Sardar Patel Institute of Technology

Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai-400058-India
(Autonomous Institute Affiliated to University of Mumbai)

Course Code	Course Name	Teaching Scheme (Hrs/week)			Credits Assigned			
		L	T	P	L	T	P	Total
EXL7052	Artificial Intelligence	--	--	2	--	--	1	1
		Examination Scheme						
		ISE	ESE				Oral	Total
			Practical					
		40	--				20	60

Pre-requisite Course Codes	EXC7052 (Artificial Intelligence)

After successful completion of the course, student will be able to

Course Outcomes	CO1	Evaluate mathematical model of binary classification
	CO2	Validate training and testing of neural network algorithms
	CO3	Construct a model of fuzzy controller
	CO4	Develop neural network based application

Exp. No.	Experiment Details	Ref.	Marks
1	**Aim: Develop a Radial Basis Function Network (RBFN) for speech (gender) recognition** **Problem definition:** i) Collect audio samples for different gender(20 for male & 20 for female) ii) Train RBFN network iii) Vary spread parameter iv) Calculate efficiency for different values of spread factor		5
2	**Aim: Develop a Generalized Regression Neural network for speech gender recognition** **Problem definition:** i) Collect audio samples for different gender(20 for male & 20 for female) ii) Train GRN network iii) Vary spread parameter iv) Calculate efficiency for different values of spread factor		5
3	**Aim: Develop a Probabilistic Neural network for speech (gender) recognition** **Problem definition:** i) Collect audio samples for different gender(20 for male & 20 for female) ii) Train PNN network iii) Vary spread parameter iv) Calculate efficiency for different values of spread factor		5

4	**Aim: Develop a Competitive layer Neural network for speech recognition for gender classification** **Problem definition:** i) Collect audio samples for different gender(20 for male & 20 for female) ii) Train CLNN network iii) Vary learning rate for kohonen weights iv) Calculate efficiency for different values of learning rate		5
5	**Aim: Develop a Cascade Forward Neural network for speech recognition forgender classification** **Problem definition:** i) Collect audio samples for different gender(20 for male & 20 for female) ii) Vary the hidden layer iii) Train CFNN network iv) Calculate efficiency for different values of hidden layer		5
6	**Aim: Develop a Linear Vector Quantization Neural network for speech recognition forgender classification** **Problem definition:** i) Collect audio samples for different gender(20 for male & 20 for female) out of which 10 samples for testing and 10 samples for training. ii) Vary the hidden layer iii) Train LVQ network iv) Calculate efficiency for different values of hidden layer		5
7	**Aim: Develop a Feed Forward Neural Network for speech recognition for gender classification** **Problem definition:** i) Collect audio samples for different gender(20 for male & 20 for female) out of which 10 samples for testing and 10 samples for training. ii) Vary the hidden layer iii) Train FFNN network iv) Calculate efficiency for different values of hidden layer		5
8	**Aim: Develop a Pattern recognition Neural Network for speech recognition for gender classification** **Problem definition:** i) Collect audio samples for different gender(20 for male & 20 for female) out of which 10 samples for testing and 10 samples for training. ii) Vary the hidden layer		5

	iii) Train PRNN network iv) Calculate efficiency for different values of hidden layer		
9	**Aim: Develop a Support Vector Machine (SVM) model for speech (gender) recognition** **Problem definition:** i) Collect audio samples for different gender(20 for male & 20 for female) out of which 10 samples for testing and 10 samples for training. ii) Feature extraction of samples iii) Training & testing using SVM model **iv)** Calculate of efficiency		5
10	**Aim: To implement the working of Fuzzy logic** **Problem definition:** i) Initialize a fuzzy logic controller example ii) Observe the variations in the output for change in rules		5
	Total Marks		**40**

References:
As recommended by faculty.