Programme	:	Diploma in ET/CE/EE//ME/MT/CM/IT/DDGM
Programme Code	:	01/02/03/04/05/06/07/08/16/17/21/22/23/24/26
Name of Course	:	Engineering Mathematics
Course Code	:	SC 282

Teaching Scheme:

	Hours/Week	Total Hours
Theory	2	32
Term work /Tutorials	1	16

Evaluation Scheme:

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

Course Aim:

The student shall learn various techniques in integration and differential equations and use these techniques to their related Engineering problems.

Course Objectives:

At the end of the course student will be able to

1. Apply the definition of integration as inverse of differentiation to solve problems.

2. Students will be able to apply various methods of integration..

3. To apply mathematical principle to solve engineering problems.

4. To draw and come to a valid conclusion.

5. To locate the exceptional and critical points in an engineering system.

Course Content:

Chapter No.	Name	Hrs	Marks
1	**INTEGRATION** Definitions, standard formulae, integration of algebraic sum of two or more functions, integration by substitutions and by trigonometric , transformations, integration of $\sqrt{ax^2+bx+c}$, $1/\sqrt{ax^2+bx+c}$, integration by parts, integration by partial fractions.	10	24
2	**DEFINITE INTEGRALS** Definition and properties of definite integrals. Example based on these properties	04	08
3.	**APPLICATION OF INTEGRATION** Mean value and root mean square value.	04	08
4	**DIFFERENTIAL EQUATIONS** Definition, order and degree of differential equations. Formation of differential equations. Solution of differential equations : (using following methods) i) Variable separable (ii) Reducible to variable separable. (iii) Homogeneous differential equations. (iv) Exact diff. equations. (v) Linear differential equations.	05	16
5	**COMPLEX NUMBERS** Definition and algebra of a complex numbers. Geometrical representation (Argand's diagram), modulus and amplitude of a complex number. De Moivre's theorem (without proof), roots of complex number.	05	12
6.	**LAPLACE TRANSFORMS** Definition, Laplace Transforms of elementary functions, important properties of Laplace Transforms, Inverse of Laplace Transforms, Convolution Theorem and application of Laplace Transform for solving differential equations.	04	12
	Total	32	80

(For Tutorials a batch of 20 students)

Reference Books:

Author	Title	Publisher
Grewal B.S.	Higher Engineering Mathematics	Khanna Publishers, New Delhi
Vishwanath	Engineering Mathematics Vol.II	Satya Prakashan, New Delhi
S.P. Deshpande	Mathematics for Polytechnic students	Pune Vidyarthi Griha Prakashan
H.K. Dass	Engineering Mathematics Part II	S. Chand & Co. Ltd. Delhi

Learning Resources: Chalk Board etc.

Specification Table:

Sr. No.	Topic / subtopic	Cognitive Levels			Total
		Knowledge	Comprehension	Application	
1	Integration	08	16	00	24
2	Definite Integration	04	04	00	08
3	Application of integration	00	00	08	08
4	Differential Equations	04	08	04	16
5	Complex Numbers	04	04	04	12
6	Laplace Transform	04	04	04	12
	Total	**24**	**36**	**20**	**80**

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