BIG DATA ANALYTICS

(Professional Elective-V) / (Common for CSE & IT)

Course Code : 15CT1135

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Pre-requisites:

Database Management Systems, Data Warehousing and Data mining

Course Outcomes:

At the end of the Course, the Student will be able to:

CO 1 Understand big data analytics as the next wave for businesses looking for competitive advantage

CO 2 Understand the financial value of big data analytics

CO 3 Explore tools and practices for working with big data

CO 4 Understand how big data analytics can leverage into a key component

CO 5 Learn about stream computing

UNIT-I **(10 Lectures)**

INTRODUCTION:

Dawn of the Big Data Era, Definition and Features of Big Data, Big Data Value, The Development of Big Data, Challenges of Big Data.

RELATED TECHNOLOGIES: Cloud Computing - Cloud Computing Preliminaries, Relationship Between Cloud Computing and Big Data, IoT - IoT Preliminaries, Relationship Between IoT and Big Data, Data Center, Hadoop - Hadoop Preliminaries, Relationship between Hadoop and Big Data.

UNIT-II **(10 Lectures)**

BIG DATA GENERATION AND ACQUISITION:

Big Data Generation-Enterprise Data,IoT Data, Internet Data, Bio-

medical Data, Data Generation from Other Fields, Big Data Acquisition - Data Collection, Data Transportation, Data Pre-processing.

UNIT-III (10 Lectures)

BIG DATA STORAGE:

Storage System for Massive Data,Distributed Storage System,Storage Mechanism for Big Data - Database Technology, Design Factors, Database Programming Model

HADOOP & MAP REDUCE:

Data Storage and Analysis, Comparison with Other Systems, A Brief History of Hadoop , Apache Hadoop and the Hadoop Ecosystem, A Weather Dataset, Analyzing the Data with Unix Tools, Analyzing the Data with Hadoop(Map and Reduce, Java MapReduce), Scaling Out, Hadoop Streaming, Hadoop Pipes.

UNIT-IV (10 Lectures)

BIG DATA ANALYSIS:

Traditional Data Analysis, Big Data Analytic Methods, Architecture for Big Data Analysis - Real-Time vs. Offline Analysis, Analysis at Different Levels, Analysis with Different Complexity, Tools for Big Data Mining and Analysis.

UNIT-V (10 Lectures)

BIG DATA APPLICATIONS:

Application Evolution, Big Data Analysis Fields - Structured Data Analysis, Text Data Analysis,Web Data Analysis, Multimedia Data Analysis, Network Data Analysis, Mobile Traffic Analysis, Key Applications - Application of Big Data in Enterprises, Application of IoT Based Big Data, Application of Online Social Network-Oriented Big Data, Applications of Healthcare and Medical Big Data, Collective Intelligence, Smart Grid.

TEXT BOOK:

Min Chen, Shiwen Mao, Yin Zhang,Victor C.M. Leung, “Big Data: Related Technologies, Challenges and Future Prospects”, Springer; 2014 edition.

REFERENCES:

1. Tom White, “Hadoop- The Definitive Guide”, O’reilly, 2nd Edition.
2. VigneshPrajapati,”Big Data Analytics with R and Hadoop”, PACKT Publishing,November 2013.