

THIRD YEAR

Neural Networks Engineering	COE311
Prerequisite: COE301	(2-1-1-2)

Biological neurons and artificial neurons. Model of an ANN, computing model of neuron, Activation functions used in ANNs. Typical classes of network architectures. Learning methods: Supervised learning, unsupervised learning. Single-Layer Perceptrons: The Perceptron, The Perceptron Learning Rule, Gradient Descent Training of Untresholded Perceptrons. Error-Correction Learning. Feed forward ANN: Structure of multilayer feedforward network, Backpropagation algorithm, training and convergence of backpropagation. Radial-Basis Function Networks: Radial-Basis Functions, RBF Network Structure. RBF Training Algorithm.

Practical part: *Weights and Bias of a Neuron, Activation Functions of a Neuron, Generation Of AND and NOT Functions, Generation of XOR Function, Back Propagation Network for Data Compression.*