PH3110 Theoretical Mechanics I
Fall 2011

Instructor:
Dr. John Jaszczak
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Class time: 2:05 – 2:55 p.m. MWF
Office Hours: MW 3:00 – 4:00 or by appointment
Grader: Madhusuan Savaikar (masavaik@mtu.edu) Office Hours: TBA

Course Description:
This is the first semester of a two-semester intermediate-level study of classical mechanics.
Topics for this first semester will include (numbers in parentheses are the approximate number of lectures per topic):
Ch. 1: Newton’s Laws of Motion (3)
Ch. 2: Projectiles (including drag) and Charged Particles (3)
Ch. 3: Momentum and Angular Momentum (2)
Ch. 4: Energy and Central Forces (6)
Ch. 5: Oscillations (including damping and resonance) (4)
Ch. 6: Calculus of Variations (2)
Ch. 7: Lagrangian Mechanics (7)
Ch. 8: The Two-Body Central-Force Problem (3)
Ch. 9: Mechanics in Non-Inertial Reference Frames (4)

Prerequisites: PH2400 (Modern Physics) and MA3530 (Intro. Diff. Equations)

Course Grades: (possible range) (chosen weight)
Homework 20 – 30%
Quizzes & Warm Ups 5 – 10%
Computational Project 5 – 15%
Midterm Exams (4 total) 30 – 45%
Final Exam 20 – 35%

I will solicit your preferred weights on Blackboard. The class average will become the set of chosen weights.

Homework will be due each Wednesday at the start of class. Please follow the rules and guidelines posted on Blackboard. Late homework will be accepted but will be penalized.

Warm Ups, Quizzes and Exams:
Warm Ups will be short assignments due each lecture day, one hour before class. They are designed to encourage you to read assigned sections before class, and to help me know what topics may need more emphasis in class.

Short quizzes may be given at random intervals but generally will be announced in advance. Keep up with reading and homework to minimize the chances of a quiz being given. We will have four in-class midterm exams, each covering approximately two chapters of material. The final exam will be comprehensive.

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