

AE 2220 Dynamics

Summer 2023 @ Georgia Tech – Lorraine

Instructor: Mackenzie Lau, PhD
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Prerequisites:

COE 2001 – Statics
Math 2552 – Differential Equations (concurrency)

Course Objectives:

The purpose of this course is to introduce students to the principles of rigid body kinematics and dynamics in both 2D and 3D motion. These principles form the basis of later topics in aerospace engineering, such as flight mechanics, orbital mechanics, structural dynamics, and aeroelasticity.

Outcomes:

Students will develop an understanding of:

- The kinematic equations of motion for point masses
- The kinematics of rigid bodies in planar and three-dimensional motion
- Treatment of orientation through Euler angles

Students will also begin to develop an understanding of impulse-momentum principles for collision problems, as well as work-energy principles.

Textbook (optional):

McGill, D. J, and King, W. W., *An Introduction to Dynamics*, 4th Edition

Grading:

- Attendance: 10%
- Homeworks: 20%
- Midterm Exam 1: 20%
- Midterm Exam 2: 20%
- Final Exam: 30%

Attendance:

Attendance is required. Absences will be permitted for reasonable circumstances, provided adequate notice is provided to the instructor and the academic office. The first unexcused absence will result in a 2% deduction from final grade, a second will result in a further 3% reduction, and a third will result in a further 5% reduction. Any further unexcused absences will be handled at the discretion of the instructor and academic office.