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RGPV B.Tech – First Year Syllabus

BT-202: Mathematics-II

Unit I: Ordinary Differential Equations I

- First order and first degree equations: Leibnitz linear, Bernoulli's, exact equations
- First order and higher degree equations
- Higher order differential equations with constant coefficients
- Homogeneous linear differential equations
- Simultaneous differential equations

Unit II: Ordinary Differential Equations II

- Second order linear differential equations with variable coefficients
- Method of variation of parameters
- Power series solutions
- Legendre polynomials and Bessel functions

Unit III: Partial Differential Equations

- Formulation of PDEs
- Linear and non-linear PDEs
- Homogeneous linear PDEs with constant coefficients

Unit IV: Functions of Complex Variable

- Analytic functions, harmonic conjugates
- Cauchy-Riemann equations
- Line integrals, Cauchy-Goursat theorem
- Cauchy integral formula
- Singular points, poles, residues
- Residue theorem and applications to real integrals

Unit V: Vector Calculus

- Differentiation of vectors, scalar and vector point functions
- Gradient, directional derivative, divergence, curl
- Line, surface, and volume integrals
- Gauss divergence theorem, Stokes' theorem, Green's theorem

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- 2Learn – BT-202 Course Overview
- RGPV Notes – BT-202 Breakdown