

GANDHI ACADEMY OF TECHNOLOGY AND ENGINEERING				
DEPARTMENT OF BSH				
LESSON PLAN				
DISCIPLINE:-BSH				
SEMESTER:-1ST		FROM DATE:-09.01.2024		TO DATE:-07.05.2024
Name of Teaching Faculty: AJIT KUMAR BHUYAN				
SUBJECT:-MATHEMATICS-II				
NO.OF PERIOD/PER WEEK CLASS ALLOTTED:-05				
TOTAL NO.OF CLASS AVAILABLE IN SEM:-75				
SL NO.	WEEK	CLASSDATE	NO. OF CLASS/DAY	TOPICS
1	Week-01	09.01.2024	1	Introduction to Vectors, Difference between scalar and vector quantitie
		10.01.2024	1	Graphical representation in 2D and 3D,Representation using position vectors,Unit vector representation
		11.01.2024	1	Magnitude in 2D and 3D
		12.01.2024	1	Direction cosines and angles with axes
		15.01.2024		HOLIDAY
2	Week-02	16.01.2024	1	Triangle law and parallelogram law, Addition in component form, Geometrical and algebraic interpretation
		17.01.2024	1	Vector Subtraction
		17.01.2024	1	Distance between points using position vectors
		19.01.2024	1	$A \cdot B = A B \cos\theta$, Properties of dot product
		22.01.2024	1	Geometrical Meaning of Dot Product
3	Week-03	23.01.2024		HOLIDAY
		24.01.2024	1	Angle Between Two Vectors
		25.01.2024		Scalar projection: formula and meaning, Vector projection: formula and direction
		26.01.2024		HOLIDAY
		29.01.2024	1	Vector (Cross) Product, Geometrical Meaning of Cross Product
4	Week-04	30.01.2024	1	Definition of function, based on set theory,
		31.02.2024	1	Types of functions i) Constant function ii) Identity function iii) Absolute value function iv)The Greatest integer function
		01.02.2024	1	v) Trigonometric function vi) Exponential function vii) Logarithmic function
		02.02.2024	1	Introduction of limit
		05.02.2024	1	Existence of limit e) Methods of evaluation of limit
5	Week-05	06.02.2024	1	Problems solving limit
		07.02.2024	1	$\lim_{x \rightarrow a} \frac{x^n - a^n}{x - a} = na^{n-1}$

		08.02.2024	1	$\lim_{x \rightarrow 0} \frac{a^x - 1}{x} = \log_e a, \lim_{x \rightarrow 0} \frac{e^x - 1}{x} = x$
		09.02.2024	1	$\lim_{x \rightarrow 0} (1 + 1/x)^x = e, \lim_{x \rightarrow 0} (1 + x)^{1/x} = e$
		12.02.2024		$\lim_{x \rightarrow 0} \frac{\log(1+x)}{x} = 1, \lim_{x \rightarrow 0} \frac{\sin x}{x} = 1, \lim_{x \rightarrow 0} \frac{\tan x}{x} = 1$
6	Week-06	13.02.2024	1	Definition of continuity of a function at a point and problems based on it
		14.02.2024		HOLIDAY
		15.02.2024	1	Doubt clearing class
		16.02.2024	1	Derivative of a function at a point
		17.02.2024		Derivative of standard functions $x^n, e^x \log_a x$
7	Week-07	19.02.2024	1	Derivative of $\sin x, \cos x, \tan x, \cot x, \sec x, \operatorname{cosec} x$
		20.02.2024	1	Derivative of inverse trigonometry function
		21.02.2024	1	Derivative of composite function (Chain Rule)
		22.02.2024	1	Derivative of Parametric function
		23.02.2024	1	Derivative of Implicit function
8	Week-08	26.02.2024	1	Derivative of Logarithmic function
		27.02.2024	1	Derivative of a function with respect to another function
		28.02.2024	1	Problems solving class
		29.02.2024	1	Doubt clearing class
		01.03.2024	1	Applications of Derivative
9	Week-09	04.03.2024	1	Successive Differentiation (up to second order)
		05.03.2024	1	HOLIDAY
		06.03.2024	1	Problems solving class
		07.03.2024	1	Partial Differentiation (function of two variables up to second order)
		08.03.2024		HOLIDAY
10	Week-10	11.03.2024	1	$\int_0^a f(x)dx = \int_0^a f(x-a)dx$,
		12.03.2024	1	Doubt clearing class & revision
		13.03.2024	1	Definition of integration as inverse of differentiation
		14.03.2024	1	Integrals of standard functions
		15.03.2024	1	Methods of integration
11	Week-11	18.03.2024	1	Integration by substitution
		19.03.2024	1	Integration by parts & problem
		20.03.2024	1	$\int \frac{dx}{x^2+a^2}, \int \frac{dx}{x^2-a^2}, \int \frac{dx}{a^2-x^2}$
		21.03.2024	1	$\int \frac{dx}{\sqrt{x^2+a^2}}, \int \frac{dx}{\sqrt{x^2-a^2}}, \int \frac{dx}{\sqrt{a^2-x^2}},$
		22.03.2024	1	$\int \frac{dx}{x\sqrt{x^2-a^2}}, \int \sqrt{a^2-x^2} dx, \int \sqrt{x^2-a^2} dx,$
12	Week-12	25.03.2024		HOLIDAY
		26.03.2024		HOLIDAY
		27.03.2024	1	Definite integral, properties of definite integrals
		28.03.2024	1	$\int_0^a f(x)dx = \int_0^a f(x-a)dx, \int_a^b f(x)dx = -\int_b^a f(x)dx,$

		29.03.2024		HOLIDAY
13	Week-13	01.04.2024		HOLIDAY
		02.04.2024	1	Problem solving class and doubt clearing
		03.04.2024	1	Application of integration
		04.04.2024	1	Area enclosed by a curve and X – axis
		05.04.2024	1	Finding area of circle ,parabola ,ellipse
14	Week-14	08.04.2024	1	Problem solving class and doubt clearing
		09.04.2024	1	Introduction to Differential Equations
		10.04.2024	1	Order and Degree – Detailed Study
		11.04.2024		HOLIDAY
		12.04.2024	1	Types of Differential Equations, Ordinary vs Partial Differential Equations
15	Week-15	15.04.2024	1	Forming differential equations by eliminating constants
		16.04.2024	1	Problem solving class and doubt clearing
		17.04.2024		HOLIDAY
		18.04.2024	1	General and Particular Solutions
		19.04.2024	1	Practice mixed problems
16	Week-16	22.04.2024	1	Method of Separation of Variables
		23.04.2024	1	Method of Separation – Practice Problems
		24.04.2024	1	Problem solving class and doubt clearing
		25.04.2024	1	Applications of Separation of Variables
		26.04.2024	1	Solving Linear Differential Equations $y \cdot IF = \int Q \cdot IF dx + C$
17	Week-17	29.04.2024	1	Solve problems with different $P(x), Q(x)$
		30.04.2024	1	Practice mixed problems (separation + linear)
		01.05.2024	1	Applications of Separation of Variables
		02.05.2024	1	Solving Linear Differential Equations $y \cdot IF = \int Q \cdot IF dx + C$
		03.05.2024	1	Problem solving class and doubt clearing
18	Week-17	06.05.2024	1	Revision
		07.05.2024	1	Revision