics: Statics & Dynamics plus MasteringEngineering with Pearson etext Access Card package, 14th edition, R.C. Hibbeler, Prentice Hall, ISBN-13 978-0134117003 (or)

Engineering Mechanics: Statics & Dynamics, 14th edition, R.C. Hibbeler, Prentice Hall, ISBN-13 978-0133915426 (or)

Engineering Mechanics: Statics & Dynamics, 14th edition (loose leaf), R.C. Hibbeler, Prentice Hall, ISBN-13 978-0134228242 (or)

Engineering Mechanics: Statics & Dynamics, 14th edition, R.C. Hibbeler, etext with MasteringEngineering access, ISBN-13 978-0133941296

Prerequisites / Co-requisites

Prerequisites: MECH 2310. Pre/Co-requisites: ENGR 2300 or MATH 2420

Course Description

We will have discussions on kinematics and kinetics of particles, planar rigid bodies, three-dimensional rigid bodies and equations of motion. We will study methods/analysis utilizing force and acceleration, work and energy and impulse and momentum to understand dynamics of rigid bodies. Single degree of freedom vibration systems and computational engineering tool will be introduced.

Course Objectives/ Outcomes

(1) Apply and interpret the principles of work & energy to systems of particles and rigid body dynamic systems.
(2) Apply and interpret the principles of impulse and momentum to systems of particles and rigid body dynamic systems.
(3) Apply Newton's law to derive equation of motion and solve dynamic system problems.
(4) Demonstrate the ability to apply all of the above to realistic dynamic systems and engineering mechanisms and simulate the dynamical systems using modern engineering tools.

Tentative Schedule

COURSE CONTENT, COURSE SCHEDULE	Introduction particle kinematics	Week 1,2
	Particle kinetics	Week 3
	Work & Energy – particle	Week 3,4
	Impulse & momentum – particle	Week 4
	Midterm I, Tentative Date: 6/17 (Wed)	
	Impulse & momentum – particle	Week 5
	Rigid body kinematics – planar	Week 6
	Mass Moment of Inertia	Week 7

	Planar kinetics Midterm II, Tentative Date: 7/13 (Mon) Work & Energy – planar Impulse & momentum – planar Rigid body kinetics/kinematics – 3D Vibrations (time permitting) Final Exam, per UTD Schedule, (TBA on Orion)	Week 7 Week 8 Week 9 Week 9,10 Week 11

Note: Lecture sequence will be synchronous with the flow adopted in the textbook

Grading Policy

Two midterm tests	: 40%
Final exam	: 25%
Homework	: 20%
Rewritten class notes	: 6%
Quizzes	: 9%

Notes:

- There will be two midterm tests during the semester and a final exam.
- Specific details regarding tests/exam will be given as we get closer to the test/exam date.
- Quizzes will be conducted using eLearning or MasteringEngineering.
- Instructor reserves the right to flex the grade range slightly to accommodate "borderline" students who have demonstrated efforts towards success in the course to the next higher grade.
- **After the final exam, no remedial** measures can be given to improve the grade. Students are expected to monitor their progress to assess where they stand in the course based on the grading policy above.
- Make-up test/exam will be given only for special situations (upon verifying documentation).

Important Dates

Test 1	: Jun 17, 2020
Test 2	: Jul 13, 2020
Last day of class	: Aug 4 2020
Final exam	: Per UTD schedule (Aug 5-7)

Course Mechanics

- Rewritten notes:
    - Rewritten class notes have to be turned-in once a week on Mondays.

    - Rewritten notes (RWN) will be a pdf document uploaded to eLearning. It is due Monday by 1:00 p.m. You can write your RWNs on paper and scan it using your phone camera or other devices to pdf format and upload it. Before you upload, ensure that the document is **readable**.
    - RWNs will be graded on a "Completed"/ "Not Completed" basis.
    - Late work will be considered only for special situations.
- Homework:
    - Homework is due by midnight on due date (posted on MasteringEngineering, almost every week).
    - If there are solution entry difficulties for specific HW problems, they can be turned-in to the instructor/grader/TA directly.
    - Late work will be considered only for special situations.
    - Solutions for homework problems will be available with the instructor.
- Other assignments
    - Matlab® related assignments have to be turned-in on eLearning.
- Websites:
    - Relevant information about the course (syllabus, specific announcements, handouts, etc.) will be made available on eLearning.utdallas.edu.
    - HW grades will be available at www.masteringengineering.com.

Course Policies

- Attendance:
    - Students will have to attend lecture sessions – either a live session or a recorded session at a later time. Tests/exam may include material exclusively (not in the textbook) covered during lectures. During a lecture, the instructor will assume that students had been present for previous lectures as it relates to continuity of discussions. Students are expected to be present for lectures on time (**12:30 p.m.**). Students are expected to have a working microphone during lecture sessions. A webcam that can also be used during discussions in lecture sessions.

- Late/missed work:
    - If due to an unavoidable circumstance (health, family & other emergencies) a student has to turns-in work after it is due, upon verifying supporting documents that attest such an emergency, the instructor may waive the penalty for late work. It will be dealt with on a case by case basis by the instructor.
    - Missed tests due to health reasons or family/other emergencies have to be supported by acceptable documentation to be considered for make-up arrangements. It will be dealt with on a case by case basis by the instructor.

- Academic Honesty:
    - While the instructor encourages discussions with peers while working on homework problems, he deems copying the solution of a peer as being dishonest.
    - Scholastic dishonesty during tests/exams may result in failing the course.

Comet Creed

This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:
"As a Comet, I pledge honesty, integrity, and service in all that I do."

Suggestions for Success

Outside class work is critical for success in this course. Develop a habit of keeping up with the reading of the text and reviewing of the notes. This is an extremely fast-paced course so there is no room for being "left behind" and "catching up". If you have difficulties, identify them early on and bring it to the attention of the instructor immediately so remedial measures can be suggested. It requires lot of practice to have a higher percentage success rate in problem-solving in the time frame you will operate in tests/exams. So, it is highly recommended that students work on problems besides the ones assigned for homework.

Student Accessibility

It is the policy and practice of The University of Texas at Dallas to make reasonable accommodations for students with properly documented disabilities. However, written notification from the Office of Student AccessAbility (OSA) is required. If you are eligible to receive an accommodation and would like to request it for this course, please discuss it with me and allow one-week advance notice. Students who have questions about receiving accommodations, or those who have, or think they may have, a disability (mobility, sensory, health, psychological, learning, etc.) are invited to contact the Office of Student AccessAbility for a confidential discussion. OSA is located in the Administration Building, suite 2.224. They can be reached by phone at 972- 883-2098, or by email at studentaccess@utdallas.edu.

UT Dallas Syllabus Policies and Procedures

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus.
Please go to http://go.utdallas.edu/syllabus-policies for these policies.

The descriptions and timelines contained in this syllabus can change, if needed, at the discretion of the Professor.