BIG DATA ANALYTICS

II Semester: CSE								
Course Code	**Category**	**Hours / Week**			**Credits**	**Maximum Marks**		
		L	**T**	**P**	**C**	**CIA**	**SEE**	**Total**
BCSC22	**Elective**	3	0	0	3	30	70	100
Contact Classes: 45	**Total Tutorials: Nil**	**Total Practical Classes: Nil**				**Total Classes: 45**		

I. COURSE OVERVIEW:

This course provides a clear understanding on concepts of sources of big data, characteristics, storing and processing components, and analytics applications. This course emphasizes on potential impact of big data challenges, open research issues, and various tools associated with it This course includes the introduction and processing big data with an overview of Hadoop technology and its components such as pig, hive, etc.

II. COURSE OBJECTIVES:

The students will try to learn:

I. The Fundamentals of big data for business intelligence.
II. The various business case studies for big data analytics and no sql big data management.
III. The Performance of map-reduce analytics using Hadoop and related tool

III. COURSE OUTCOMES:

After successful completion of the course, students should be able to

CO 1	**Compare** big data analysis and analytics in optimizing the business decisions.	Understand
CO 2	**Understand in** detailed about architecture, define objects, load data, query data and performance tune in document-oriented No SQL databases.	Understand
CO 3	**Classify** the key issues and applications in intelligent business and scientific computing.	Apply
CO 4	**Understand** the big data technologies used to process and querying the big data in Hadoop, MapReduce, Pig and Hive.	Understand
CO 5	**Make use of** appropriate components for processing, scheduling and knowledge extraction from large volumes in distributed Hadoop Ecosystem.	Apply

IV. SYLLABUS

MODULE – I: **INTRODUCTION TO BIG DATA (09)**

What is big data, History of Data Management; Structuring Big Data; Elements of Big Data; Big Data Analytics; Distributed and Parallel Computing for Big Data; Big Data Analytics: What is Big Data Analytics, What Big Data Analytics Isn't, Why this sudden Hype Around Big Data Analytics, Classification of Analytics, Greatest Challenges that Prevent Business from Capitalizing Big Data; Top Challenges Facing Big Data; Why Big Data Analytics Important; Data Science; Data Scientist; Terminologies used in Big Data Environments; Basically Available Soft State Eventual Consistency (BASE); Open source Analytics Tools.

MODULE-II: ANALYTICS (09)

Comparing Reporting and Analysis, Types of Analytics; Points to Consider during Analysis; Developing an Analytic Team; Understanding Text Analytics; Analytical Approach and Tools to Analyze Data: Analytical Approaches; History of Analytical Tools; Introducing Popular Analytical Tools; Comparing Various Analytical Tools.

MODULE-III: MAP REDUCE AND HBASE (09)

The MapReduce Framework; Techniques to Optimize MapReduce Jobs; Uses of MapReduce; Role of HBase in Big Data Processing; Storing Data in Hadoop: Introduction of HDFS, Architecture, HDFC Files, File system types, commands, org.apache.hadoop.io package, HDF, HDFS High Availability;

Introducing HBase, Architecture, Storing Big Data with HBase, interacting with the Hadoop Ecosystem; HBase in Operations-Programming with HBase; Installation, Combining HBase and HDFS.

MODULE-IV: BIG DATA TECHNOLOGY LANDSCAPE (09)

NoSQL, Hadoop; RDBMS versus Hadoop; Distributed Computing Challenges; History of Hadoop; Hadoop Overview; Use Case of Hadoop; Hadoop Distributors; HDFC (Hadoop Distributed File System), HDFC Daemons, read, write, Replica Processing of Data with Hadoop; Managing Resources and Applications with Hadoop YARN.

MODULE-V: SOCIAL MEDIA ANALYTICS AND TEXT MINING (09)

Introducing social media; Key elements of social media; Text mining; Understanding Text Mining Process; Sentiment Analysis, Performing Social Media Analytics and Opinion Mining on Tweets; Mobile Analytics: Introducing Mobile Analytics; Define Mobile Analytics; Mobile Analytics and Web Analytics; Types of Results from Mobile Analytics; Types of Applications for Mobile Analytics; Introducing Mobile Analytics Tools.

V. TEXT BOOKS:

1. Seema Acharya, SubhasininChellappan, “Big Data and Analytics”, Wiley Publications 2019.
2. DT Editorial Services,”Big Data Black Book”, DreamTech Press, 2015.

VI. REFERENCE BOOKS:

1. Albright, Winston, “Business Analytics” Cengage Learning, 2014.

VII. WEB REFERENCES:

1. https://www.sas.com/en_us/insights/analytics/big-data-analytics.html
2. https://www.searchbusinessanalytics.techtarget.com/definition/big-data-analytics
3. https://www.webopedia.com

VIII. E-TEXT BOOKS:

1. http://oms.bdu.ac.in/ec/admin/contents/175_P16CSE5A-P16ITE3A_2020052206242390.pdf
2. https://ebooks.wileyindia.com/product/big-data-analytics