Advanced Dynamics ME 861
Spring 2014

Instructor: S. Shaw, 2328H EB, 432-3920, shawsw@msu.edu
Credits: 3 (lecture)
Lectures: MWF, 3:00-3:50, Room 151 Comm. Arts
Prerequisite: a previous course in dynamics, for example, ME 361

Brief Description:
Dynamics of systems of particles and rigid bodies. Energy and momentum principles. Lagrangian and Hamiltonian methods. Euler angles. Applications in system dynamics and vibrations.

Required Text:

Other Useful References:
• Any of the dozens of textbooks that could be used for ME 361, for example, these two:
  • Vector Mechanics for Engineers – Statics and Dynamics, F. P. Beer and E. R. Johnston, Fourth
    Edition, 1984, McGraw-Hill. (I’m sure there are more recent editions).
• We may also use some software packages, such as Matlab and Mathematica. These will be introduced by short tutorials in class as needed.

Office Hours:
Shaw: M & W, 4:00-5:30, or by appointment.
Pavel (poluninp@msu.edu): TBA
Extra hours will be provided before each exam.
You are also welcome (and encouraged!) to ask questions during and after lectures.

Homework:
About 5-10 problems will be assigned every other week and these will be collected for grading. Solutions will be posted on the course web site. If you have a question about grading, write your comments on a cover page and resubmit the homework for reconsideration. Collaboration is encouraged, but independent work is required, and essential in order to perform well on the exams.

Exams:
There will be two midterm exams and a final exam. Exams will be closed book, with specified pages of notes allowed for reference. The exams will be cumulative, but will emphasize material covered beyond the previous exam. If you have a question about exam grading, write your comments on the cover page and resubmit the exam for reconsideration.

Grading:
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<tr>
<td>Homework</td>
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<td>Midterm Exam I</td>
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