

**Category 1: Nil**  
(Enclose Certificate that your institute is approved by TEQIP-II)

**Category 2: ₹ 5000**  
(Industry / NonTeqip / Self Sponsored)

**Category 3: ₹ 500** (Students)

Payment should be made via demand draft drawn in favour of  
“**CEP-STC, IIT Kharagpur**”, payable at Kharagpur

### DEMAND DRAFT DETAILS

Amount ₹	
Bank Name	
Place	
Branch Code	
DD No. & Date	

#### Declaration

The information provided is true to the best of my knowledge. If selected, I agree to abide by the rules and regulations of the course and shall attend the course for the entire duration without any failure.

Place \_\_\_\_\_

Date \_\_\_\_\_

Signature of applicant \_\_\_\_\_

**Please complete the details above and mail alongwith registration fee to:**

**Prof. Pabitra Mitra**  
Dept. of Computer Science and Engineering  
IIT Kharagpur – 721302  
E-mail: pabitra@cse.iitkgp.ernet.in

## About IIT Kharagpur

### History

First in the chain of IITs to be set up by the Government of India, Indian Institute of Technology, Kharagpur started in 1951 in the erstwhile Hijli Detention Camp. It has now blossomed into one of the finest technical institutions in the world, with 585 faculty members in 19 Departments, 9 Centres, and 12 Schools offering 6 M.Sc. programmes, 5 Joint M.Sc. -Ph.D. programmes, 15 B.Tech (Hons.) programmes, 49 joint M.Tech. - Ph.D programmes, 2 M.Tech. programmes (in video-conferencing mode), 1 Master of City Planning programme, 1 Master of Medical Science and Technology programme, 1 LL.B. in Intellectual Property Rights programme, 34 Dual-Degree (both B.Tech and M.Tech) programmes, and 2 Management programmes. It also has MS, Ph.D, and D.Sc. programmes.

### Location

Kharagpur is known world over for two landmarks. One, the longest railway platform, and the other, the Indian Institute of Technology, more commonly known as IIT. Situated about 120 km west of Kolkata, Kharagpur can be reached in about 2 hours by train from Howrah railway station of Kolkata or 3 hours by car from Kolkata Airport. Kharagpur is also connected by direct train services to most major cities of the country. The Institute is about 10 minutes drive (5 km) from the Kharagpur railway station. Private taxi, auto-rickshaw or cycle-rickshaw can be hired to reach the Institute.

### Weather

Winter (October to February) is moderate and pleasant (10 to 25°C) in Kharagpur. Summer (March to June) is hot (25 to 40°C) and sometimes humid. Rains are normally confined to the months of June to September.

# DATA MINING

## Overview

The course will cover state of art algorithms and applications of data mining.

First Day lecture session we cover the Basics of Data Mining and Knowledge Discovery from Databases and preliminaries on statistics and data management. Second Day covers Association Rule Mining, various algorithms for scalable frequent pattern discovery. Applications of Association Rule Mining is also Discussed.

Third Day and Fourth Day introduces Classification Algorithms and Predictive Analytics. Various Classification Algorithms like Bayes Classifier, Decision Trees, Nearest Neighbor Classifiers and Support Vector Machine are discussed. Applications are presented. Software tools for classification is also described.

Fifth Day lecture session we cover Exploratory Data Analysis. Clustering algorithms like k-means, hierarchical clustering are discussed. Various techniques for feature selection are also discussed. The lecture also covers time series data mining. Methods for graph data mining are also covered. Finally, hand on demonstration of use of open source tools are covered.

### Objective of the Course

- To cover theoretical developments in state of art algorithms for data mining
- To cover applications of data mining
- To demonstrate use of open source tools
- Useful for researchers working in these fields
- Useful to industry professionals.

### Important Dates

**Last Date for Receiving Application:** April 15, 2015  
**Intimation to Participants:** April 16, 2015  
**Course Duration:** April 18 - 23, 2015

### Venue

IIT Kharagpur and its extension centers at Bhubaneswar and Kolkata through online video lecture. All video-conferencing enabled classrooms at Kharagpur, Kolkata and Bhubaneswar are equipped with high definition video-conferencing system. Each of these acoustic treated air-conditioned video enabled classrooms with multiple HD cameras, document viewers and large display monitors permit teachers to conduct LIVE interactive sessions from Kharagpur with multiple remote classrooms at Kolkata and Bhubaneswar. 8 Mbps leased line connectivity of Kolkata and Bhubaneswar centers with Kharagpur ensure uninterrupted bi-directional lossless audio video transmission.

### Eligibility

**Category -1 (AICTE Sponsored / TEQIP Sponsored):**  
Faculty from AICTE approved Colleges / Institutions /Universities.

**Category – 2 (Student / Industry / others):**  
Persons from Industries & Govt. Organizations related in this field are also eligible.

### Course Schedule and Methods

The course will have lecture sessions from:  
6:00 - 8:00 PM from April 18 - 23, 2015



pabitra@cse.iitkgp.ernet.in

## Course Contents

- 1 Basics of Data Mining and Knowledge Discovery
- 2 Introduction to Data Management and Statistical Analysis
- 3 Association Rule Mining
- 4 Classification – Bayes classifier, decision tree, nearest neighbor rule, support vector machine, boosting
- 5 Exploratory data mining – clustering, k-means, hierarchical methods, feature selection
- 6 Complex data mining – sequence analysis, graph data mining, visualization
- 7 Demonstration of Open Source Data Mining tools

## The Faculty



**Pabitra Mitra** is an Associate Professor of Computer Science and Engineering at IIT Kharagpur. He did his BTech in Electrical Engg. from IIT Kharagpur and PhD in Computer Science from ISI Calcutta. He taught in IIT Kanpur and worked as a Scientist in Centre for AI and Robotics, Bangalore. He received the INAE Young Engineer Award, IBM Faculty Award, Yahoo Faculty Award and Royal Society UK Science Networking Award. He has co-authored a book "Pattern Recognition Algorithms for Data Mining" and has written about 50 papers in international journals and conferences.

### Course Fees

**Category-1:** Nil (for TEQIP Institutions)

**Category-2:** ₹ 5000 (for Industry / NonTeqip / Self Sponsored)

**Category-3:** ₹ 500 (for Students)

To confirm participation, please send the scanned copy of the Demand Draft to pabitra@cse.iitkgp.ernet.in

### Accommodation

Outstation participants will be provided accommodation at IIT Kharagpur on self payment basis as per availability on prior request.

### Course Co-Ordinator

**Pabitra Mitra**

Department of Computer Science and Engineering  
Indian Institute of Technology Kharagpur  
Kharagpur - 721302, West Bengal, India  
Phone: +91-3222-282356

Email: pabitra@cse.iitkgp.ernet.in

## REGISTRATION FORM

# KNOWLEDGE DISSEMINATION PROGRAMME

## DATA MINING

April 18 - 23, 2015

Name .....

Date of Birth .....

Gender  Male  Female

Category  Academic  Student  Professional  
(Please enclose a bonafide certificate from your parent institution)

Organization .....

Address for Correspondence .....

Preferred location for attending .....

Phone .....

E-mail .....

Highest Academic Qualification .....

Experience (in years) .....

Accommodation Required (at IIT Kharagpur)  Yes  No

