

MATH 512-1 Partial Differential Equations

(4+0) credit-hours.

Prerequisite: Math 510-1: Language of instruction: English

TEXT BOOK: Partial Differential Equations Methods and Applications

By: Robert Mcowen

Additional Reference: An Introduction to Partial Differential Equations

By: Michael Renardy, Robert C. Rogers

Syllabus

Math 512-1 Partial Differential Equations 4 credit units

1. Elementary theory of distributions (Convolution and differentiation).
2. Types of partial differential equations
3. Fundamental solutions of some linear differential operators such as the Laplacian, the heat, and the wave operators.
4. Initial and boundary value problems for parabolic and hyperbolic equations (existence and uniqueness of solutions)
5. Generalizations and applications.
6. Solutions of mixed problems in Sobolev spaces.