



**LESSON PLAN**

Faculty Name: Dr. Sanjeev Kumar

Subject Name: Remedial Mathematics

Class: B. Pharmacy – I<sup>st</sup> Semester

Subject Code: BP-106RMT

**Scope of the Subject:** 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 outcome:** Upon completion of this course the student should be able to:

1. Know the theory and their application in Pharmacy.
2. Solve the different types of problems by applying theory.
3. Appreciate the important application of mathematics in Pharmacy

**Number of Lectures:** 30

**Each lecture:** 01 hour

Lecture No.	Particular	Remark/Date
<b>Unit 1: Partial Fraction, Logarithms, Function, Limits and continuity</b>		
1.	Polynomial, Rational fractions, Proper and Improper fractions	
2.	Partial fraction, Resolving into Partial fraction	
3.	Application of Partial Fraction in Chemical Kinetics and Pharmacokinetics	
4.	Theorems/Properties of logarithms, Common logarithms Characteristic and Mantissa, worked examples, Application of logarithm to solve pharmaceutical problems	
5.	Real Valued function, Classification of real valued functions	
6.	Limit of a function, Definition of limit of a function	
<b>Unit 2: Matrices and Determinant</b>		
7.	Introduction matrices, Types of matrice, Operation on matrices,	
8.	Transpose of a matrix, Matrix Multiplication, Determinants, Properties of determinants, Product of determinants, Minors and co-Factors	
9.	Adjoint or adjugate of a square matrix, Singular and non-singular matrices, Inverse of a matrix, Solution of system of linear of equations using matrix method	
10.	Cramer's rule, Characteristic equation and roots of a square matrix	
11.	Cayley–Hamilton theorem	
12.	Application of Matrices in solving Pharmacokinetic equations	
<b>Unit 3: Calculus</b>		
13.	Derivative of a function, Derivative of a constant. Derivative of a product of a constant and a function,	
14.	Derivative of the sum or difference of two functions, Derivative of the product of two functions, Derivative of the quotient of two	

	functions	
15.	Derivative of $x^n$ w.r.t $x$ , where $n$ is any rational number	
16.	Derivative of $e^x$ , Derivative of $\log_e x$ Derivative of $a^x$	
17.	Derivative of trigonometric functions from first principles	
18.	Successive Differentiation, Conditions for a function to be a maximum or a minimum at a point	
<b>Unit 4: Analytical Geometry, Integration</b>		
19.	Signs of the Coordinates, Distance formula	
20.	Slope or gradient of a straight line, Conditions for parallelism and perpendicular of two lines	
21.	Slope of a line joining two points, Slope – intercept form of a straight line,	
22.	Standard formulae, Rules of integration, Method of substitution	
23.	Method of Partial fractions	
24.	Integration by parts, Definite integrals	
<b>Unit 5: Differential Equations, Laplace Transform</b>		
25.	Some basic definitions, Order and degree	
26.	Equations in separable form, Homogeneous equations	
27.	Linear Differential equations, Exact Differential equations	
28.		
29.	Properties of Laplace transform, Laplace Transforms of elementary functions, Inverse Laplace transforms	
30.	Laplace transform of derivatives, Application to solve Linear differential equations	
<b>Revision</b>		
31.	Revision of previous question papers	
32.	Revision of previous question papers	
33.	Revision of previous question papers	
34.	Revision of previous question papers	
35.	Revision of previous question papers	

Teacher in-charge

HOD

Principal