

Tennessee Technological University
Mathematics Department

MATH 6510: Finite Difference Solutions of Partial Differential Equations

- I. COURSE DESCRIPTION FROM CATALOG:** Approximate solutions of boundary and initial value problems using the finite difference method. Elliptic, parabolic, and hyperbolic PDE's. Numerical differentiation. Solution methods for linear systems. 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 designed to provide the graduate student in mathematics, engineering or science an introduction to the finite difference method as a means to finding approximate solutions of ordinary and partial and differential equations. Various types of equations and conditions are considered.

- IV. TOPICS TO BE COVERED:** Approximation solutions of boundary and initial value problems using the finite difference method. Elliptic, parabolic, and hyperbolic PDE's. Numerical differentiation. Solution methods for linear systems.

- V. ADDITIONAL INFORMATION:**

- VI. POSSIBLE TEXTS AND REFERENCES:**
Discrete Numerical Methods in Physics and Engineering, by Donald Greenspan.

- VII. ANY TECHNOLOGY THAT MAY BE USED:**

Students with a disability requiring accommodations should contact the Office of Disability Services (ODS). 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.

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