

GOVERNMENT POLYTECHNIC, PUNE
(An Autonomous Institute of Govt. of Maharashtra)

Programme	:	Diploma in ET/CE/EE /ME/MT/CM/IT/DDGM
Programme Code	:	01/02/03/04/05/06/07/08/17/21/22/23/24/26
Course	:	Applied Mathematics –II
Course Code	:	SC 182

Teaching Scheme:

	Hours /Week	Total Hours
Theory	03	48
Term Work /Tutorial	01	16

Evaluation:

	Progressive Assessment	Semester End Examination			
		Theory	Practical	Oral	Term work
Duration	Two class tests of 60 minutes duration	3 Hrs	--	--	--
Marks	20	80	--	--	--

Course Aim:

This subject intends to teach students basic facts, concepts, principles and procedure of Mathematics as a tool to analyze Engineering problems and as such it lays down foundation for the understanding of engineering science and core technology subjects.

Course Objectives:

- The students will be able to,
1. Under stand basic facts of Mathematics about the field of analysis of any Engineering problem.
 2. Know the standard ways in which the problem can be approached.
 3. Apply basic concepts to engineering problems.

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Course Contents:

Sr. No	Name	Periods	Marks
1	FUNCTIONS AND LIMITS :	13	18
	1.1 Functions: Concept of functions, Types of functions; (only definitions)	03	06
	1.2 Limits: Concept of limits and limits of functions. (Algebraic, trigonometric, logarithmic and exponential.)	10	12
2	DERIVATIVES:	16	24
	2.1 Definition of the derivative, derivatives of standard Functions.	03	04
	2.2 Differentiation of sum, difference, product and quotient of two or more functions	03	04
	2.3 Differentiation of composite, inverse, implicit functions.	04	06
	2.4 Differentiation of parametric, exponential and logarithmic Functions.	04	06
	2.5 Successive differentiation.	02	04
3	APPLICATIONS OF DERIVATIVES:	05	08
	3.1 Geometrical meaning of derivative (Equations of tangents and Normals)	03	04
	3.2 Maxima and minima of functions.	02	04
4.	VECTORS	06	14
	4.1 Definition of vector, position vector, Algebra of vectors (Equality, addition, subtraction and scalar multiplication)	01	02
	4.2 Dot (Scalar) product with properties.	02	04
	4.3 Vector (Cross) product with properties.	02	04
	4.4 Workdone and moment of force about a point & line	01	04
5.	NUMERICAL METHODS	08	16
	5.1 Solution of algebraic equations : Bisection method, Regula-falsi method and Newton – Raphson method.	04	08
	5.2 Solution of simultaneous equations containing 2 and 3 Unknowns : Gauss elimination method. Iterative methods- Gauss Seidal and Jacobi's method	04	08
		48	80

(For Tutorials a batch of 20 students)

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Reference Books:

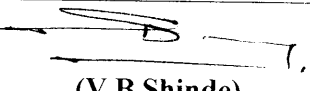
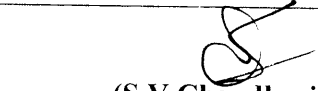
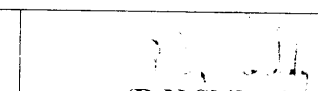
Author	Title	Publisher
Vishwanath	Engineering Mathematics Vol.I	Satya Prakashan, New Delhi
S.P. Deshpande	Mathematic for polytechnic students I & II	Pune Vidyarthi Griha Prakashan
H.K. Dass	Mathematics for Engineering Vol-I	S.Chand and Company
Shantinakaran	Engineering Mathematics vol-I and II	S.Chand and Company

Learning Resources: Chalk, Board etc.

Specification Table:

Sr. No.	Topic	Cognitive Levels			Total
		Knowledge	Comprehension	Application	
1	Function And Limits	04	08	06	18
2	Derivatives	08	16	00	24
3	Applications Of Derivatives	00	00	08	08
4	Vectors	04	04	06	14
5	Numerical Methods	04	04	08	16
	Total	20	32	28	80

Prepared by :

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