

UTKAL GAURAV MADHUSUDAN INSTITUTE OF TECHNOLOGY, RAYAGADA

LESSON PLAN

1st Year – 2026-2027(From 17.08.2026 to 17.04.2027)

Name of the teaching faculty:SMT. PRATIVA PATRA (SR. LECTURER IN MATHEMATICS)

Discipline :Common(Civil,Electrical,ETC Branch)

DEPT. : Department of Mathematics & Science

SUBJECT :Mathamticcs

No of periods/week :4

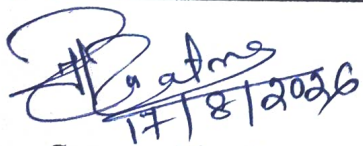
Total period : 128

Total Marks : 70 marks

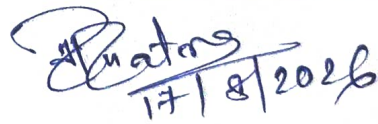
Week	Period	Topics to be covered	Unit/Chapter	
1ST	1st	Concept of angles	Unit-1 Trigonometry	
	2nd	Measurement of angles in degrees		
	3rd	grades and radians		
	4th	Their Conversions.		
2ND	1st	T-Ratios of Allied angles (without proof)		
	2nd	Sum, difference, Product formulae		
	3rd	Transformation of product to sum		
	4th	Difference and vice versa (without proof) and their applications.		
3RD	1st	T- Ratios of multiple angles (2A,3A)		
	2nd			
	3rd	sub-multiple angles (A/2)		
	4th			
4TH	1st	Introduction to Inverse Trigonometric functions		
	2nd			
	3rd	Their properties (without Proof).		
	4th			
5TH	1st	Introduction to Co-ordinate Geometry.	Unit-2 Co-Ordinate Geometry	
	2nd	Distance formula, Section formula.		
	3rd	Slope of a line.		
	4th	Relationship between slope of perpendicular and parallel lines.		
6TH	1st	Equation of straight line in various standard forms (without proof).		
	2nd			
	3rd	Inter section of two straight lines		
	4th	angle between two lines.		
7TH	1st	Perpendicular distance from a given point to a line.		
	2nd			
	3rd	Centre and radius of a Circle		
	4th	General equation of a circle .		
8TH	1st	Equation of a circle Passing through three given points.		UNIT-3 3.1 Complex Numbers
	2nd	Equation of circle when two end points of a diameter are given.		
	3rd	Definition of complex number		
	4th	Real and imaginary parts of a Complex number		
9TH	1st	Polar and Cartesian representation of a complex number		
	2nd	Its conversion from one form to other.		
	3rd	Conjugate of a complex number		
	4th	Modulus and Amplitude of a complex number.		
10TH	1st	Square root of a complex number		
	2nd			
	3rd	Cube roots of unity.		
	4th			
11TH	1st	De-moivre's theorem (statement only)		

	2nd	Its simple applications.	3.2 Partial fractions			
	3rd	Definition of Polynomial, Proper & Improper fractions, Definition of partial fractions.				
	4th	Resolve proper fraction into partial fractions with denominator containing non-repeated linear factors.				
12TH	1st	Resolve proper fraction into partial fractions with denominator containing repeated linear factors.				
	2nd	Resolve proper fraction into partial fractions with denominator containing non-repeated irreducible quadratic factors.	3.3 Permutations and Combinations and Binomial theorem			
	3rd	Factorial of a non-negative integer.				
4th	Determine $P(n, r)$					
13TH	1st	and $C(n, r)$		3.4 Determinants and Matrices		
	2nd	Binomial theorem (without proof) for positive integral index.				
	3rd	Determination of general term				
	4th	Middle term in binomial expansion				
14TH	1st	Introduction to matrices	Unit-4 Vector Algebra			
	2nd	Order of a matrix				
	3rd	Types of matrices.				
	4th	Addition, Substraction, Scalar multiplication				
15TH	1st	Multiplication of matrices.		Unit-5 5.1 Limits and Continuity		
	2nd	Introduction to determinant				
	3rd	Expansion of determinant up to 3rd order				
	4th					
16TH	1st	Properties of determinants.			5.2 Differentiation	
	2nd	Minors and Co-factors.				
	3rd	Inverse of a matrix				
	4th	Solution of system of linear equations by Crammer's rule up to 3 variables.				
17TH	1st					
17TH	2nd	Solution of system of linear equations by matrix method up to 3 variables.				
	3rd					
	4th	Unit-4 Vector Algebra				
	18TH		1st			Vector and Scalar Quantities.
2nd	Notation and rectangular resolution of a vector.					
3rd	Types of vectors.					
19TH	4th	Addition of vectors.	Unit-5 5.1 Limits and Continuity			
	1st	Substraction of vectors.				
	2nd	Sclar Multiplication of vectors.				
	3rd	Scalar and vector products of two vectors.				
20TH	4th	Angle between two vectors		5.2 Differentiation		
	1st	Scalar projection of a vector on another vector				
	2nd	Vector projection of a vector on another vector				
	3rd	Area of a triangle and Area of a parallelogram.				
21TH	4th	Simple problems related to work and moment of a force.			5.2 Differentiation	
	1st	Define function.				
	2nd	Types of functions > Constant function > Identity function > Absolute value function > The Greatest integer functions > Trigonometric function > Exponential function > Logarithmic function				
	3rd	Define limit of a function and Existence of limit of a function				
22TH	4th	Algebra of limits.				5.2 Differentiation
	1st	Limit of some standard functions (without proof)				
	2nd	Limit of $ x $ and $[x]$.				
	3rd	Evaluation of limits using standard formulas				
23TH	4th	Test of Continuity of a function at a point	5.2 Differentiation			
	1st	Differentiation of algebraic functions,				

	2nd	Exponential function	Unit-6 6.1 Integral Calculus
	3rd	Logarithmic function	
	4th	trigonometric and inverse trigonometric functions (without proof)	
24TH	1st	Differentiation of sum	
	2nd	Product and quotient of functions.	
	3rd	Differentiation of function of a function	
	4th	Differentiation using logarithm.	
25TH	1st	Differentiation of a function w.r.t another function	
	2nd		
	3rd		
	4th		
26TH	1st	Integration as inverse process of differentiation.	
	2nd		
	3rd	Simple integration by substitution	
	4th		
27TH	1st	Integration by parts.	
	2nd		
	3rd		
	4th	Integration using partial fractions (for linear factors only)	
28TH	1st		
	2nd	Definite integrals of some simple functions	
	3rd		
	4th		
29TH	1st	Properties of definite integrals (without proof)	
	2nd		
	3rd	Simple problem on evaluation of area bounded by a curve and axes.	
	4th		
30TH	1st	Introduction to Differential Equation	6.2 Differential Equation
	2nd		
	3rd	Order and degree of a differential equation	
	4th		
31TH	1st	Formation of differential equation	
	2nd		
	3rd	Solution of first order and first-degree differential equation by variable separable method.	
	4th		
32TH	1st		
	2nd		
	3rd	Solution of linear differential equations.	
	4th		


17/8/2026

Concerned faculty
Smt. Prativa Patra


17/8/2026

HOD
Dept. of Math & Sc.