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**TWO-DAY WEEKEND TRAINING PROGRAMME  
Saptahaant Shikshak Prashikshan (SSP)  
on  
Introduction to Machine Learning  
Date: 16<sup>th</sup> December and 17<sup>th</sup> December, 2017**

**◀ LAST DATE FOR ONLINE ENROLLMENT 11<sup>th</sup> December, 2017 ▶**

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**Introduction**

An important initiative has been taken by IIT Kharagpur to conduct weekend faculty development programme named 'Saptahaant Shikshak Prashikshan' (SSP) to facilitate up gradation of knowledge and the teaching skills of the faculty colleagues in specialised technical and science subjects. The Saptahaant Shikshak Prashikshan will provide an opportunity to acquire knowledge about current technological developments in relevant fields. It will not only promote the professional practices relevant to technical education but also will motivate the faculty to achieve competitive teaching and learning environment.

There will be no course fee for this SSP. However, the participants will have to bear the local expenditure. Participating teachers will attend live lectures delivered by IIT Kharagpur faculty at the Remote Centres on a Saturday & Sunday. The lecture transmission and live interaction will take place in distance mode using the A VIEW technology. The appointed Workshop Coordinators will handle the technology infrastructure for this two-day weekend training programme on "**Introduction to Machine Learning**" in the area of **Electronics and Computer Science**.

**Course Justification**

Over the past decade, Machine Learning has been used in many domains and given us practical speech recognition and conversational system, effective web search and many futuristic applications such as self-driving cars. The use of Machine Learning is pervasive in our daily lives. This course introduces the field of machine learning and the important concepts and techniques.

**Course Overview**

As the name suggests, this is an introductory course for Machine Learning. In this course, you will understand the theoretical as well as practical aspects behind the choice and design of a machine learning framework. The course introduces both supervised and unsupervised machine learning framework, and also covers some architectures widely applied in deep learning. The course also covers some of the best practices in machine learning (e.g., bias-variance, generalization, cross-validation).

**Course Objective**

Participants pursuing this course should be able to:

1. Identify real world situations where Machine Learning Techniques are suitable / more efficient than other approaches.
2. Formulate the real life problem as an appropriate machine learning problem.
3. Understand the inner workings of existing machine learning techniques.
4. Understand the principles behind designing new machine learning techniques.

**Course Modules**

1. **Introduction**
2. **Supervised learning: spam filtering, classification, user visit prediction, regression, generalization, bias-variance, cross-validation**
3. **Probabilistic models, Gaussian Mixture Models (GMM), Hidden Markov Models (HMM), Maximum likelihood.**
4. **SVM, kernel methods**
5. **Algorithms for training - Gradient Descent (GD), Stochastic Gradient Descent (SGD)**
6. **Unsupervised learning - clustering, dimensionality reduction**
7. **Boosting, Bagging, Random Forests**
8. **Neural Networks, Backpropagation, RNN, CNN**

#### **Date and Venue**

**Date :** The dates for the SSP on "**Introduction to Machine Learning**" are 16.12.2017 (Saturday) and 17.12.2017 (Sunday). The participants must report to the respective remote centres.

**Venue:** Remote centres located in different parts of the country. The list of participating remote centres is given along with online application form.

#### **Teaching Faculty**

**Prof. Sourangshu Bhattacharya**, Department of Computer Science and Engineering, IIT Kharagpur  
**email:** sourangshu@cse.iitkgp.ernet.in

**Prof. Pawan Goyal**, Department of Computer Science and Engineering, IIT Kharagpur,  
**email:** pawang@cse.iitkgp.ernet.in

#### **Eligibility**

- 1) He / she must be a faculty in the department of Computer Science and Engineering / Information Technology / Electronics Engineering / Electrical Engineering. Persons working in any other engineering disciplines or Science Departments are not eligible.
- 2) B.E. / B. Tech. or equivalent degree holders in the above mentioned disciplines with minimum teaching experience of 2 years and considerable experience in teaching Machine learning or a related area.
- 3) M.E / M.Tech degree holders in the above mentioned disciplines with Specializations in Computer Science Engineering / Electronics Engineering / Electrical Engineering with a minimum teaching experience of 1 years teaching in machine learning or a related area.
- 4) Ph.D degree holders should have a minimum teaching experience of 1 year and research experience or teaching experience in machine learning or a related area.

#### **Who may benefit**

The workshop is likely to benefit regular/visiting faculty colleagues who are teaching **the subjects of Machine Learning, Data Analytics as well as Deep Learning in the field Computer Science.**

#### **Note**

Please note that live recording of the course and other created contents will be released under Open Source through a portal. The recorded CD/DVD of the course lectures will be available for distribution, at cost, to any individual or institution. All participants are required to sign an undertaking for such release of contents contributed by them during and after the SSP. The recognition and citation will naturally be made for all contributors.

#### **Course Fee**

There will be no course fee for this SSP. However, the participants will have to bear the local expenditure at the Remote Centres for providing tea-snacks/lunch and other miscellaneous expenses. For this an amount of Rs. 1000/- (for two days) is to be paid to the Remote Centre Coordinator (as per their guidelines). For Accommodation participants will have to make their own arrangements.

#### **How to Apply**

Those wishing to attend this course should register online

**Online registration open on 20<sup>th</sup> November, 2017**

**Read Instructions for online registration for Coordinator** [[Click Here](#)]

**Read Instructions for online registration for Participants** [[Click Here](#)]

#### **Address for Communication:**

**Admin Team,  
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