ARTIFICIAL NEURAL NETWORKS

Course Code	20EC4501E	**Year**	III	**Semester**	I
Course Category	Engineering	**Branch**	ECE	**Course Type**	Theory
Credits	3	**L-T-P**	3-0-0	**Prerequisites**	Engineering Mathematics, signals and systems
Continuous Internal Evaluation	30	**Semester End Evaluation**	70	**Total Marks**	100

Course Outcomes	
After successful completion of the course, the student will be able to	
CO1	understand the principles of Neural Networks L2
CO2	Identify different types of models of artificial neural networks L3.
CO3	Analyse the feed-forward neural networks. L4
CO4	Analyse the feedback neural networks. L4
CO5	Compare different applications of artificial neural networks. L4

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3-High, 2: Medium, 1:Low)

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	2									2		2		
CO2	2				2					2				
CO3		2								2			2	
CO4		3								3			3	
CO5		2				2	2		2	2				2
Average * (Rounded to nearest integer)	**2**	**2**			**2**	**2**	**2**		**2**	**2**		**2**	**3**	**2**

Syllabus		
UNIT No.	**Contents**	**Mapped COs**
I	**Basics of Artificial Neural Networks**: Characteristics of Neural Networks, Historical Development of Neural Network Principles, Artificial Neural Networks: Terminology, Models of Neuron, Topology, Basic Learning Laws.	CO1, CO4
II	**Activation and Synaptic Dynamics**: Introduction, Activation Dynamics Models, Synaptic Dynamics Models, Learning Methods.	CO1, CO2

III	**Feedforward Neural Network**: Introduction, Analysis of Pattern Association Networks, Analysis of Pattern Classification Networks,	CO1, CO3
IV	**Feedback Neural Networks**: Introduction, Analysis of Linear Auto associative FF Networks, Analysis of Pattern Storage Networks.	CO1, CO4
V	**Applications of ANN**: Introduction, Direct Applications	CO1, CO5

Learning Recourses
Text Book(s)
1. B. Yegnanarayana - Artificial neural network PHI Publication.2005 2. S. Raj sekaran, Vijayalakshmi Pari - Neural networks, Fuzzy logic and Genetic Algorithms
Reference Books
1. Kevin L. Priddy, Paul E. Keller – Artificial neural networks: An Introduction - SPIE Press, 2005 2. Mohammad H. Hassoun – Fundamentals of artificial neural networks - MIT Press ,1995
e- Resources and other Digital Material
1. https://ocw.mit.edu/courses/9-641j-introduction-to-neural-networks-spring-2005/ 2. https://nptel.ac.in/courses/117105084