Community College of Skill Development

Lesson Plan: MATHEMATICS

Program: B.Voc(Automobile/Manufacturing/ Mechanical engineering manufacturing)
Semester: 1st Course Code: MTV-151-V Credits: 3-0-0

Course Objectives: The objective of studying this course is to familiarize the graduates with the basics of mathematics. To provide the knowledge on the applications of trigonometry, differentiation, integration and matrix in real life problems and formulate mathematical models using them.

Course Outcomes: After the successful completion of the course, students will be able:
CO1: To analyse and solve problems related to percentages, interest calculations, and statistical measures, and interpret their results in real-world contexts. To visualise and conceptualized the engineering problems.
CO2: to apply trigonometric identities and functions to solve mathematical problems and real-life applications involving angles and triangles. Use differentiation to evaluate the slop of function.
CO3: To evaluate the properties of matrices and determinants and apply these concepts to solve
systems of linear equations.
CO4: To understand and apply the principles of differentiation and integration to solve calculus problems

Equipment required in Classroom/ Laboratory/ Workshop

i. LCD/Projector
ii. Whiteboard/ Black Marker

Assessment Scheme

S.No.	Criteria	Marks
1	End Term Examination	75

2	Internal Evaluation Scheme	25
2a	Class Tests	15
2a (i)	Class Test-I	7.5
2a (ii)	Class Test-II	7.5
2(b)	Teacher Assessment (Continuous Evaluation)	10
2b (i)	Attendance	5
2b (ii)	Assignment / Presentation	5

Lecture No.	Topic Covered	Pedagogy	Date of Implementation	Course Outcomes Covered	Faculty Sign
1.	Number system, percentage & LCM-HCF	Whiteboard+ PPT	**4-08-2025**	To equip students with quantitative skills and arithmetic concepts to optimize production, analyzing data, planning operations	**Ms. Anjali Bist**
2.	A.P & G.P series		**5-08-2025**		
3.	Profit & Loss		**12-08–2025**		
4.	Simple & compound interest		**18-08-2025**		
5.	Time & Distance		**19-08-2025**		
6.	Mean, median & mode of grouped and ungrouped data		**25-08-2025**		
7.	Standard Deviation		**25-08-2025**		
8.	Definition & types of matrices		**26-08-2025**	To develop the ability to use matrices as a mathematic	
9.	Addition, subtraction of matrices, scalar multiplication		**26-08-2025**		

10.	Matrix multiplication, transpose of a matrix		**1-09-2025**	al tool for modeling and solving real-life problems	
11.	Symmetric, Skew Symmetric Matrices, Orthogonal matrices, Hermitian and Skew Hermitian matrix		**1-09-2025**		
12.	Determinant of a matrix and it's properties		**1-09-2025**		
13.	Minor, adjoint & cofactor of a matrix		**2-09-2025**		
14.	Inverse of a matrix		**2-09-2025**		
14.	Solution of simultaneous linear equations by inverse method		**8-09-2025**		
15.	Cramer's Rule		**8-09-2025**		
16.	Introduction to trigonometric functions: Degree & Radian measure		**9-09-2025**	Students will apply trigonometric formulas to solve simple engineering-related problems.	
17.	Trigonometric identities, application using right triangle		**15-09-2025**		
18.	Graph of trigonometric functions, Graph transformation		**16-09-2025**		
19.	Quadrant Rule, Transformation formulas		**6-10-2025**		
20.	Sum & difference formula of trigonometric functions		**13-10-2025**		
21.	Double angle & half angle formula		13-10-2025		
22.	Ratios of complementary angles		14-10-2025		

23.	Introduction to derivatives, derivatives using first principal			Students will learn the basic rules of differentiation and use them to solve simple rate-of-change problems.	
24.	Derivative formulas of known functions				
25.	Chain rule				
26.	Algebra of functions				
27.	Product rule				
28.	Quotient rule				
29.	Derivative of inverse trigonometric functions				
30.	Introduction of integration			Students will be able to integrate basic functions and understand its use in engineering contexts.	
31.	Integration of exponential function, polynomials				
32.	Integration of trigonometric functions				
33.	Algebra of functions				
34.	Integration by parts (ILATE rule)				

Text/Reference Books:

1. G.B. Thomas and R.L. Finney, “Calculus and Analytic geometry”, Pearson.
2. N.P. Bali and Manish Goyal, “A textbook of Engineering Mathematics", Laxmi Publications.