

The logo for Rajasthan Technical University, consisting of several overlapping circles in blue, yellow, and black.

Rajasthan Technical University, Rajasthan B.E./B.Tech CSE Sem 1 syllabus

Engineering Mathematics-I

UNIT-1 Calculus:

Improper integrals (Beta and Gamma functions) and their properties; Applications of definite integrals to evaluate surface areas and volumes of revolutions.

UNIT-2 Sequences and Series:

The convergence of sequence and series, tests for convergence; Power series, Taylor's series, series for exponential, trigonometric and logarithm functions.

UNIT-3 Fourier Series:

Periodic functions, Fourier series, Euler's formula, Change of intervals, Half range sine and cosine series, Parseval's theorem.

UNIT-4 Multivariable Calculus (Differentiation):

Limit, continuity and partial derivatives, directional derivatives, total derivative; Tangent plane and normal line; Maxima, minima and saddle points; Method of Lagrange multipliers; Gradient, curl and divergence.

UNIT-5 Multivariable Calculus (Integration):

Multiple Integration: Double integrals (Cartesian), change of order of integration in double integrals, Change of variables (Cartesian to polar), Applications: areas and volumes, Centre of mass and Gravity (constant and variable densities); Triple integrals (Cartesian), Simple applications involving cubes, sphere and rectangular parallelepipeds; Scalar line integrals, vector line integrals, scalar surface integrals, vector surface integrals, Theorems of Green, Gauss and Stokes.

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