HALDIA INSTITUTE OF TECHNOLOGY
LECTURE PLAN/LESSON PLAN

Serving Department: Applied Science **Batch:**

Semester: 2nd **Session:**

Paper Name: Mathematics - II **Paper Code:** M201

Allotted Hour(s): 40 **Actual Hour(s):** 48

Name of the Teacher: Mr. S. K. Maiti

Sl. No.	Date	Topics	Hours	Remarks/Books
Module – 1 :				
1.		Exact equations, Necessary and Sufficient condition of exactness of a first order and first degree ODE (statement only),..	1	• H.K.Das, Advanced Engineering Mathematics, S.Chand Publishers. • E.Kreyszig, Advanced Engineering Mathematics, Willey Publishers.
2.		Rules for finding Integrating factors,	1	
3.		Linear equation, Bernoulli's equation.	1	
4.		General solution of ODE of first order and higher degree	1	
5.		Different forms with special reference to Clairaut's equation	1	
6.		**Tutorial/Assignment**	**1**	
Module – 2 :				
7.		General linear ODE of order two with constant coefficients,	1	
8.		C.F. & P.I.,D-operator methods for finding P.I.	1	
9.		P.I.,D-operator methods for finding P.I continue	1	
10.		Method of variation of parameters,	1	
11.		Cauchy-Euler equations,	1	
12.		Solution of simultaneous linear differential equations.	1	
13		**Tutorial/Assignment**	**1**	

		Module – 3 :		
14.		Introduction of Graphs, Digraphs,	1	
15.		Weighted graph, Connected and disconnected graphs,	1	
16.		Complement of a graph, Regular graph, Complete graph, Subgraph;	1	
17.		Walks, Paths, Circuits, Euler Graph,	1	
18.		Cut sets and cut vertices,	1	
19.		Matrix representation of a graph, Adjacency and incidence matrices of a graph,	1	
20.		Discussion of related problems	1	
21.		Graph isomorphism & related problems	1	
22.		Bipartite graph and its properties	1	
23.		Discussion of related problems	1	
24		**Tutorial/Assignment**	**1**	
		Module – 4 :		
25.		Definition and properties of tree, Binary tree	1	
26.		Spanning tree of a graph, Minimal spanning tree, properties of trees,	1	
27.		Dijkstra's Algorithm for shortest path problem	1	
28.		Determination of minimal spanning tree using DFS, BFS,	1	
29.		Kruskal's and Prim's algorithms.	1	
30.		Discussion of related problems	1	
31		**Tutorial/Assignment**	**1**	
		Module – 5 :		

32.		Basic ideas of improper integrals, Discussion of different form of improper integrals	1	
33.		working knowledge of Beta and Gamma functions and their interrelations.	1	
34.		Discussion of related problems	1	
35.		Definition and existence of LT, LT of elementary functions, First and second shifting properties, Change of scale property; LT.	1	
36		LT of particular forms .	1	
37		LT of particular forms continued	1	
38		Discussion of related Problems	1	
39		Evaluation of improper integrals using LT, LT of periodic and step functions,	1	
40		Inverse LT: Definition and its properties;	1	
41.		Convolution Theorem and its application to the evaluation of inverse LT,	1	
42.		Solution of linear ODE with constant coefficients (initial value) problem using inverse LT	1	
43.		Discussion of related problems	1	
44.		Discussion of related problems continued	1	
45		**Tutorial/Assignment**	**1**	
		Total	45	
1		Difference between 1st order 1st degree linear and non-linear equations	1	Lecture Notes
2		Classification of different forms of higher order higher degree linear equations	1	Assignment
3		Fourier and Z Transforms	1	
		Total	03	

		Grand Total	48	