Bhoj Reddy Engineering College for Women, Hyderabad.
Lesson Plan for the Academic year 2015-16

Name of the Faculty:M.Sathish **Department:Basic Sciences**
Subject: Mathematics-I **Year:I**
No. of Lectures per Week: 4 **Branch:ECE-A**

Lecture No.	Date	Topic to be covered
		UNIT-I: Theory of Matrices
1.	12/8/15	Real Matrices: Symmetric, skew symmetric and orthogonal
2.	13/8/15	Complex Matrices:Hermitian,skew Hermitian ,Unitary and Idempotent
3.	14/8/15	Elementary row and column transformations, Elementary Matrix
4.	17/8/15	Finding rank of a matrix by reducing to Echelon form
5.	19/8/15	Finding rank of a matrix by reducing to Normal form
6.	20/8/15	Finding the inverse of a non-singular matrix using Gauss-Jordan Method
7.	21/8/15	Consistency of system of Linear equations -Homogeneous using rank of a matrix
8.	24/8/15	Consistency of system of Linear equations- Non-Homogeneous using rank of a matrix
9.	26/8/15	Solving $m \times n$ and $n \times n$ Linear system of equations by Gauss elimination
10.	27/8/15	Cayley Hamilton Theorem-Verification
11.	28/8/15	Finding inverse of a matrix and powers of a matrix by Cayley Hamilton Theorem
12.	31/8/15	Linear dependence and independence of Vectors
13.	2/9/15	Linear Transformation-Orthogonal Transformation
14.	3/9/15	Eigen Values and Eigen vectors of a matrix
15.	4/9/15	Properties of eigen values and eigen vectors of real and complex matrices
16.	7/9/15	Finding linearly independent eigen vectors of a matrix when the eigen values of the matrix are repeated
17.	9/9/15	Diagonalization of matrix
18.	10/9/15	Problems on Diagonalization
19.	11/9/15	Quadratic forms up to three variables
20.	14/9/15	Rank-positive definite, negative deginite,semi definite, index ,signature of quadratic forms
21.	16/9/15	Reduction of a quadratic form to canonical form
22.	18/9/15	Revision
23.	21/9/15	Revision
		Unit-II: Differential Calculus Methods
24.	23/9/15	Rolle's Mean Value Theorem
25.	25/9/15	Lagrange's Mean Value Theorem
26.	28/9/15	Cauchy's Mean Value Theorem
27.	30/9/15	Verification of the theorems and testing the applicability of these theorem to the given function
28.	1/10/15	Functions of several variables: Functional dependence
29.	5/10/15	Problems on Functional dependence
30.	7/10/15	Jacobian Function and its problems

31.	8/10/15	Maxima and Minima of function of two variables without constraints and with constraints
32.	9/10/15	Problems related to Maxima and Minima
33.	26/10/15	Methods of Lagrange Multipliers and its problems
34.	28/10/15	Revision
35.	29/10/15	Revision
		Unit-III :Improper Integration, Multiple Integration and Application
36.	30/10/15	Gamma function and its properties
37.	2/11/15	Beta function and its properties
38.	4/11/15	Relation between gamma and beta function
39.	5/11/15	Problems related to Beta function
40.	6/11/15	Problems related to Gamma function
41.	9/11/15	Multiple Integrals – double and triple integrals
42.	12/11/15	Problems on double and triple integrals
43.	13/11/15	Change of order of integration and its problems
44.	16/11/15	Changes of variables into polar form and its problems
45.	18/11/15	Changes of variables into cylindrical form and its problems
46.	19/11/15	Changes of variables into spherical form and its problems
47.	20/11/15	Finding the area of a region using double integration and its problems
48.	23/11/15	Finding the volume of a region using triple integration and its problems
49.	25/11/15	Revision
50.	26/11/15	Revision
		Unit-IV :Differential Equations and Applications
51.	27/11/15	Overview of Differential equations
52.	30/11/15	Exact Differential equations
53.	2/12/15	Problems on Exact Differential equations
54.	3/12/15	Linear Differential equations
55.	4/12/15	Problems on Linear Differential equations
56.	7/12/15	Bernoulli Differential equations
57.	9/12/15	Problems on Bernoulli Differential equations
58.	10/12/15	Applications of first order Differential equations-Newton's Law of cooling
59.	11/12/15	Problems on Newton's Law of cooling
60.	14/12/15	Law of Natural growth and Decay and its problems
61.	16/12/15	Orthogonal Trajectories-Cartesian and polar
62.	17/12/15	Problems on Cartesian form
63.	18/12/15	Problems on Polar form
64.	21/12/15	Revision
65.	23/12/15	Linear Differential equations of second and higher order with constant coefficients
66.	28/12/15	Problems of the type $f(x)= e^x$
67.	30/12/15	Problems of the type f(x)= Sinax
68.	31/12/15	Problems of the type f(x)=Cosax
69.	1/1/16	Problems of the type $f(x)=x^n$
70.	11/1/16	Problems of the type $f(x)=e^{ax}$ V(x)
71.	13/1/16	Problems of the type $f(x)=x^n$ V(x)
72.	18/1/16	Methods of variation of parameter and it problems
73.	20/1/16	Application to bending of beams

74.	21/1/16	Electrical circuits and simple harmonic motion
75.	22/1/16	Revision
76.	25/1/16	Revision
		Unit-V :Laplace Transform and its Application to Ordinary Differential Equations
77.	27/1/16	Definition of integral transform, Domain of the function and Kernel for the Laplace Transforms
78.	28/1/16	Existence of Laplace Transforms
79.	29/1/16	Laplace Transform of Standard functions
80.	1/2/16	Problems on Laplace Transform of Standard functions
81.	3/2/16	First Shifting theorem and its problems
82.	4/2/16	Second shifting theorem and its problems
83.	5/2/16	Unit step function and its problems
84.	8/2/16	Dirac's delta function and its problems
85.	10/2/16	Laplace Transform of function when they are multiplied by t
86.	11/2/16	Problems on Laplace Transform of function when they are multiplied by t
87.	12/2/16	Laplace Transform of function when they are divided by t
88.	15/2/16	Problems on Laplace Transform of function when they are divided by t
89.	17/2/16	Laplace Transform of derivatives
90.	18/2/16	Problems on Laplace Transform of derivatives
91.	19/2/16	Laplace Transform of Integrals
92.	22/2/16	Problems on Laplace Transform of integrals
93.	24/2/16	Inverse Laplace transform by Partial fractions and its problems
94.	25/2/16	Problems on Inverse Laplace transform by Partial fractions
95.	29/2/16	Inverse Laplace transform of function when they are multiplied by s
96.	2/3/16	Problems on Inverse Laplace transform of function when they are multiplied by s
97.	3/3/16	Inverse Laplace transform of function when they are divided by s
98.	4/3/16	Problems on Inverse Laplace transform of function when they are divided by s
99.	7/3/16	Inverse Laplace transform of derivatives and its problems
100.	9/3/16	Inverse Laplace transform of integrals and its problems
101.	10/3/16	Convolution theorem and its problems
102.	11/3/16	Convolution theorem and its problems
103.	14/3/16	Solving ordinary differential equations by Laplace transformation
104.	16/3/16	Problems related to Solving ordinary differential equations by Laplace transformation
105.	17/3/16	Revision
106.	18/3/16	Revision

Signature of the Faculty