Year & Sem: P2S2	Course Code: M222	Course Name: Mathematics	No. of Credits: 4	L-T-P: 2-2-0

Syllabus

UNIT-I: INFINITE SERIES
Binomial Series, Geometric Series, Arithmetic- Geometric Series, Introduction to Exponential series, Exponential Series, Logarithmic Series.

UNIT-II: PARAMETERIZATION
Plane Curves, Parameterization of Plane Curves, Differentiation with Parameterized Curves, Integration with Parameterized Curves.

UNIT-III: TRANSCEDENTAL FUNCTIONS
Inverse Functions, Derivative of Inverse Functions, Natural Logarithms, Logarithmic Differentiation, Exponential Function, General Exponential Function, General Logarithmic Functions, L'Hopital's Rule, Relative Rates of Growth, Inverse Trigonometric Functions, Derivatives of Inverse Trigonometric Functions, Integration Formulas, Hyperbolic Functions, Inverse Hyperbolic Functions.

UNIT-IV: POLAR COORDINATES
Polar Coordinates, Graphing in Polar Coordinates, Polar Equations for Lines and Circles, Polar Equations for Conic Sections, Area in Polar Coordinates, Length and Surface Area in Polar Coordinates.

UNIT-V: VECTOR ALGEBRA
Vectors in Plane, Components of Vector, Slopes, Tangents and Normals, Vectors in Space(3-D Coordinate System), Vectors in Space, Unit vectors, Distance, and Midpoints, Dot Product, Vector Projections, Cross Product, Calculation of Cross products.

UNIT-VI: PROBABILITY
Sample Space and Events, Probability of an Event, Addition Theorem, Conditional Probability, Multiplication Theorem, Bayes' Theorem.

References:

1. KHAN ACADEMY WEBSITE

2. TELUGU ACADEMI and NCERT First and Second year Textbooks (IA, IB, IIA, IIB)

3. THOMAS' CALCULUS OF EARLY TRANSCENDENTALS 12th Edition, George B. Thomas, Jr, Maurice D. Weir, Joel Hass