Syllabus for Engineering 215 Winter 2009

Meeting times: 11:00-11:50 daily in SAM 206

Instructor: François Lepeintre

Office Hours: SAM 212: M 12:20-1:00pm, and W, Th, F 9:00-9:50am

Phone: (206) 587-5438

Textbooks: "Dynamics" by R. C. Hibbeler, Prentice Hall

Prerequisites: Physics 221 and Engr 210, both with 2.0 or better.

Course Objectives: I hope that after taking this class you will have a better idea of what it means to apply the principles of dynamics to practical Engineering problems. The goal is to help you develop your Engineering sense (and have fun doing so!). At the end of the class, you should know how to analyze the motion of a rigid body in many different situations (translation, rotation, collisions). This means understanding the important physics concepts such as linear and angular acceleration, force, torque, work, energy, linear and angular momentum and how these quantities can be related and used to analyze motion. It also means knowing how to use mathematics in the context of Engineering (yes this is a calculus based course).

Course Content: Kinematics of particles and rigid bodies
Newton's laws applied to particles and rigid bodies. Moment of Inertia
Work and Energy
Impulse and Momentum

If time allows we will cover also some examples of 3D motion
of a rigid body. We should cover chapters 12 through 19, and possibly some of 20 and 21.

Grading:  
Homework: 15%
Project + presentation: 15%
Quizzes (10 one-hour quizzes, the lowest score is dropped): 70%

Exams:  
There will be 10 one hour exams (one a week). The lowest score will be dropped.

Homework:  
A set of problems from the text will be assigned on a weekly basis. These assignments are chosen to highlight the important concepts and problem solving techniques found in the chapter.

Homework will be group assignments. You can form groups of 2 or 3 students.

Your homework must be turned in on time. I won't accept any late homework.

Project:  
A key part of the Engineering profession is to apply what you learn in school to complex situations. In this class, you will be asked to analyze the motion of a rigid body that goes beyond the examples of the text. You can come up with your own example or choose from a list that will be made available. Your project may include some experimental data. Part of the project is to present your analysis to the class.

Special Assistance:  
If you need course adaptations because of a disability, if you have emergency medical information to share with me, or if you need special arrangements in case the building must be evacuated, please see me during my office hours as soon as possible. I am happy to help you in any way I possibly can.

My contract to you!  
If you come to class, do your homework and genuinely try to learn the concepts, I promise you to do my best to make your time as valuable as I can!