

**Tennessee Technological University
Mathematics Department**

MATH 6810: Partial Differential Equations

I. COURSE DESCRIPTION FROM CATALOG:

First and Second order PDE's, wave, heat, and Laplace's equations, applications to boundary and eigenvalue problems of mathematics, physics and engineering. Lec. 3. Cr. 3.

II. PREREQUISITE(S):

Consent of instructor

III. COURSE OBJECTIVE(S):

To study methods of solving analytic solutions to PDE's. Applications of PDE's are also included.

IV. STUDENT LEARNING OUTCOMES:

Students learn equations modeling various researches and learn the mathematical way to classify them. Students learn how to use change of variables to convert linear PDE's of 2nd order into their canonical forms. Students will learn that the approaches of solving elliptic, parabolic, and hyperbolic type PDE's are quite different since the method of separation of variables is not always possible. Upon successfully completion the course, students will be able to apply techniques learned to solve problems in their researches.

V. TOPICS TO BE COVERED:

VI. ADDITIONAL INFORMATION:

VII. POSSIBLE TEXTS AND REFERENCES:

Partial Differential Equations, An Introduction, by Walter A. Strauss.

Partial Differential Equations, Theory and Techniques by A. Strauss, J. E. T. O'Neil, W. S. T. O'Neil, W. B. L. F. J. e