



# AIU-AADC-NCU

organises

## Staff Development Programme (SDP)

on

# BIG DATA ANALYTICS

## Recent Trends, Tools & Technologies

21<sup>st</sup> - 25<sup>th</sup> October, 2024

Hosted by the Department of Computer Science & Engineering,  
The NorthCap University, Gurugram, Haryana, India

Under

Academic & Administrative Development Centre (AADC)  
Established by Association of Indian Universities (AIU)





## ABOUT THE NORTHCAP UNIVERSITY

Established in 1996, formerly known as ITM University, The NorthCap University (NCU) is a progressive multidisciplinary university located in the city-centre of Gurugram, Haryana. NCU operates multiple schools and departments in its state-of-the-art sustainable, tech-first, campus and hosts a diverse body of engineering & technology, management, liberal arts, law, applied sciences, business and media and entertainment students.

NCU is a National Assessment and Accreditation Council (NAAC) Grade A accredited university that serves as a research as well as talent catalyst between students and industry. Guided by eminent academicians and industry leaders, it follows an immersive pedagogy to deliver undergraduate, postgraduate as well as doctoral programmes.

## ABOUT ASSOCIATION OF INDIAN UNIVERSITIES

The formation of the Inter-University Board (IUB) of India as an Apex Inter-University Organization on March 23, 1925, in a meeting of Vice Chancellors/their representatives at Bombay University was the culmination of the need to bring together all the universities in India on a common platform through a coordinating body, to protect the interest of the students as well as the universities. The objective was to promote university activities, especially by way of sharing information and increasing co-operation in the field of education, culture, sports and allied areas. Prior to this, having such an organization in India was recommended by the Sadler Commission in 1919 followed by a resolution, made in the Conference of Vice Chancellors of the Indian Universities convened at Shimla in 1924. The Inter-University Board acquired a legal status with its registration as a Society under the Societies Registration Act, 1860, on September 29, 1967 and was renamed as Association of Indian Universities (AIU) in 1973. Since its inception AIU is actively engaged in the growth and development of Higher Education. The membership of AIU includes all types of universities e.g. Conventional Universities, Open Universities, Deemed to be Universities, State Universities, Central Universities, Private Universities and Institutes of National Importance. In addition to Indian Universities, 13 Universities/Institutes from Bangladesh, Bhutan, Republic of Kazakhstan, Malaysia, Mauritius, Nepal, Thailand, United Arab Emirates and United Kingdom are its Associate Members

# Big Data Analytics: Recent Trends, Tools & Technologies

## Prerequisites

General computer skills and access to the Internet for research and data gathering.

## Who should pursue this SDP?

- Faculty members from Engineering and Management background
- Programming Developers and System Administrators
- Working Professionals and Project Managers
- Management Professionals, System Architects, Cloud Engineers and Testing Professionals
- Business Intelligence, Data Warehousing, and Analytics Professionals
- Academicians, Research Scholars and Technical Staff

## Trainers are Certified Experts from Industry and Academia

- Industry Experts from Tech Giants like IBM, TCS etc.
- Microsoft Certified, AWS Certified Internal Experts

## Certification

- E-Certificate will be awarded jointly by NCU & AIU subject to completion of Capstone Project.

## Registration Details

Registration Link: <https://tinyurl.com/yckxcyk7>

Registration Fee: INR 1000/-

Mode: Hybrid Mode

Duration: 20 Hours (1:30 PM – 5:30 PM for 05 Days)

## Contact Details

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## Programme Overview

The Big Data Analytics Staff Development Programme (SDP) prepares you to apply the science of Data Analytics to the modern phenomenon of “Big Data Analytics,” that is, data whose scale and complexity offer vast challenges and opportunities. The Big Data Analytics SDP is designed to make you a certified Big Data practitioner by providing you rich hands-on training on Hadoop ecosystem and best practices about HDFS, MapReduce, Hive, and Spark. The programme is designed for practitioners and academicians from Engineering background and Business Analysts with MBA/BBA qualifications.

In this 5 days SDP, the participants will evaluate trends and understand the process of Big Data. It will take them through platforms, processing, management, and analytics. The participants can Leverage this programme to grow within the organization, switch to new profiles, explore new frontiers of technology through interactive sessions and industry projects.

