Calculus (SC-107)

Course Name and Code: Calculus SC-107

Course Type: B. Tech Core Course (1st Semester)

Course Structure: 3-1-0-4 (3 Lecture Hours 1 Tutorial Hour)

Course Contents:

Functions of single variable: Limit, continuity, differentiability, Mean value theorems and Taylor's theorem, Fundamental theorem of integral calculus, Definite integrals and their applications.

Functions of several variables: Limit, continuity, partial derivatives, chain rule, differentiation of implicit functions, Jacobian, Hessian, Taylor's theorem for functions of several variables, maxima, minima and saddle point, multiple integrals.

Ordinary differential equations: First order ODE, Linear ODE of second and higher order with constant and variable coefficients, Non homogeneous equations and power series solution. Partial differential equations: Classification, Solution by separation of variables.

Complex variables: Limit, continuity, differentiability and analytic functions, Line integrals and contour integrals, Cauchy integral theorem, Cauchy integral formula, Taylor and Laurent series, Singularity and Residues, Residue theorem.

Grading Policy:

In-Semester Examination: 40%

End Semester Examination: 60%

Text Books:

1. Thomas Calculus (Pearson)

Reference Books:

2. Advanced Engineering Mathematics by R. K. Jain and S. R. K. Iyengar (Narosa)
3. Advanced Engineering Mathematics by Erwin Kreyszig (Wiley)

Mode of Course Delivery: Google Class Room, Institute provided facility with Pen Tab with writing pad