

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:**

Students with a disability requiring accommodations should contact the Office of Disability Services (ODS). 1
An Accommodation Request (AR) should be completed as soon as possible, preferably by the end of the first week of the course. The ODS is located in the Roaden University Center, Room 112; phone 372-6119.