## Outcomes

- Fundamentals of Big Data, APACHE Hadoop and its ecosystem
- MapReduce Programming paradigm and its implementation
- Introduction to HIVE, Implementation of HIVE on real world Big Data
- Practicing real-life projects using APACHE SPARK framework
- HiveQL: Query Language in Hive
- Working with DataFrames and Spark SQL
- Machine Learning with Spark MLlib

## Duration

- 20 Hours (04 Hours Per Day for 05 Days)

## Scope

- Comprehensive Understanding of Big Data Analytics
- Focused on latest trends, tools and technologies in the field
- Theoretical insights and practical skills

## Glimpse of Programme

### Day 1: 21<sup>st</sup> October, 2024

Session	Topic	Details
1:30 PM - 2:30 PM	Inauguration	Inauguration Ceremony
2:30 PM - 3:30 PM	Introduction to Big Data and Hadoop Ecosystem Overview	Hadoop, HDFS, YARN, Map Reduce
3:30 PM - 3:45 PM	Tea Break	
3:45 PM - 4:45 PM	HDFS Architecture and Operations	Understanding HDFS, Basic Commands
4:45 PM - 5:30 PM	Hands-on: HDFS Setup and Commands	Hadoop Environment, File Operations

### Day 2: 22<sup>nd</sup> October, 2024

Session	Topic	Details
1:30 PM - 2:30 PM	Introduction to Map Reduce	Map Reduce Paradigm, Workflow (Mapper, Reducer)
2:30 PM - 3:30 PM	Writing and Running Map Reduce Jobs	Map Reduce Programmes in Java/Python
3:30 PM - 3:45 PM	Tea Break	
3:45 PM - 4:45 PM	Advanced Map Reduce Concepts	Combiners, Partitioners, Counters, Job Optimization
4:45 PM - 5:30 PM	Hands-on: Map Reduce Programming	Practical on Map Reduce: Real World datasets

**Day 3: 23<sup>rd</sup> October, 2024**

Session	Topic	Details
1:30 PM - 2:30 PM	Introduction to HIVE and Data Warehousing	What is HIVE? HIVE Architecture, HIVE vs RDBMS
2:30 PM - 3:30 PM	HIVEQL: Query Language in HIVE	DDL, DML, Bucketing, HIVEQL Queries
3:30 PM - 3:45 PM	Tea Break	
3:45 PM - 4:45 PM	Data Loading and Management in HIVE	Create-Manage Tables, Load Data in HIVE
4:45 PM - 5:30 PM	Hands-on: HIVE Queries	Writing HIVEQL Queries, Data Analysis on HIVE

**Day 4: 24<sup>th</sup> October, 2024**

Session	Topic	Details
1:30 PM - 2:30 PM	Introduction to APACHE SPARK	Overview of SPARK, Spark vs Hadoop, Spark Architecture
2:30 PM - 3:30 PM	SPARK Programming Basics	RDDs, Transformations, Actions
3:30 PM - 3:45 PM	Tea Break	
3:45 PM - 4:45 PM	Working with Data Frames and Spark SQL	Introduction to Data Frames, Querying Structured Data using Spark SQL
4:45 PM - 5:30 PM	Hands-on: Basic SPARK Programming	Building simple Spark Applications with RDDs and Data Frames

**Day 5: 25<sup>th</sup> October, 2024**

Session	Topic	Details
1:30 PM - 2:30 PM	SPARK Streaming and Real-Time Analytics	Overview of SPARK Streaming, Handling real-time data streams
2:30 PM - 3:30 PM	Machine Learning with Spark MLlib	Spark MLlib, Building ML models
3:30 PM - 3:45 PM	Tea Break	
3:45 PM - 4:45 PM	Integration of Hadoop, HIVE and SPARK Capstone Project	How Hadoop, HIVE and Spark work together, Practical Workflows
4:45 PM - 5:30 PM	Validictory	

## Patrons



**Prof. Prem Vrat**  
Pro-Chancellor  
The NorthCap University, India



**Prof. Nupur Prakash**  
Vice Chancellor  
The NorthCap University, India



**Dr. Pankaj Mittal**  
Secretary General  
Association of Indian Universities (AIU), Delhi

## Programme Chair



**Prof. Rita Chhikara**  
HOD, CSE  
The NorthCap University, India

## Programme Conveners



**Dr. Meghna Sharma**  
Associate Professor  
The NorthCap University, India



**Mr. Pulkit Narwal**  
Assistant Professor  
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