Programme Name	M. Tech. Computer Engineering
Course Code	COCE5075L
Course Title	Laboratory 5: Deep learning
Course Type	Laboratory

Prerequisites: Neural network, Python, NumPy, TensorFlow, Keras.

Course Outcomes: At the end of the course student will be able to:
CO1. Build and train the deep learning model for various application.
CO2. Identify the key deep learning architecture parameters.
CO3. Use best practices to train and develop test sets and analyze bias/variance for building DL applications.
CO4. Apply test automation to the software application.
CO5. Model the character-level language, natural language processing, etc. Architectures.

It is expected to conduct 8-10 experiments in the field of knowledge. One hour shall be tutored about theory and relevant tools to the students, and students shall perform the experiment. This is continuous evaluation, hence all experiments shall be evaluated in the same week. A sample list of experiments is given it may be altered as and when required. **Reference online course:** Andrew NG, "Deep Learning Specialization", Coursera.

Sr. No.	Course Contents
1.	Write a programme to build the deep neural network using NumPy.
2.	Write a programme to regularization in the deep learning model to handle the over fitting and also, compare the various optimization methods that can speed up learning and parameter optimization using NumPy.
3.	Write a programme to build the deep neural network using tensorFlow and perform the hyperparamter tuning, regularization, and optimization.
4.	Write a programme to build ConvNet in TensorFlow for a classification problem.
5.	Write a programme to build ConvNet using Transfer Learning approach.
6.	Write a programme to perform the Neural Style Transfer algorithm.

7.	Write a programme to build recurrent nueral network for text data using TensorFlow.
8.	Write a programme to build long-short-term-memory for sequential data using TensorFlow.
9.	Write a programme to use word vector representations to build an Emojifier for finding the most appropriate emoji to be used with this sentence.
10.	Write a programme to build neural machine translation.
11.	Write a programme to perform the name entity recognition.
12.	Write a programme to perform the trigger word/keyword detection from speech data.