ME/AEM 562 Intermediate Dynamics - Fall 2005

Instructor: Dr. Steve Shepard, Mechanical Engineering, 171 Hardaway Hall
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Office hours: Whenever I am available, see office door or web site for schedule

Web Site: http://www.me.ua.edu/me562

Textbook: Advanced Engineering Dynamics (by J.H. Ginsberg) - required

Topics: Particle Kinematics and Relative Motion
        Newtonian Mechanics
        Hamilton’s Principle
        Lagrange’s Equations of Motion
        Rigid Body System Dynamics
        Euler’s Equations of Motion

Grading: Homework 30%
         Paper Review/Project 15%
         Mid-Term Exam 25% (Week of October 10, 2005)
         Final Exam 30% (Wednesday, December 14, 2005 at 8:00 am)

Course Description:
This graduate level course deals with the study of mechanical systems undergoing change of state described by the motions of their part under the influence of surrounding factors. The primary objective of this course is to equip students with analytical tools needed to conduct accurate and realistic dynamic analysis, and it is recommended for students pursuing an interest in system dynamics, mechanics, robotics, controls, and other relevant areas of mechanical and aerospace systems. The fundamental concepts of Newtonian mechanics and Hamilton’s principle from the viewpoint of Variational approach will be taught in this class. Students will also learn the analytical applications of Euler’s and Lagrange’s equations of motion to model rigid body system dynamical properties.

Class Policies:
- Homework:
  - Homework will be posted on the web site listed above. Additional material may also be posted on the web site.
  - Late homework will NOT be accepted except in emergency situations. In-Class and QUEST due dates will be clearly indicated on each HW assignment.
  - Typical Due Dates and Times:
    - In-Class: Homework must be submitted by 9:30 am on the date specified.
    - QUEST: Homework must be submitted as a scanned document via e-mail or as a fax. For faxes, the cover sheet provided on the ME 562 web site must be used.

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<tr>
<th>In-Class Due</th>
<th>QUEST Due</th>
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<tr>
<td>Tuesday, 9:30 am</td>
<td>Monday, 9:30 am</td>
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<tr>
<td>Thursday, 9:30 am</td>
<td>Tuesday, 9:30 am</td>
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- Exams:
  - Exams will be open book and open notes.
  - No make-up exams will be permitted unless you have an emergency situation or made prior arrangements with the instructor.
  - QUEST: Exams will be e-mailed to the site coordinator on the day of the in-class exam or before. Exams must be sent via registered mail within 5 calendar days of the in-class exam.

- This is a graduate class.