



**COMPUTER SCIENCE
& ENGINEERING**

PRACTICAL MACHINE LEARNING WITH TENSORFLOW

Instructor Name :

PROF. BALARAMAN RAVINDRAN (IIT Madras - Computer Science and Engineering)

PROF.ASHISH VIJAY TENDULKAR (Google - Computer Science and Engineering)

COURSE DURATION : Jul-Sep 2019 **CORE / ELECTIVE :** Elective **UG / PG:** Both

PRE-REQUISITES : Programming, Data Mining or Machine Learning or Data Science

INTENDED AUDIENCE : NA

INDUSTRIES APPLICABLE TO : NA

COURSE OUTLINE : This will be an applied Machine Learning Course jointly offered by Google and IIT Madras. We will cover the basics of Tensorflow and Machine Learning in the initial sessions and advanced topics in the latter part. After this course, the students will be able to build ML models using Tensorflow.

ABOUT INSTRUCTOR : Prof. Balaraman Ravindran is currently an associate professor in Computer Science at IIT Madras. He has nearly two decades of research experience in machine learning and specifically reinforcement learning. Currently his research interests are centered on learning from and through interactions and span the areas of data mining, social network analysis, and reinforcement learning.

Ashish is a ML engineer in Google Cloud. He is passionate about solving real life problems with ML and spreading ML education. Ashish got his Masters and PhD at IIT Bombay and his post-doc at TIFR. He has held various positions including Asst. Prof at IIT Madras, VP of Data Science at Reliance and Principal Scientist at Media.net before joining Google.

COURSE PLAN

Week 1:Getting started with Tensorflow

Week 2:Overview of Machine Learning (Process and Techniques, Demonstration of ML concepts with Deep Playground)

Week 3:Data Input and Preprocessing with Tensorflow

Week 4:Machine Learning Model Building

Week 5:Prediction with Tensorflow

Week 6:Monitoring and evaluating models using Tensorboard

Week 7:Advance Tensorflow (Building custom models - CNNs, Scaling up for large datasets)

Week 8:Distributed training with hardware accelerators