

**Panipat Institute of Engineering & Technology**

**Department of CSE-AI&DS**

**LESSON PLAN**

**Subject:** Artificial Neural Networks

**Subject code:** PC-CS-AIDS-311A

**Session:** Aug.- Dec 2023-24

**Semester:** 5<sup>TH</sup>

S No	Topic	CO Covered	Assignment No.	Teaching Methodology
1	<b>Unit I -</b> Biological neurons and artificial neurons	CO1		Smart Board, White Board
2	Model of an ANN. Activation functions used in ANNs.	CO1		Smart Board, White Board
3	Typical classes of network architectures.	CO1		Smart Board, White Board
4	Mathematical Foundations and Learning mechanisms: Re-visiting vector and matrix algebra.	CO2		White Board & marker
5	Error-correction learning	CO2		White Board & marker
6	Memory-based learning. Hebbian learning, Competitive learning	CO2	Assignment-1	Smart Board, White Board
7	Revision of Unit 1			Oral & Board
8	<b>Unit II</b> Introduction to Feed Forward ANN	CO3	Assignment-2	Smart Board, White Board
9	Structures of multi-layer feed forward networks	CO3		Smart Board, White Board
10	Back propagation algorithm	CO3		Smart Board, White Board
11	Functional approximation with back propagation	CO2		Smart Board, White Board
12	Practical and design issues	CO2		Smart Board, White Board
13	Pattern separability and interpolation	CO2		Smart Board, White Board
14	Regularization Theory and RBF network	CO3		Smart Board, White Board
15	Revision of Unit - 2			
16	<b>Unit III-</b> Associative memories network	CO3		Smart Board, White Board
17	Linear Association, Pattern Association	CO3		Smart Board, White Board
18	Hebb and Delta rule	CO3		Smart Board, White Board
19	Implementation in Python, Extended delta rule	CO4		Smart Board, White Board

20	Retrieval Algorithm	CO4		Smart Board, White Board
21	Recurrent Auto associative memory	CO4		Smart Board, White Board
22	Bi-directional associative memory	CO4	Assignment-3	Smart Board, White Board
23	Association encoding & decoding, Stability	CO4		Smart Board, White Board
24	Revision of Unit III			Oral & Board
25	<b>Unit-IV</b> Self-organizing networks	CO5	Assignment-4	Smart Board, White Board
26	UN supervised learning of clusters, winner-take-all learning, recall mode	CO5		Smart Board, White Board
27	Initialization of weights, separability limitations	CO5		Smart Board, White Board
28	Perceptron neural algorithm with its implementation in Python	CO5		Smart Board, White Board
29	Multi-Layer perceptron, Adaline Network, Madaline network	CO5		Smart Board, White Board
30	Application of ANN and its implementation			
31	Revision of Unit IV			Oral & Board