Course Code	CSE 641
Course Name	Deep Learning
Credits	4
Course Offered to	UG/PG
Course Description	Recent advances in machine learning and specifically deep learning techniques have made it a popular and often a default option in many problem domains. The objective of this course is to introduce students through some of the latest techniques in deep learning. The focus of the course will be hands on and the students should be able to design intelligent deep learning systems for solving the problems in the area of their interests.

Pre-requisites		
Pre-requisite (Mandatory)	Pre-requisite (Desirable)	Pre-requisite(other)
	Machine Learning	

Post Conditions*(For suggestions on verbs please refer the second sheet)			
CO1	**CO2**	**CO3**	
Students are able to understand various deep learning models such CNN, Autoencoders, RNN etc.	Students are able to analyze various applications solved through the use of deep learning models	Students are able to design and implement their own deep learning models for the problem of their choice	

Weekly Lecture Plan

Week Number	Lecture Topic	COs Met	Assignment/Labs/Tutorial
1	Introduction to Machine Learning, Neural Network	CO1	
2	Training: Backpropagation	CO1	Implement backprop
3	Introduction to DL libraries	CO1	
4	Introduction to DL libraries	CO1	Use the libraries for a toy problem
5	CNN	CO1	
6	CNN Applications	CO2	Implement a CNN application
7	Autoencoder	CO1	
8	Autoencoder Applications	CO2	Implement a Autoencoder application
9	RNN/LSTM	CO1	
10	RNN/LSTM Applications	CO2	Implement a RNN application
11	Deep Reinforcement Learning	C01	
12	Deep Reinforcement Learning Applications	C02	Implement a RL application
13	Model Compression	CO1	

Assessment Plan			
Type of Evaluation	**% Contribution in Grade**		
Assignment	50		
Project	30		
Mid-sem	10		
End-sem	10		

*Please insert more row for other type of Evaluation

Resource Material	
Type	**Title**
Textbook	Deep Learning by Ian Goodfellow, Yoshua Bengio, and Aaron Courville
Textbook	Neural Networks: Tricks of the Trade - Second Edition