



SOCIETY OF ST. FRANCIS XAVIER, PILAR'S
FR. CONCEICAO RODRIGUES COLLEGE OF ENGINEERING

(Approved by AICTE & Affiliated to University of Mumbai)

Fr. Agnel Ashram, Bandstand, Bandra (W), Mumbai - 400 050.

Phone : (022) 6711 4000, 6711 4101, 6711 4104

Website : www.frcrce.ac.in • Email : crce@fragnel.edu.in

Electronics and Computer Science (Academic Year :2023-2024)

Class:BE-ECS	Weekly Schedule:
Course name/code:Big Data Analytics/ECDLO7014	Tuesday 2.30-3.30
Academic Year:2023-24	Wednesday 9.45-10.45
Name of Teacher:Prof. Prajakta Bhangale	Thursday 9.45-10.45

Course Outcomes (CO): <i>At the End of the course students will be able to</i>	
CO.1	Identify the key issues in big data management and its associated applications in intelligent business and scientific computing.
CO.2	Apply scalable algorithms like Hadoop, MapReduce and NoSQL in big data analytics.
CO.3	Analyze for big data analytics algorithms for recommender systems, social media applications.
CO.4	Develop applications for Big Data analysis using Hadoop and NoSQL etc.



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Course Lesson Plan

Sr. No.	Proposed Date	Topics	Delivery Mode	CO	Assessment Tool	Ref. book	Actual Date	Remark
1	11/7	Chapter 1: Introduction to Big Data, Big Data characteristics, Types of Big Data, Traditional vs. Big Data a business approach	Lecture,ppts	CO1	--	T1		
2	12/7	Technologies Available for Big Data, Study of Big Data Solutions	Lecture,ppts	CO1	UT1, Q1, A1	T1		
3	13/7	Infrastructure for Big Data, Big Data Challenges, Case	Lecture,ppts	CO1	UT1, Q1, A1	T1		
4	18/7	Chapter 2: Introduction to Hadoop. Core Hadoop Components	Lecture,ppts	CO2	UT1, Q1, A1	T1		Extra Online
5	19/7	Hadoop Ecosystem-Apache HBase	Lecture,ppts	CO2	UT1, Q1, A1	T1		
6	20/7	Hive, HCatalog	Lecture,ppts	CO2	UT1, Q1, A1	T1		Extra Online
7	25/7	Pig, Mahout, Oozie, Zookeeper, Sqoop	Lecture,ppts	CO2	UT1, Q1, A1	T1		
8	26/7	Physical Architecture, Hadoop limitations	Lecture,ppts	CO2	UT1, Q1, A1	T1		
9	27/7	Chapter 3 Introduction to NoSQL, NoSQL business drivers, NoSQL	Lecture,ppts	CO2,C O4	UT1, Q1, A1	T1		Extra Online



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		database case studies.						
10	1/8	NoSQL data architecture patterns: Key-value stores, Graph stores	Lecture,ppts	CO2, CO4	UT1, Q1, A1	T1		
11	2/8	Column family, (Bigtable) stores, Document stores,	Lecture,ppts	CO2 ,CO4	UT1, Q1, A1	T1		
12	3/8	Variations of NoSQL architectural patterns	Lecture,ppts	CO2, CO4	UT1, Q1, A1	T1		
13	8/8	Using NoSQL to manage big data: What is a big data NoSQL solution? Understanding the types of big data problems; Analyzing big data with a shared-nothing architecture;	Lecture,ppts	CO2, CO4	UT1, Q1, A1	T1		
14	9/8	Choosing distribution models: master-slave versus peer-to-peer; Four ways that NoSQL systems handle big data problems,	Lecture,ppts, Quiz1,Live demonstartion	CO2, CO4	UT1, Q1, A1	T1		
15	10/8	Chapter4: MapReduce: The Map Tasks, Grouping by Key, The Reduce Tasks, Combiners, Details of MapReduce Execution, Coping With Node Failures	Lecture,ppts	CO2, CO4	UT2, Q2,A2	T1		
	15/8	Independence Day						
	16/8	Pateti holiday						
16	17/8	Algorithms Using MapReduce: MapReduce WordCount Program	Lecture,ppts	CO2, CO4	UT2, Q2,A	T1		
17	22/8	Relational-Algebra Operations by MapReduce, Matrix Operations,	Lecture,ppt	CO2, CO4	UT2, Q2,A	T1		



