



淡江大學
Tamkang University

Syllabus

Fall, 2007

Prof. Der-Ming Ma, Ph.D.
E750, Department of Aerospace Engineering, Main Engineering Building
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Course: Advanced Dynamics

3 credits

Prerequisite: Dynamics

Lecture: Mon. 3:10 - 6:00PM

Room: E820

Office hours: Mon, Tue, Thr, Fri: 11:00AM ~ 6:00PM or by appointment

Textbook:

Haim Baruh, *Analytical Dynamics*, McGraw-Hill, 1999. (Imported by 滄海書局)

References:

1. Donald T. Greenwood, *Advanced Dynamics*, Cambridge University Press, 2003.
2. Donald T. Greenwood, *Principles of Dynamics*, 2nd Ed., Prentice Hall, 1988.

Course Objective:

Kinematics of motion, particle dynamics, Lagranges equations. Rigid body dynamics including Eulers equations, the Poincot construction, spin stabilization, the rotation matrix. Vibrations of coupled systems, orthogonality relationships, generalized coordinates and generalized system parameters.

Hamiltons equations, canonical transformations, and Hamilton-Jacobi theory. Applications to orbital problems.

Grading Police:

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| 1. Homeworks, Participation | 50% |
| 2. Midterm Exam: | 20% |
| 3. Final Exam: | 30% |