

OBJECTIVE:

The aim of the course is to explore the fundamental concepts of Big Data Analytics, and enable them to analysis the big data using intelligent techniques, and facilitate them to understand various search methods and visualization techniques, and help them to employ the various techniques for mining data stream, and understand the applications using analytics tools to solve big data problems.

COURSE OUTCOME:

Upon completion of this course students will be able to:

- Explain the challenging nature big data and differentiate it with existing technologies.
- Design strategies to collect, manage, store, query, and analyze various datasets.
- **Develop hands-on experience on large-scale analytics tools to solve big data problems.**
- Understand the impact of big data in business decisions and strategy designing.
- Exhibit New skills in Big data analytics

UNIT I: Big Data in the Enterprise

Big Data in the Enterprise: Search at Scale- Multimedia Content-Sentiment Analysis- Enriching and Contextualizing Data- Data Discovery or Exploratory Analytics- Operational Analytics or Embedded Analytics- Realizing Opportunities from Big Data- Taming the “Big Data”. **The New Information Management Paradigm:** What Is Enterprise Information Management?- New Approach to Enterprise Information Management for Big Data- Implications of Big Data to Enterprise IT.

UNIT II: Big Data Implications for Industry

Big Data Implications for Industry: The Opportunity- Big Data Use Cases by Industry Vertical. **Emerging Database Landscape:** The Database Evolution- The Scale-Out Architecture- Database Workloads- Database Technologies for Managing the Workloads- Columnar Databases- Requirements for the Next Generation Data Warehouses- Polyglot Persistence: The Next Generation Database Architecture.

UNIT III: Application Architectures for Big Data and Analytics

Application Architectures for Big Data and Analytics: Big Data Warehouse and Analytics- Big Data Warehouse System Requirements and Hybrid Architectures-Enterprise Data Platform Ecosystem- BDW and EDW- How Does Traditional Data Warehouse processes map to tools in Hadoop Environment- How Hadoop Works- The Hadoop Suitability Works- Additional Considerations for Big Data Warehouse- Big Data and Master Data Management- Data quality Implications for Big Data- Putting it all Together- A Conceptual BDW Architecture. **Data Modeling Approaches for Big Data and Analytics Solutions:** Understanding Data Integration Patterns- Big Data Workload Design Approaches- Map-Reduce Patterns, Algorithms, and Use Cases- No SQL Data Modeling Techniques.

UNIT IV: Big Data Analytics Methodology

Big Data Analytics Methodology: Challenges in Big Data Analysis- Big Data Analytics Methodology- Analyze and Evaluate Business Use Case- Develop Business Hypotheses. **Extracting Value from Big Data: In Memory Solutions, Real Time Analytics, And Recommendation Systems:** Building a Recommendation System.

UNIT V: Data Scientist

Data Scientist: The New Skill: Data Scientist- The Big Data Workflow- Design Principles for Contextualizing Big Data- A Day in the Life of a Data Scientist.

TEXT BOOKS:

1. “**Big Data Principles and best practices of scalable real time data systems**” Nathan Marz, James Warren Dreamtech Press Edition, 2015.
2. “**Big Data Analytics: Disruptive Technologies for changing the game**”, Dr. Arvind Sathi, Elsevier, 2013, ISBN 978-1-58347-380-1.

REFERENCE:

1. Michael Berthold, David J. Hand, “Intelligent Data Analysis”, Springer, 2007.
2. Chris Eaton, Dirk DeRoos, Tom Deutsch, George Lapis, Paul Zikopoulos, “Understanding Big Data: Analytics for Enterprise Class Hadoop and Streaming Data”, 1st Edition, Tata McGrawHill, 2012.
3. Anand Rajaraman, Jeffrey David Ullman, “Mining of Massive Datasets”, Cambridge University Press, 2012.