Massachusetts Institute of Technology
Department of Mechanical Engineering
2.151 Advanced System Dynamics and Control
Fall 2004

General Information

Lectures:	Mondays and Wednesdays 9:30 am. to 11:00 am.
Location:	Room 4-159
Prerequisites:	2.14 (or equivalent), or 2.004 Familiarity with differential equations, elementary matrix algebra and classical feedback control will be assumed.
Instructor:	Professor Derek Rowell Room 3-142 drowell @mit.edu x3-6206
Teaching Assistant:	Satoshi Takahashi x2-2836 Room 5-026 takahash@it.edu
Secretary:	Marge Joss Room 3-142 x2-2781 maj@mit.edu

Recommended Texts:

Linear Systems and Controls:

State Variables for Engineers, P.M. DeRusso, R.J. Roy, C.M. Close, A.A. Desrochers (2nd Ed), Wiley, 1998

Control System Design: An Introduction to State-Space Methods. B. Friedland, McGraw-Hill, 1986 (Now out of print). This book has been used as the primary text for 2.151 until recently .Barker Library: Call Number: TJ213.F75

Modern Control Theory. W.L. Brogan (2^{nd} Ed.), Prentice-Hall, 1985

Modern Control Engineering. K. Ogata, Prentice Hall, 2001

Fundamentals of Linear State Space Systems. J.S. Bay, McGraw Hill, 1999

Bond Graph Modeling:

System Dynamics: A Unified Approach. D.C. Karnopp, D.L. Margolis, and R.C. Rosenberg (2^{nd} Ed.) John Wiley, 1990 (Barker Library: Call Number: TA168.K18)

Engineering System Dynamics: A Unified Graph Centered Approach. F.T. Brown, Marcel Dekker, 2001

Linear Graph Modeling:

System Dynamics – An Introduction. D. Rowell, D.N. Wormley. Prentice Hall, 1996

Grading:

There will be two quizzes in class and a final exam. In addition there will be regular homeworks. Grades will be allocated on a score consisting of 40% quizzes, 40% for the final exam, and 20% homeworks.

Course Ethics: Guidelines for Independent Effort

Collaboration in any form is expressly forbidden in quizzes and the final exam. Students may collaborate on the formulation of solutions to problem sets, but each student must turn in a solution that is obviously his/her own work.

> ***Plagiarism, or the copying of material from others, including paraphrasing materials from the reports of others without acknowledgment, is contrary to the standards of the Institute and will be considered a serious academic offense.***

Possible sanctions against students suspected of plagiarism may include a grade of 0 for the report, a grade of F for the course, departmental probation, and/or appearance before the institute Committee on Discipline (COD).