Mechanical and Aerospace Engineering
MAE 3320
Advanced Dynamics

Syllabus

Course Description:
MAE 3320 – Particle and rigid body dynamics. Work and kinetic energy, conservation of energy, impulse-momentum, conservation of linear and angular momentum. Kinematics and kinetics in 2-D and 3-D. Newtonian and Lagrangian Mechanics. 3 credits, F.

Prerequisites: ENGR 2030, MAE 2200 (May be taken concurrently)

Textbooks: The text is **Principles of Dynamics,** 2nd Edition, by Donald T. Greenwood.

Course Objectives:
Students will further develop their ability to define and solve problems in dynamic and kinematics using more advanced techniques.

Topics Covered:
- Kinematics of Particle
- Dynamics of Particle
- Dynamics of System Particle
- Lagrange & Eq.
- Rigid Body Motion
- Vibration Theory

Class Schedule:
Three 50 minute classes; M-W-F

Contribution of course to meeting the professional component:
This required course builds on material taught in Physics and Dynamics to further enable the student to better formulate and solve real world problems

Relationship of course to program objectives:
The entire dynamics – kinematics sequence is considered fundamental to objectives in every aspect of our mechanical engineering program, including manufacturing and aerospace options