Bhoj Reddy Engineering College for Women: Hyderabad

Department of Basic Sciences

Lesson plan of faculty member for the academic year 2016–17

Class: I B Tech Branch - : EEE Semester: I

Subject: Mathematics - I Lectures per week: 4 + 1 (Tutorial)

Lecture Number	Topics to be covered	Date (s)
UNIT – I: Initial Value Problems and Applications		
1	Overview of Differential equations	9 August 2016
2	Exact Differential equations	10August 2016
3	Non exact Differential equations reducible to exact by inspection Method	11August 2016
4	Non exact Differential equations reducible to exact by homo geneous	12 August 2016
5	Tutorial(G1,G2,G3): Non exact Differential equations reducible to exact by Non homo geneous	12 August 20 16
6	Non homo geneous exact Differential equations Type I	16 August 201 6
7	Non homo geneous exact Differential equations Type II	17 August 2016
8	Linear Differential equations of second and higher order with constant coefficients	18 August 2016
9	Problems of the type f(x)= e^{ax}	19 August 2016
10	Tutorial(G1,G2,G3):Problems of the type f(x)= Sinax	19 August 2016
11	Problems of the type f(x)=Cosax	23 August 2016
12	Problems of the type f(x)=x^n	24 August 2016
13	Problems of the type f(x)=e^{ax} V(x)	26 August 2016
14	Tutorial(G1,G2,G3):Problems of the type f(x)=x V(x)	26 August 2016
15	Problems of the type f(x)=x V(x)	30 August 2016
16	Finding particular integral using inverse operator	31 August 2016
17	Methods of variation of parameter and it problems	1September2016
18	Applications of first order Differential equations-Newton's Law of cooling	2September2016
19	Tutorial(G1,G2,G3):Problems on Newton's Law of cooling	2September2016
20	Law of Natural growth and Decay and its problems	6September2016
21	Orthogonal Trajectories-Cartesian	7September2016
22	Orthogonal Trajectories Polar form	8September2016
23	Electrical circuits	9 September2016
24	Tutorial(G1,G2,G3):Revision	9September2 016
UNIT-II: **Linear System of Equations**		
25	Types of real matrices and complex matrices, rank	13September2016
26	Finding rank of a matrix by reducing to Echelon form	14September2016
27	Finding rank of a matrix by reducing to Normal form	15September2016
28	Finding the inverse of a non-singular matrix using Gauss-Jordan Method	16 September2016
29	Tutorial(G1,G2,G3):Consistency of system of Linear equations -Homogeneous using rank of a matrix	16 September 2016
30	Consistency of system of Linear equations- Non-Homogeneous using rank of a matrix	20 September 2016
31	Solving m × n and n × n Linear system of equations by Gauss elimination	21 September 2016
32	Consistency of system of Linear equations by LU decomposition method	22 September 2016
33	Applications: Finding current in the electrical circuits	23 September 2016
UNIT-III Eigen values, Eigen Vectors and Quadratic Forms		
34	Tutorial(G1,G2,G3):Eigen Values and Eigen vectors of a	23 September 2016

	matrix	
35	Eigen Values and Eigen vectors of a matrix	27 September 2016
36	Properties of eigen values and eigen vectors of real and complex matrices	28 September 2016
37	Cayley Hamilton Theorem(without proof)	29 September 2016
38	Finding inverse of a matrix and powers of a matrix by Cayley Hamilton Theorem	4 October 2016
39	Diagonalization of matrix	18 October 2016
40	Problems on Diagonalization	19 October 2016
41	Problems on Diagonalization	20 October 2016
42	Quadratic forms	21 October 2016
43	Tutorial(G1,G2,G3):Problems on Quadratic forms	21 October 2016
44	Reduction of a quadratic form to canonical form	25 October 2016
45	Reduction of a quadratic form to canonical form	26 October 2016
46	Rank and nature of quadratic forms	27 October 2016
47	Rank and nature of quadratic forms	28 October 2016
48	Tutorial(G1,G2,G3):Index and signature	28 October 2016
49	Problems on Index and signature	1 November 2016
50	Revision	2 November 2016
UNIT-IV Partial Differentiation		
51	Introduction of partial differentiation	3 November 2016
52	Homogeneous function	4 November 2016
53	Tutorial(G1,G2,G3):Euler's theorem, total derivative	4 November 2016
54	Chain rule	8 November 2016
55	Taylor's series expansion of functions of two variables	9 November 2016
56	Maclaurin's series expansion of functions of two variables	10 November 2016
57	Functional dependence	11 November 2016
58	Tutorial(G1,G2,G3):Jacobian	11 November 2016
59	Applications: maxima and minima of functions of two variables without constraints	15 November 2016
60	Lagrange's method (with constraints)	16 November 2016
61	Lagrange's method (with constraints)	17 November 2016
62	Tutorial(G1,G2,G3):Revision	18 November 2016
UNIT-V First Order Partial Differential Equations		
63	Formation of Partial Differential equations by elimination of arbitrary constants	18 November 2016
64	Arbitrary functions	22 November 2016
65	Lagranges method to solve the first order linear equations	23 November 2016
66	Lagranges method to solve the first order linear equations	24 November 2016
67	standard type I f(p,q) =0	25 November 2016
68	Tutorial(G1,G2,G3):standard type II f(z,p,q) =0	25 November 2016
69	standard type II f(z,p,q) =0	29 November 2016
70	standard type III $f_1(x,p) = f_2(y,q)$	30 November 2016
71	standard type IV z=px+qy+ f(p,q)	1 December 2016
72	Reducible to Standard type	2 December 2016
73	Tutorial(G1,G2,G3): Reducible to Standard type	2 December 2016
74	Revision	6 December 2016

Text books

1. A first course in differential equations with modeling applications by Dennis G.Zill.
2. Higher Engineering Mathematics by Dr.B.S.Grewal,Khanna Publishers.
3.Higher Engineering Mathematics by S Chand Publishers.

Name and signature of the faculty: Bushra
Head of the Department: K Padma