Semester: - III **Title: - Engineering Mathematics-III**

Course No. : - BS-MATHS-236 **Credits: - 3(2+1*)**

Lecture No.	Topics to be covered	Article No.
	Finite differences and interpolation :-	
1	Finite differences	23.1
2	Various difference operator & their relationship	23.4
3	Factorial Notation	23.3 (1)
4-5	Newton's forward and backward interpolation Formulae	23.5
6	Lag ranges interpolation formulae for unequal intervals	23.7 (1)
	Numerical differentiation :-	
7-8	First and second order derivative by using Newton's forward and backward interpolation	23.9 (1) (2)
9-10	Maxima and Minima of tabulated function	23.10
11-13	Numerical Integration :- by Trapezoidal rule and	23.11 (2)
	by Simpson's rule	23.11 (3) (4)
	Difference Equation:-	
14	Order of difference equation	24.2 (1) (2)
	Solution of linear difference equation	24.2 (3)
15-16	Rules for finding complementary Function	24.5
17-18	Rules for finding particular integral	24.6

	Numerical solution of ordinary differential eqation :-	
19	Picards method	25.2
20	Taylors series method	25.3
21-22	Eulers method	25.4
	Laplace Transforms :-	
23	Definition of Laplace Transforms	19.2
	Laplace Transforms of Elementary functions	19.3
24	Properties of L. T.	19.4
25	L.Transforms of derivative …….	19.6
26	L.Transforms of integrals	19.7
	(Transform of function)	
27	L.Transform of function	19.8
	Multiplied by t^n……	
28	Transform of function	19.9
	Divided by t……	
29-31	Inverse Laplace Transforms	19.11, 12, 13
32	Convolution Theorem……	19.14
33	Application of laplace transforms to solve ordinary differential equations……..	19.15
34	Simultaneous differential equations……..	19.16
	Laplace transform of	
35	Unit Step Function (Definition)	19.18 (1)
36	Unit Impulse Function (Definition)	19.19
37	Periodic Function (Statement)	19.20

Books :

1) Applied mathematics – Volume I by P. N. Wartikar & J. N. Wartikar.
2) Applied mathematics – Volume II by P. N. Wartikar & J. N. Wartikar.
3) Higher Engineering mathematics by Dr. B. S. Grewal.(38^{th} Edition)

* one credit is Tutorial