Tennessee Technological University
Mathematics Department

MATH 6520: Finite Element Solutions of Partial Differential Equations

I. COURSE DESCRIPTION FROM CATALOG: Mathematical foundations of the finite element method. Approximate solutions of PDE's. Polynomial interpolation. Variational techniques. Numerical integration. Solution methods for linear systems. Isoparametric technique. Lec. 3. Cr. 3.

II. PREREQUISITE(S): C or better in MATH 4510 or MATH 5510 or consent of instructor.

III. COURSE OBJECTIVE(S): This course is an introduction to the mathematical foundations of the finite element method as a means to finding approximate solutions of ordinary and partial differential equations.

IV. TOPICS TO BE COVERED: Approximation solutions of boundary and initial value problems in 2 and 3 dimensions using the finite element method. Polynomial interpolation, variational techniques, numerical differentiation and integration, linear systems solution methods.

V. ADDITIONAL INFORMATION:

VI. POSSIBLE TEXTS AND REFERENCES:
Numerical Analysis of the F.E.M., by Ciarlet

VII. ANY TECHNOLOGY THAT MAY BE USED: