

FBEF1012 - PATTERN ANALYSIS (3-1-0)

MODULE-I (12 Hours):

Introduction Features, Feature Vectors and Classifiers, Supervised vs. unsupervised pattern Classifier based on Bayes Decision Theory, Linear classifier: Least square methods, Mean square estimation, Support vector machines, nonlinear classifier: Two layer & three layer perceptron, Back propagation algorithm, combining classifiers

MODULE-II (13 Hours)

Feature Selection Preprocessing, Statistical hypothesis testing, Class separability measures Feature Generation Linear transforms, Discrete Fourier transform (DFT), Hadamard transform, Discrete Time Wavelet transform (DTWT) Fourier feature, Moment-based features Fractals: Self similarity, Fractional Brownian Motion (FBM), Fractal dimension

MODULE-III (15 Hours)

Template Matching Based on optimal path searching techniques, correlations Clustering Sequential algorithms: Estimation of number of clusters Hierarchical algorithms: Agglomerative algorithms

Text Books:

1. Pattern Recognition, Sergios Theodoridis & Konstantinos Koutroumbas, Elsevier