

# About IIT Kharagpur



Kharagpur - a dusty town tucked away in the eastern corner of India, famous until 1950 as home to the longest railway platform in the world - became the nursery where the seed of the IIT system was planted in 1951. IIT Kharagpur started its journey in the old Hijli Detention Camp in Eastern India, where some of the country's great freedom fighters toiled and sacrificed their lives for India's independence. Spurred by the success of IIT Kharagpur, four younger IITs sprouted around the country in the two following decades, and from these five came thousands of IITians, the brand ambassadors of modern India. It was the success of this one institution at Kharagpur that wrote India's technological odyssey.

The Institute takes pride in its relentless effort to provide the best platform for both education as well as research in the areas of science and technology, infrastructure designs, entrepreneurship, law, management, and medical science and technology. IITKGP is not just the place to study technology, it is the place where students are taught to dream about the future of technology and beam across disciplines, making differences enough to change the world.



## Program Structure

1. Foundations of Data Analytics
2. Review of Statistics Module
3. Prediction and Analysis Module
4. Clustering Methods Module
5. Case studies and live problems using R

## Program Fee

Nil for TEQIP-III sponsored participants

**For others - INR 20,000/-** (Twenty thousand) + GST @18% (i.e. INR 23600 including GST) per participant

## Last day of Registration

# 08

November 2019

## How to Apply

Use the link: <https://erp.iitkgp.ac.in/CEP/courses.htm> to apply ONLINE.



Payment if applicable is to be done ONLINE after getting short listed for the program.

## Contact Us

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## Program Schedule and Venue

20 – 22 November,  
2019 (9:30 AM – 6 PM)

IIT Kharagpur –  
Department of Industrial  
and Systems  
Engineering



**NPIU**

**TEQIP-KIT**

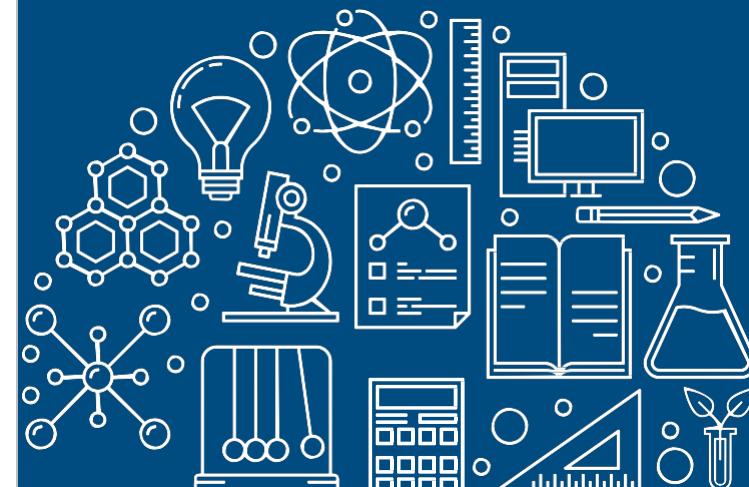
NPIU - A Unit of MHRD, Govt. of India for  
Implementation of World Bank Assisted Projects in Technical Education

Indian Institute of Technology Kharagpur

## DATA ANALYTICS WITH R

Three-day

20 – 22 November, 2019



## Introduction / Overview

Data Analytics is all about sophisticated quantitative and qualitative analysis of data. It includes predictive as well as prescriptive modeling to build competitive strategies based on data-driven insights that in turn generate impressive business results. Exemplars of analytics are using new tools to identify their most profitable customers and offer them the right price, accelerate product innovation, optimize system performance, and locate the key drivers of financial performance to maximize revenue. Data analytics is conceived on a strong foundation by bringing together a diverse body of knowledge from applied statistics, applied mathematics, computer science, optimization, consumer behavior, risk management, operations research and decision theory. As the use of analytics growing rapidly, need of skilled analysts, who understand the data, shift through the information and help solving the business problems, is inevitable in future.

With the growing support of analytics software, practitioners can solve complex problems related to business transactions, manufacturing, healthcare, finance, insurance, etc. R is an open-source statistical tool that covers the entire gamut of data analytics and provides platforms for data mining, statistical analysis, forecasting, text analytics and optimization and simulation. R is available for free for personal use, and is very popular among professionals, researchers and students across the globe.

Department of Industrial & Systems Engineering of IIT Kharagpur with their proven expertise in data analytics has come forward to train interested participants.

## Program Objectives

To build **competency** of the participants in

- Fundamentals of data analytics and its applications.
- Descriptive, predictive and prescriptive data analytics.
- Exposure to practical problems and their solutions using R.



## What you will learn

### Program Content

<b>Foundations of Data Analytics</b>	Introduction to Data Analytics: Overview, Policy, and Application
<b>Review of Statistics Module</b>	Bivariate and Multivariate descriptive statistics, Distribution, Estimation, Hypothesis Testing
<b>Prediction and Analysis Module</b>	Experimental Designs & ANOVA, Multiple Linear and Logistic Regression, Principal Component Analysis
<b>Clustering Methods Module</b>	Hierarchical and K-mean clustering
<b>Case studies and live problems using R</b>	

## About the Faculty

### Prof. Jitendra Kumar Jha

Prof. Jha is an expert in the area of Supply Chain Management, Operations Research, Inventory Control and Facility Location. His main areas of teaching and research include Operations Research, Statistical Decision Modeling, Facility Planning, Supply Chain Optimization and Logistics Planning. His publications appeared in the leading journals like Journal of the Operational Research Society, Applied Mathematical Modelling, Computers & Industrial Engineering, International Journal of Production Research, Journal of Manufacturing Systems, Journal of Cleaner Production, etc. With his years of experience in teaching and industry consultancy, he is suited to present the context of data analytics in the background of today's industrial needs. More details can be found at

<http://www.iitkgp.ac.in/department/IM/faculty/im-jkjha>

### Co-Coordinators

#### Prof. Jhareswar Maiti

Prof. Maiti, the former Head of the Department of Industrial and Systems Engineering is an expert in the area of data science, safety analytics, VR & AR, and risk assessment & uncertainty analysis. He is also the founder of the Virtual Reality Laboratory in IIT Kharagpur. He has published many articles in national and international journals in the area of analytics. With his extensive experience in research and academic leadership, participants will have a unique opportunity to learn about the latest advancement in the area of data analytics. More details can be found at

<http://www.iitkgp.ac.in/department/IM/faculty/im-jmaiti>

#### Prof. Sayak Roychowdhury

Prof. Roychowdhury joined IIT Kharagpur in 2018 as a faculty member. He earned his PhD from The Ohio State University, USA in 2017 and worked for one year in the industry as a senior analyst. His expertise in R, alongside his professional and research experience will bring a whole new perspective and dynamism in this program. More details can be found at

<http://www.iitkgp.ac.in/department/IM/faculty/im-b8ddd4e23c3d98fe4c4c61177afffac2>