CE 211 MATHEMATICS III

Lectures	: 4 periods / week	Internal Assessment	: 40 Marks
Semester Exam	: 3 hrs	Semester End Examination	: 60 Marks
		Credits	: **4**

UNIT- I

Partial Differential equations

Partial differential equations – Introduction, Formation ; Solution of partial differential equations – Linear equations of first order , Non-linear equations of first order (standard type); Method of separation of variables – Solution of one dimensional heat, wave equations and Laplace equations. **(15)**

UNIT- II

Numerical Methods

Solution of algebraic and transcendental equations – Introduction, Bisection method, Method of false position, Iteration method, Newton's Raphson method; Numerical Integration – Trapezoidal rule, , Simpson's 1/3 rule, 3/8 rule ; Numerical solution of first-order ordinary differential equations – Picard's method, Taylor's series method, Euler's method (simple) , R-K method of 4^{th} order. **(15)**

UNIT- III

Probability and Distributions

Definition of probability and conditional probability; Addition theorem, Multiplication theorem, Baye's theorem, Random variables – Binomial, Poisson and Normal distributions

Complex variables

Introduction –Limit derivative of functions of complex variable; Analytic functions; Harmonic functions. **(15)**

UNIT - IV

Complex variables (Continued)

Complex integration –Cauchy's theorem, Cauchy's integral formula; Taylor's series and Laurent's series (without proof); Zeroes and singularities; Residues –Residue theorem, Calculation of residues. **(15)**

TEXT BOOK:

Higher Engineering Mathematics, B.S.Grewal, 40^{th} edition, Khanna publishers, New Delhi, 2007.

REFERENCE BOOKS:

Advanced Engineering Mathematics by Erwin Kreyszig, Johnwiley & Sons, 8^{th} edition, 2007.