Pattern Recognition and Applications	L	T	P	Linear Algebra, Probability Theory
	3	0	2	

Course Objective: Understand pattern recognition theories and apply them in practical problems.

S. NO	Course Outcomes (CO)
CO1	Summarize the various techniques involved in pattern recognition
CO2	Categorize the various pattern recognition techniques into supervised and unsupervised.
CO3	Illustrate the artificial neural network based pattern recognition
CO4	Discuss the applications of pattern recognition in various real life problems

S. NO	Contents	Contact Hours
UNIT 1	Fundamental concepts and blocks of a typical pattern recognition system. Decision functions- role and types, pattern and weight space, properties and implementation of decision functions.	10
UNIT 2	Feature identification, selection and extraction. Distance measures, clustering transformation and feature ordering, clustering in feature selection, feature selection through maximization and approximations.	8

UNIT 3	Pattern classification by distance functions. Clusters and cluster seeking algorithms. Pattern classification by likelihood functions. Baye's classifier and performance measures.	8
UNIT 4	Artificial neural network model, Neural network-based pattern associators, Feed forward networks and training by back-propagation- ART networks.	8
UNIT 5	Applications of statistical and neural network – based pattern classifiers in speech recognition, image recognition and target recognition.	8
	TOTAL	**42**

REFERENCES		
S.No.	**Name of Books/Authors/Publishers**	**Year of Publication / Reprint**
1	R. O. Duda, P. Hart, D. Stork, Pattern Classification, 2nd Ed. Wiley, ISBN: 978-0-471-05669-0.	2000
2	Bishop, C. M., Pattern Recognition and Machine Learning. Springer, ISBN 978-0-387-31073-2	2007
3	Bishop, C. M., Neural Networks for Pattern Recognition, Oxford University Press, ISBN-13: 978-0198538646	1995
4	Theodoridis, S. and Koutroumbas, K., Pattern Recognition, 4th Ed. Academic Press,SBN :9781597492720	2008

B.Tech. Information Technology			
Course code: Course Title	**Course Structure**		**Pre-Requisite**
	L	T	P	