AP5008 PATTERN RECOGNITION L T P C 3 0 0 3

UNIT I PATTERN CLASSIFIER 9

Overview of Pattern recognition – Discriminant functions – Supervised learning – Parametric estimation – Maximum Likelihood Estimation – Bayesian parameter Estimation – Problems with Bayes approach– Pattern classification by distance functions – Minimum distance pattern classifier.

UNIT II CLUSTERING 9

Clustering for unsupervised learning and classification–Clustering concept – C Means algorithm – Hierarchical clustering – Graph theoretic approach to pattern Clustering – Validity of Clusters.

UNIT III FEATURE EXTRACTION AND STRUCTURAL PATTERNRECOGNITION 9

Principle component analysis, Independent component analysis, Linear discriminant analysis, Feature selection through functional approximation – Elements of formal grammars, Syntactic description – Stochastic grammars – Structural Representation.

UNIT IV HIDDEN MARKOV MODELS AND SUPPORT VECTOR MACHINE 9

State Machines – Hidden Markov Models – Training – Classification – Support vector Machine – Feature Selection.

UNIT V RECENT ADVANCES 9

Fuzzy logic – Fuzzy Pattern Classifiers – Pattern Classification using Genetic Algorithms – Case Study Using Fuzzy Pattern Classifiers and Perception.

REFERENCES:

1. Andrew Webb, “Stastical Pattern Recognition”, Arnold publishers, London,1999

2. C.M.Bishop, “Pattern Recognition and Machine Learning”, Springer, 2006.

3. M. Narasimha Murthy and V. Susheela Devi, “Pattern Recognition”, Springer 2011.

4. Menahem Friedman, Abraham Kandel, “Introduction to Pattern Recognition Statistical, Structural, Neural and Fuzzy Logic Approaches”, World Scientific publishing Co. Ltd, 2000.

5. Robert J.Schalkoff, “Pattern Recognition Statistical, Structural and Neural Approaches”, John Wiley & Sons Inc., New York, 1992.

6. R.O.Duda, P.E.Hart and D.G.Stork, “Pattern Classification”, John Wiley, 2001

7. S.Theodoridis and K.Koutroumbas, “Pattern Recognition”, 4th Ed., Academic Press.2009.