18BP007 REMEDIAL MATHEMATICS

Hours Per Week :

L	T	P	CP	CL
2	-	2	1	2

Total Hours :

L	T	P
30	-	30

WA/RA	SSH/HSH	CS	SA	S	BS

SCOPE:

This is an introductory course in mathematics. This subject deals with the introduction to Partial fraction, Logarithm, matrices and Determinant, Analytical geometry, Calculus, differential equation and Laplace transform.

COURSE OUTCOMES:

Upon completion of the course, the student will be able to achieve the following outcomes:

COs	Course Outcomes	POs	PSOs
1	Introduce essential of mathematics to biology students	1	1
2	Know the theory and their application in Pharmacy	1	1
3	Solve the different types of problems by applying theory	1	1
4	Appreciate the important application of mathematics in Pharmacy	1	1

UNIT– I **06 HOURS**

PARTIAL FRACTION: Introduction, Polynomial, Rational fractions, Proper and Improper fractions, Partial fraction, Resolving into Partial fraction, Application of Partial Fraction in Chemical Kinetics and Pharmacokinetics.

LOGARITHMS : Introduction, Definition, Theorems/Properties of logarithms, Common logarithms, Characteristic and Mantissa, worked examples, application of logarithm to solve pharmaceutical problems.

FUNCTION*:* Real Valued function, Classification of real valued functions.

LIMITS AND CONTINUITY: Introduction, Limit of a function, Definition of limit of a function (?- ?

Definition), limXn?a n ?*ann*?1, limsin? ? 1, *Ixia* ??0 ?

UNIT–II **06HOURS**

Matrices and Determinant: Introduction matrices, Types of matrices, Operation on matrices, Transpose of a matrix, Matrix Multiplication, Determinants, Properties of determinants, Product of determinants, Minors and co-Factors, Ad joint or adjure gate of a square matrix , Singular and non-singular matrices, Inverse of a matrix, Solution of system of linear of equations using matrix method, Cramer's rule, Characteristic equation and roots of a square matrix, Clayey –Hamilton theorem, Application of Matrices in solving Pharmacokinetic equations.

UNIT– III **06HOURS**

Calculus Differentiation: Introductions, Derivative of a function, Derivative of a constant, Derivative of a product of a constant and a function, Derivative of the sum or difference of two functions, Derivative of the product of two functions (product formula), Derivative of the quotient of two functions (Quotient formula) –**Without Proof**, Derivative of a^n *w.r.t*x,where *n* is any rational number, Derivative of e^x,, Derivative of $\log_e x$, Derivative of a^x Derivative of trigonometric functions from first principles **(without Proof)**, Successive Differentiation, Conditions for a function to be a maximum or a minimum at a point. Application.

UNIT– IV **06HOURS**

ANALYTICAL GEOMETRY INTRODUCTION: Signs of the Coordinates, Distance formula.

STRAIGHT LINE : Slope or gradient of a straight line, Conditions for parallelism and perpendicularity of two lines, Slope of a line joining two points, Slope – intercept form of a straight line

INTEGRATION: Introduction, Definition, Standard formulae, Rules of integration, Method of substitution, Method of Partial fractions, Integration by parts, definite integrals, application

UNIT-V **06HOURS**

DIFFERENTIAL EQUATIONS : Some basic definitions, Order and degree, Equations in separable form , Homogeneous equations, Linear Differential equations, Exact equations, Application in solving Pharmacokinetic equations

LAPLACE TRANSFORM : Introduction, Definition, Properties of Laplace transform, Laplace Transforms of elementary functions, Inverse Laplace transforms, Laplace transform of derivatives, Application to solve Linear differential equations, Application in solving Chemical kinetics and Pharmacokinetics equations

RECOMMENDED BOOKS (LATEST EDITION)

1. Differential Calculus by Shanthi narayan
2. Pharmaceutical Mathematics with application to Pharmacy by Panchaksharappa Gouda D.H.
3. Integral Calculus by Shanthi narayana
4 Higher Engineering Mathematics by Dr.B.S.Grewal