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18	23/8	Matrix Multiplication by MapReduce.,Matrix-Vector Multiplication by MapReduce	Lecture,ppt	CO2, CO4	UT2, Q2,A2	T1		
19	24/8	Chapter 5: Finding Similar Item: Nearest Neighbor Search, Similarity of Documents, Distance Measures:Euclidean, Jaccard ,	Lecture,ppt	CO3	UT2, Q2,A2	T1		
	29-31 Aug	Unit Test-1						
		Unit Test-1, Mid-Term Feedback						
20	5/9	Cosine , Edit and Hamming Distance with its Examples	Lecture,ppt,	CO3	UT2, Q2,A			
21	6/9	Mining Data Streams: Data Stream Management Systems	Lecture,ppt	CO3	UT2, Q2,A	T1		
22	7/9	Remedial Session						
23	12/9	Data Stream Model	Lecture,ppt	CO3	UT2, Q2,A2	T1,R1		
24	13/9	Examples of Data Stream Applications: Sensor Networks,	Lecture,ppt	CO3	UT2, Q2,A	T1,R1		
25	14/9	Football game Activity	Quiz					
	19-21	Ganapati Holiday						
26	26/9	Filtering streams: The Blooms filter	Lecture,ppt	CO3	UT2, Q2,A	T1		
27	27/9	Link Analysis: PageRank Definition, Structure of the web, dead ends, Using Page rank in a search engine	Lecture,ppt	CO3	UT2, Q2,A	T1		
	28/9	Anant Chaturdashi						
	2/10	Mahatma Gandhi Jayanti						
28	3/10	computation of Page Rank: Page Rank Implementation Using MapReduce	Lecture,ppt	CO3	UT2, Q2,A	T1		



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29	4/10	Frequent Itemset Mining: Market-Basket Model, Apriori Algorithm, PCY	Lecture,ppt	CO3	UT2, Q2,A	T1		
30	5/10	Chapter 6: Recommendation Systems: Introduction, A Model for Recommendation Systems:Collaborative-Filtering System	Lecture,ppt	CO4	UT2, Q2,A2	T1		
	10/10	Unit Test-2						
	11/10	Unit Test-2						
	12/10	Unit Test-2						
31	14/10	Content based system and its Examples(Extra)	Lecture,ppt	CO4	UT2, Q2,A2	T1		
32	14/10	Mining Social-Network Graphs: Social Networks as Graphs, Types of Social-Network(Extra)	Lecture,ppt	CO4	UT2, Q2,A2	T1		
33	15/10	Clustering of Social Graphs: Applying Standard Clustering Techniques, Counting triangles using MapReduce	Lecture,ppt	CO4	UT2, Q2,A2	T1		
34	16/10	Remedial Session	Lecture					
35	17/10	Mimdmap Activity	Presentations					
36	21/10	Mimdmap Activity(Extra)	Presentations					
37	21/10	Guest Lecture(Extra)						

Text Books :

1. Radha Shankarmani and M Vijayalakshmi —Big Data Analytics, Wiley
2. Alex Holmes —Hadoop in Practicel, Manning Press, Dreamtech Press.
3. Dan McCreary and Ann Kelly —Making Sense of NoSQL – A guide for managers and the rest of us, Manning Press.



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Reference Books :

1. Bill Franks, —Taming The Big Data Tidal Wave: Finding Opportunities in Huge Data Streams with Advanced Analytics|, Wiley
2. Chuck Lam, —Hadoop in Action|, Dreamtech Press

E-Resources:

1. <https://www.analyticsvidhya.com/blog/2014/05/hadoop-simplified>
2. <https://www.analyticsvidhya.com/blog/2014/05/introduction-mapreduce/>
3. <https://www.pdfdrive.com/big-data-analytics-a-hands-on-approach-e158549112.html>
4. <https://www.pdfdrive.com/data-science-and-big-data-analytics-e58447171.html>

Course Instructor: Prof. Prajakta Bhangale