SPRING TERM 2002: CSE 5240, CSE 4082 and MTH 6350
PARALLEL PROCESSING

Time and Place: Mon and WED 5:00-6:15 P.M., 130 EC (Olin Bldg)
(Time published in SP 2002 Schedule has been changed.)
Instructor: C.T. Fulton, Ext 7218, 315 Crawford (fulton@zach.fit.edu)
Prerequisites: Some programming experience in any language. Programming in at least one of the languages C, C++, F77 or F90 will be needed in this course. Compilers for these languages are available on the BEOWULF.
Textbooks: Peter S. Pacheco, Parallel Programming with MPI Morgan Kaufmann Pub., Inc., 1997 and Barry Willkinson and Michael Allen, Parallel Programming, Prentice Hall, New Jersey, 1999

COURSE DESCRIPTION

This course will be a general introduction to PARALLEL COMPUTING. This is an interdisciplinary subject and will be of interest to both graduate and undergraduate students who would like to learn about HIGH PERFORMANCE COMPUTING. We will make use of Florida Tech’s new IBM Netfinity 48-Processor BEOWULF CLUSTER, which consists of 48 866 Mhz Intel Pentium III Processors, each with 512 MB SDRAM. Further information on this new machine is available at http://olin.fit.edu/beowulf
The course will make use primarily of a form of MIMD programming called SPMD (single-program multiple-data) and will make use of MPI (Message Passing Interface) for interprocessor communication. The BEOWULF is a Distributed-Memory machine, and the course will emphasize learning to use the machine to achieve optimum efficiency in Parallel Programs. Topics to be included are: (1) Performance modeling and timing of linear algebra routines (2) discussion of algorithmic scalability (3) Some use of the Parallel Library of linear algebra routines: ScaLAPACK (4) Parallel algorithms in some specialized areas such as image processing.

WHO SHOULD TAKE THIS COURSE: students who are involved with faculty who wish to use the capability of the Beowulf in their research; students from any discipline who will be doing thesis work which involves the use or development of parallel software of any kind; anyone interested in learning about parallel programming.