

Description:

This course serves as an introduction to the use of computational systems for engineering research. It is designed to prepare incoming graduate students so that they can make effective use of computational facilities for their research. The course covers the basics of the unix and Windows operating systems, including network services. It also includes a survey of the major programming languages for engineering research.

Structure of Course:

The course will be taught as a lab course meeting for a single 3 hour lab each week. The first hour will introduce basic concepts and it will be followed with 2 hours of lab work on computer systems. The course will meet in the AE Computer Lab in Knight 318 and each student will be seated at a computer. A number of short programming assignments will be given and one or two projects will be assigned. A midterm and final will be given. Due to laboratory capacity, the enrollment will be limited to 30 students.

Instructor(s);

Prof. Jim Craig

Dr. Ralph Latham

Guest lecturers as appropriate

Tentative Course Outline:

Week	Topic
1	Computer hardware and software; operating systems; intro to Windows 2k; networks and network services
2	Matlab and the Matlab Toolboxes
3	Matlab applications
4	Unix/Linux basics; shells and shell scripts; Emacs and unix utilities
5	Perl
6	Fortran
7	Midterm
8	Programming in C
9	Object-oriented programming; languages
10	Java
11	Java with intro to C++
12	Design frameworks: Model Center
13	Design frameworks: Analysis Server
14	Design frameworks: iSIGHT
15	Graphics-(or makeup)

Textbooks and Reference Material

There is no required textbook. A number of paperback reference books will be identified as suggested reading and links to useful web sites will be provided.