SYST 221 Systems Modeling Laboratory Spring 2010

Co-requisite: SYST 220

Course Description

This course introduces students to fundamental principles of computer modeling using an engineering modeling environment such as MATLAB® and Simulink. Students will learn how to develop computer solutions to solve and interpret mathematical models. Problems from topics covered in Dynamical Systems I (SYST 220) will be taken up for class examples and lab assignments. Throughout the course we will discuss different features and capabilities of the MATLAB® software. Each lecture will be followed by working on exercises involving concepts covered that day.

Class Hours: Friday, 1:30 P.M – 4:10 P.M, the Engineering Building, Room 5358, Fairfax Campus

Instructor: Gabriele Belle, gbelle@gmu.edu, Engineering Building, Room 2248
                    Office hours: Friday 12:00 P.M. to 1:00 P.M. or by appointment

Textbook: System Dynamics by William J. Palm III, Mc Graw Hill (same as SYST 220)
          Optional reference book for Matlab/Simulink: Introduction to MATLAB 7 for Engineers (Paperback) by William J Palm III

Software: Matlab with Simulink, Release V.14 with Service pack 05 or later (available in GMU bookstore)

Exam dates:
Midterm: Friday, March 5, 2010
Final: Friday, May 7, 2010

Fundamental Rules:

- Make-up exams will *only* be given for extreme situations, and *only* if I am contacted before the exam is given and full arrangements are established. Full adherence to this policy is the responsibility of the student.
- The exam dates above are tentative, and it is the students' responsibility to keep abreast of changes.
- Students must submit their class-work at the end of each lecture, which will count towards the homework grade.
- Additional exercises will be assigned as homework each week. Homework must be turned in at the beginning of each class. There will be a penalty of 10% of the total grade for each day that homework is late. No points will be awarded if homework is turned in after solutions have been posted.
- Students must work independently on homework assignments, although discussing concepts and programming logic is permitted. Please note that if you do not understand the homework you will not be able to perform well on the exams.

Student Evaluation Criteria
Homework and class assignments 40%
Midterm 25%
Final exam 35%

Academic Policy:
All academic policies as given in the Honor System and code will be strictly followed. Visit URL http://www.gmu.edu/catalog/apolicies/#Anchor12

Course Syllabus

Date	Topic
22 Jan	Lab 1: Introduction
29 Jan	Lab 2: Introduction to MATLAB
5 Feb	Lab 3: Introduction to MATLAB (continued)
12 Feb	Lab 4: Introduction to MATLAB (continued)
19 Feb	Lab 5: Introduction to MATLAB (continued)
26 Feb	Lab 6: Examples from "System Dynamics" Chapters 1 and 2
5 Mar	**Mid-Term Exam**
12 Mar	Spring Break
19 Mar	Lab 7: Numerical methods
26 Mar	Lab 8: Examples from "System Dynamics" Chapter 3
2 Apr	Lab 9: Examples from "System Dynamics" Chapter 4
9 Apr	Lab 10: Introduction to Simulink and Linear Models
16 Apr	Lab 11: Simulink and Nonlinear Models Examples from Chapter 5
23 Apr	Lab 12: Examples from Discrete Dynamical Systems
30 Apr	Lab 13: Examples from Discrete Dynamical Systems
7 May	**Final Examination**