VEER SURENDRA SAI UNIVERSITY OF TECHNOLOGY, BURLA

LESSON PLAN

Semester: II Session: 2016-17 Branch/Course: B. Tech. (All Branches)

Subject-MATHEMATICS-II

Name of Faculty:

Period	Module/	Topic to be covered	Remarks
	Number	_	
1	Ι	Basic concepts of differential equations, Separable	
		ODEs	
2	Ι	First order Homogeneous equations	
3	Ι	Exact ODEs	
4	Ι	Non exact ODEs and Integrating Factors	
5	Ι	Linear ODEs, Bernoulli's equation	
6	Ι	Applications of first order ODEs: Population dynamics	
7	Ι	Existence and Uniqueness of solutions	
8	Ι	Second order homogeneous linear ODEs with constant	
		coefficients	
9	Ι	Euler Cauchy equations	
10	Ι	Existence & uniqueness of solutions of second order	
		linear ODEs	
11	Ι	Wronskian, Non homogeneous second order ODEs	
12	Ι	Solution by the method of variation of parameters	
13	II	nth order linear ODEs, Differential operators	
14	II	Homogeneous, nth order, liner ODEs with constant	
		coefficients	
15	II	Homogeneous, nth order, liner ODEs with constant	
		coefficients (Continue)	
16	II	Non homogeneous nth order linear ODEs	
17	II	Non homogeneous nth order linear ODEs (continue)	
18	II	Operator method for non homogeneous ODEs	
19	II	Conversion of nth order ODE to a system of linear	
		ODEs	
20	II	Basic theory of system of ODEs and solution methods	
21	II	Solution methods for linear system of ODEs (continue)	
22	II	Power series method	
23	II	Frobenious method	
24	II	Sturm-Liouville problem, Orthogonal functions	
25	III	Laplace transform and Inverse Laplace transform	
26	III	Linearity, s-shifting	
27	III	Laplace transforms of derivatives and integrals	
28	III	Solution of initial value problems, Shifted data	
		problems	
29	III	Unit step functions, t-shifting, Dirac delta functions	
30	III	Partial fractions for inverse Laplace transform	
31		Convolution and inverse Laplace transform	
32	III	Solutions of integral equations using Laplace transform,	
		Differentiation and Integration of Laplace transform	
33	IV	Partial differential equations: Basic concepts	

34	IV	Wave equation: Solution by separation of variables	
35	IV	Fourier series and its applications to solve wave	
		equation	
36	IV	D' Alembert's solution of the wave equation	
37	IV	Characteristics, Normal form reduction	
38	IV	Heat equation: Solution by separation of variables	
39	IV	Solution of PDEs by Laplace transform	
40	IV	Solution of PDEs by Laplace transform (continue)	