An Initiative of Ministry of Electronics & Information Technology (MeitY) Government of India

A Faculty Development Program

On

Big Data Analytics and High Performance Computing

3/3/2025 to 7/3/2025

Under the aegis of
Electronics & ICT Academy, IIT Roorkee

In the collaboration with
GIET University, Gunupur (Hub)
and Ajay Binay Institute of Technology Cuttack (Spoke)

Prerequisites

No experience is required, but fundamental knowledge of any programming language would be helpful.

Course Features

- 40 Hours of Lectures, Hands-on & Pedagogy/Industry sessions
- Lectures from Expert Speakers, Hands-on from industry/ Academia experts
- Access to learning material and video lectures¬
- Certificate by E&ICT Academy IIT Roorkee

Who Should Register?

Any Interested Faculty/PhD-Scholars UG/PG/ & Industry Persons can register.

These FDPs can be considered in alignment with other Quality Improvement Programs (QIP) as well as NBA and NAAC for recognition/credit.

Why this course?

The Faculty Development Program is designed to equip faculty members with comprehensive knowledge and practical skills in big data analytics and high performance computing (HPC). It will cover the core concepts, methodologies, and technologies used for processing and analyzing massive datasets efficiently, as well as leveraging HPC to solve complex computational problems.

Objectives of the course

- Train faculty members to work with popular big data processing frameworks, such as Hadoop and Apache Spark, and understand their application in various scenarios.
- Familiarize participants with data analysis tools and programming languages, like Python and R, for big data handling and analysis.
- Provide an overview of HPC, including its architecture, benefits, and applications in solving complex computational problems.
- Explain parallel processing models, including MPI (Message Passing Interface) and OpenMP, and their role in HPC environments.
- Train faculty in data analysis using Python and R, with a focus on libraries like Pandas, NumPy, and SciPy.
- Demonstrate effective data visualization methods using tools such as Matplotlib, Seaborn, and Tableau, helping faculty convey complex data insights.

Registration Fee

Fees: ₹ 250/participant, non-refundable (Applicable for all)
Note: Refund will be done in case of course cancellation only within 20 working days

How to make Payment: https://eict.iitr.ac.in/instruction-for-payment/

Conference Code: EICTIITR-FDP-25-05

Registration Link: https://forms.gle/WtryMP1Jy1F1kYfm7

Accommodation

Accommodation on a sharing basis will be provided based on the availability of guest rooms on a paid basis.

Accommodation charge: (INR 1200/day/person)
Contact - sibofromgiet@giet.edu (9437234031) for booking

Focus Areas

- What is Big Data?: Definitions, characteristics, and the 5 V's (Volume, Velocity, Variety, Veracity, Value)
- Big Data Ecosystem: Overview of key components and frameworks
- Data Collection and Storage: Data lakes, distributed storage systems, and NoSQL databases
- Introduction to Big Data Processing: Overview of Hadoop and Apache Spark
- Introduction to Apache Spark: Architecture, key concepts, and components
- Spark Core Concepts: RDDs (Resilient Distributed Datasets) and DataFrames
- Spark SQL and DataFrames: Querying data in Spark using SQL
- Spark Streaming: Real-time data processing concepts and applications
- Cluster Computing: Parallel computing and distributed systems
- Grid Computing and Supercomputing

Principal Investigator

Prof. Sanjeev Manhas, ECE Department, IIT Roorkee

Course Coordinators

Dr. Raghvendra Kumar, CSE Department, GIET University

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