B.Sc. (Regular) Mathematics
BODOLAND UNIVERSITY

Semester I

DSC-1(A): Differential Calculus

Limit and Continuity (ε and δ definition), Types of discontinuities, Differentiability of functions, Successive differentiation, Leibnitz's theorem, Partial differentiation, Euler's theorem on homogeneous functions.

Tangents and normals, Curvature, Asymptotes, Singular points, Tracing of curves. Parametric representation of curves and tracing of parametric curves.

Rolle.s theorem, Mean Value Theorems, Taylor's Theorem with Lagrange's & Cauchy's forms of remainder. Taylor's series, Maclaurin's series of $\boldsymbol{sin\, x}, \boldsymbol{cos\, x}, \boldsymbol{e^x}, \boldsymbol{log(1+x)}, \boldsymbol{(1+x)^m}$.

Books Recommended

1. H. Anton, I. Birens and S. Davis, *Calculus*, John Wiley and Sons, Inc., 2002.

2. G.B. Thomas and R.L. Finney, *Calculus*, Pearson Education, 2007.