ABOUT THE COURSE
This course is designed to introduce the participants to important topics in Deep Learning.

We’ll study some popular and powerful techniques in Deep Learning, such as basics of Convolution Neural Nets, Reinforcement learning, Autoencoders, and Generative Adversarial Networks.

These techniques will then be applied to data from various sources. Python based libraries are used throughout the course for software exercises.

WHO MAY BENEFIT FROM THE COURSE?
Faculty & Students from any branch of Engineering or Science, Researchers, and Industrial Practitioners can attend and benefit from this course. Familiarity with basics of machine learning, neural networks, and deep learning is assumed (as covered in my other course on Introduction to Machine Learning and Deep Learning, also offered as a CEP Course from IIT Bombay).

FACULTY:
The main instructor for this course is Prof. P.S.V. Nataraj from IIT Bombay. The software sessions will be conducted by his PhD student and Research team from IIT Bombay.

LECTURE MATERIAL
Lecture slides and Software codes will be given.

COURSE CONTENTS
• Brief introduction to Convolution Neural networks – convolution, convolution layer, example convnet
• Reinforcement learning – Structure, flippers, L-learning, Q-learning
• Autoencoders – Simplest autoencoder, better autoencoders, denoising, variational autoencoders.
• Generative Adversarial Networks – A metaphor, Why antagonistic?, Implementing GANs, GANs in action, Deep GANs, Challenges
VENUE
Course will be held at IIT Bombay

Instructions
All participants must bring their laptops with MS-Windows 10; these are required for all the hands-on sessions.
Participants must attend the entire course.