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EASWARI ENGINEERING COLLEGE

Department of Information Technology

Lesson Plan

Subject code:SE7204 **Degree/Branch:M.E/Software Engineering**

Subject Name:Big Data Analytics **Year/Sem/Sec:I/II**

Faculty : Dr.C.Viswanathan **Total No. of Hrs given in Syllabus: Tutorial:0**

Lecture:45

Practical:0

Grand Total: 45 Hours

S.No	Topic	No. of Periods	Reference books	Page No
	UNIT I INTRODUCTION TO BIG DATA			
Objective: To explore the fundamental concepts of big data analytics				
1	Introduction to Big Data Platform	1		Handouts
2	Challenges of Conventional Systems	1		Handouts
3	Intelligent data analysis – Nature of Data	1	R1	1-11
4	Analytic Processes and Tools - Analysis vs Reporting - Modern Data Analytic Tools	1	R1	12-13
5	Statistical Concepts: Sampling Distributions	1	R1	29-33
6	Statistical Inference	1	R1	33-46
7	Re-Sampling	1	R1	57-67
8	Prediction Error.	1	R1	46-57
	Total	**8**		
	UNIT II DATA ANALYSIS			
Objective: To learn to analyze the big data using intelligent techniques.				
9	Regression Modeling	1	R1	93-100
10	Multivariate Analysis	1	R1	100-129
11	Bayesian Methods - Bayesian Paradigm	1	R1	131-
12	Bayesian Modeling	1	R1	143-153
13	Inference and Bayesian Networks	1	R1	153-167
14	Support Vector and Kernel Methods	1	R1	169-196
15	Analysis of Time Series: Linear Systems Analysis -	1	R1	199-207
16	Analysis of Time Series:Nonlinear Dynamics	1	R1	208-213
17	Rule Induction	1	R1	229-246
18	Fuzzy Logic: Extracting Fuzzy Models from Data	1	R1	336-346
19	Fuzzy Decision Trees	1	R1	346-349
	Total	**11**		
	UNIT III SEARCH METHODS AND VISUALIZATION			
Objective: To understand the various search methods and visualization techniques.				
20	Search by simulated Annealing	1	R1	351-353, 354-360
21	Stochastic, Adaptive search by Evaluation	1	R1	360-362
22	Evaluation Strategies	1	R1	362-374
23	Genetic Algorithm	1	R1	374-389
24	Genetic Programming	1	R1	390-400
25	Visualization – Classification of Visual Data Analysis Techniques	1	R1	403-406
26	Data Types	1	R1	406-410
27	Visualization Techniques	1	R1	411-414
28	Interaction techniques – Specific Visual data analysis Techniques	1	R1	414-426
	Total	**9**		

UNIT IV MINING DATA STREAMS				
Objective: To learn to use various techniques for mining data stream.				
29	Introduction To Streams Concepts – Stream Data Model and Architecture - Stream Computing -	1	R2	129-133
30	Sampling Data in a Stream	1	R2	134-136
31	Filtering Streams	1	R2	137-139
32	Counting Distinct Elements in a Stream	1	R2	140-142
33	Estimating Moments	1	R2	143-148
34	Counting Oneness in a Window	1	R2	148-154
35	Decaying Window ,Real time Analytics Platform(RTAP) Applications	1	R2	155-157
36	Case Studies, Real Time Sentiment Analysis, Stock Market Predictions.	1		Handouts
	Total	**8**		
UNIT V FRAMEWORKS				
Objective: To understand the applications using Map Reduce Concepts.				
37	Map Reduce – Hadoop	1	R10	53-63
38	Map Reduce- Hive	1	R10	64-68
39	Map Reduce -MapR	1	R10	13-14
40	Sharding	1	R5	3-4
41	NoSQL Databases	1	R5	5-10
41	S3	1	R5	17-18
43	Hadoop Distributed File Systems	1	R5	18-19
44	Case Study.	1		Handouts
45	Case Study.	1		Handouts
		9		
	TOTAL	**45 Hrs**		

Content Beyond Syllabus

1 Tools for Text and Web Mining

2 Data Analysis Suites

REFERENCES

1. Michael Berthold, David J. Hand, “Intelligent Data Analysis”, Springer, 2007.

2. AnandRajaraman and Jeffrey David Ullman, “Mining of Massive Datasets”, Cambridge University Press, 2012.

3. Bill Franks, “Taming the Big Data Tidal Wave: Finding Opportunities in Huge Data Streams with Advanced Analytics”, John Wiley & sons, 2012.

4. Glenn J. Myatt, “Making Sense of Data”, John Wiley & Sons, 2007

5. Pete Warden, “Big Data Glossary”, O’Reilly, 2011

6. Jiawei Han, MichelineKamber “Data Mining Concepts and Techniques”, Second Edition, Elsevier, Reprinted 2008

7. Da Ruan,Guoquing Chen, Etienne E.Kerre, Geert Wets, Intelligent Data Mining, Springer,2007

8. Paul Zikopoulos ,Dirk deRoos , Krishnan Parasuraman , Thomas Deutsch , James Giles , David Corrigan, Harness the Power of Big Data The IBM Big Data Platform, Tata McGraw Hill Publications, 2012

9. Michael Minelli (Author), Michele Chambers (Author), AmbigaDhiraj (Author) , Big Data, Big Analytics: Emerging Business Intelligence and Analytic Trends for Today's Businesses,Wiley Publications,2013

10. Zikopoulos, Paul, Chris Eaton,Understanding Big Data: Analytics for Enterprise Class Hadoop and Streaming Data, Tata McGraw Hill Publications, 2011

Prepared By **Approved By**

Dr.C.Viswanathan **HOD/IT**