

Course code	Course Title	L	T	P	C
BCSE332P	Deep Learning Lab	0	0	2	1
Pre-requisite	NIL	Syllabus version			
		1.0			
Course Objectives					
1. Introduce major deep neural network frameworks and issues in basic neural networks. 2. To solve real world applications using Deep learning.					
Course Outcomes					
At the end of this course, student will be able to:					
1. Understand the methods and terminologies involved in deep neural network, differentiate the learning methods used in Deep-nets. 2. Identify and apply suitable deep learning approaches for given application. 3. Design and develop custom Deep-nets for human intuitive applications. 4. Design of test procedures to assess the efficiency of the developed model. 5. Understand the need for Reinforcement learning in real – time problems.					
Indicative Experiments					
1.	Demonstration and implementation of Shallow architecture, using Python, Tensorflow and Keras. <ul style="list-style-type: none"> Google Colaboratory - Cloning GitHub repository, Upload Data, Importing Kaggle's dataset, Basic File operations Implementing Perceptron, Digit Classification : Neural network to classify MNIST dataset 	10 hours			
2.	Hyper parameter tuning and regularization practice - <ul style="list-style-type: none"> Multilayer Perceptron (BPN) Mini-batch gradient descent, 	4 hours			
3.	Convolution Neural Network application using Tensorflow and Keras, <ul style="list-style-type: none"> Classification of MNIST Dataset using CNN Face recognition using CNN 	4 hours			
4.	Object detection using Transfer Learning of CNN architectures	2 hours			
5.	Image denoising (Fashion dataset) using Auto Encoders <ul style="list-style-type: none"> Handling Color Image in Neural Network aka Stacked Auto Encoders (Denoising) 	2 hours			
6.	Text processing, Language Modeling using RNN	2 hours			
7.	Transfer Learning models for classification problems	2 hours			
8.	Sentiment Analysis using LSTM	2 hours			
9.	Image generation using GAN	2 hours			
Total Laboratory Hours					30 hours
Mode of Evaluation: CAT / Mid-Term Lab/ FAT					
Recommended by Board of Studies		09-05-2022			
Approved by Academic Council		No. 66	Date	16-06-2022	