SCHEME OF COURSE WORK

Course Details:

Course Title Big Data Analytics

Course Code : 15CT1135 L T P C3 0 0 3

Program: : B.TECH

Specialization: Information TechnologySemester : V

Prerequisites : NIL

Courses to which it is a prerequisite:

Course Outcomes (COs):

CO No. Course outcomes

CO1 Understand big data analytics as the next wave for businesses looking for competitiveadvantage

CO2 Understand the financial value of big data analytics CO3 Explore tools and practices for working with big data

CO4 Understand how big data analytics can leverage into a key componentCO5 Learn about stream computing

Course Outcome versus Program Outcomes:

Course Outcomes	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10	P11	P12	PSO1	PSO2	PSO3
CO1	3			2	3						3	2	2	2	
CO2	2	3	3	3	3	2					2		2		
CO3	3	3	3		3							3	2	3	
CO4	3	3	2	3	2	2					3	2	2		
CO5	3	3	3	3	3	2						3	1		

Week	TOPIC / CONTENTS	Course Out-comes	Sample questions	TEACHING-LEARNING STRATEGY	Assessment Method & Schedule
1	Dawn of the Big Data Era, Definition and Features of Big Data, Big Data Value, The	CO1	• Explain the key challenges of Big data	• Lecture / Discussion	Assignment (Week 7-8) Mid-Test 1 (Week 9)

	Development of Big Data, Challenges of Big Data		• Define Bigdata using 4V model	• Daily Quiz through polling	Quiz-1 (Week5)
2	Cloud Computing - Cloud Computing Preliminaries, Relationship Between Cloud Computing and Big Data,	CO1	• Explain the key components of Cloud computing using a diagram	• Lecture / Discussion • Daily Quiz through polling	Assignment (Week 7-8) Mid-Test 1 (Week 9) Quiz-1 (Week5)
3	IoT - IoT Preliminaries, Relationship Between IoT and Big Data, Data Center,	CO1	• Explain the relationship between IOT and Bigdata • Describe the role of Data center in Bigdata	• Lecture / Discussion • Daily Quiz through polling	Assignment (Week 7-8) Mid-Test 1 (Week 9) Quiz-1 (Week5)
4	Hadoop - Hadoop Preliminaries, Relationship between Hadoop and Big Data	CO1	• What is the influence of Hadoop on Bigdata	• Lecture / Discussion • Daily Quiz through polling	Assignment (Week 7-8) Mid-Test 1 (Week 9) Quiz-1 (Week5)
5	Big Data Generation-Enterprise Data,IoT Data, Internet Data, Bio-medical Data, Data Generation from Other Fields,	CO2	• Explain various phases in the value chain of bigdata	• Lecture / Discussion • Daily Quiz through polling	Assignment (Week 7-8) Mid-Test 1 (Week 9)
6	Big Data Generation-Enterprise Data,IoT Data, Internet Data, Bio-medical Data, Data Generation from Other Fields	CO2	• Explain the sources of Internet data and their features	• Lecture / Discussion • Daily Quiz through polling	Assignment (Week 7-8) Mid-Test 1 (Week 9)
7	Big Data Acquisition - Data Collection, Data Transportation, Data Pre-processing	CO2	• What is the necessity of data pre-processing? Briefly explain the relational data pre-processing techniques	• Lecture / Discussion • Daily Quiz through polling	Assignment (Week 7-8) Mid-Test 1 (Week 9)
8	Big Data Acquisition - Data Collection, Data Transportation, Data Pre-processing	CO2	• What is the necessity of data pre-processing? Briefly explain the relational data pre-processing techniques	• Lecture / Discussion • Daily Quiz through polling	Assignment (Week 7-8) Mid-Test 1 (Week 9)

9	MID Test1				
10	Storage System for Massive data, Distributed Storage System,	CO3	• Explain different types of data storage systems • Explain the relevance of CAP theory to distributed Storage System	• Lecture / Discussion • Daily Quiz through polling	Assignment (Week 10-18) Mid-Test 2 (Week 22) Quiz2 (week 16)
11	Storage Mechanism for Big Data - Database Technology, Design Factors, Database Programming Model	CO3	• Explain how the latest Database technology is evolving to address Bigdata requirements • Explain the design factors involved with Bigdata applications	• Lecture / Discussion • Daily Quiz through polling	Assignment (Week 10-18) Mid-Test 2 (Week 22) Quiz2 (week 16
12	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,	CO3	• Describe Apache Hadoop ecosystem and its relevance to Bigdata • Case study on analysis of Weather dataset using unix tools	• Lecture / Discussion • Daily Quiz through polling	Assignment (Week 10-18) Mid-Test 2 (Week 22) Quiz2 (week 16
13	Analyzing the Data with Hadoop(Map and Reduce, Java MapReduce), Scaling Out, Hadoop Streaming, Hadoop Pipes	CO3	• Explain the database programming models suitable for bigdata	• Lecture / Discussion • Daily Quiz through polling	Assignment (Week 10-18) Mid-Test 2 (Week 22) Quiz2 (week 16
14	Traditional Data Analysis, Big Data Analytic Methods	CO4	• Compare and contrast traditional and Bigdata analytic methos	• Lecture / Discussion • Daily Quiz through polling	Assignment (Week 10-18) Mid-Test 2 (Week 22) Quiz2 (week 16
15	Architecture for Big Data Analysis - Real-Time vs. Offline Analysis,	CO4	• Explain different architectures and their application of Bigdata analysis	• Lecture / Discussion • Daily Quiz through polling	Assignment (Week 10-18) Mid-Test 2 (Week 22) Quiz2 (week 16

16	Analysis at Different Levels, Analysis with Different Complexity,	CO4	• Compare and contrast analysis at different levels and complexities	• Lecture / Discussion • Daily Quiz through polling	Assignment (Week 10-18) Mid-Test 2 (Week 22) Quiz2 (week 16
17	Tools for Big Data Mining and Analysis.	CO4	• Describe and compare bigdata mining and analysis tools	• Lecture / Discussion • Daily Quiz through polling	Assignment (Week 10-18) Mid-Test 2 (Week 22)
18	Application Evolution, Big Data Analysis Fields - Structured Data Analysis, Text Data Analysis,Web Data Analysis	CO5	Explain the evolution of Bigdata analysis fields of Structured data, Text data and webdata	• Lecture / Discussion • Daily Quiz through polling	Assignment (Week 10-18) Mid-Test 2 (Week 22)
19	Multimedia Data Analysis, Network Data Analysis, Mobile Traffic Analysis	CO5	Explain the evolution of Bigdata analysis fields of Multimedia data, Network data and Mobile traffic data	• Lecture / Discussion • Daily Quiz through polling	Assignment (Week 10-18) Mid-Test 2 (Week 22)
20	Key Applications - Application of Big Data in Enterprises, Application of IoT Based Big Data, Application of Online Social Network-Oriented Big Data,	CO5	• Discuss case studies of Bigdata applications from data source perspectine	• Lecture / Discussion • Daily Quiz through polling	Assignment (Week 10-18) Mid-Test 2 (Week 22)
21	Applications of Healthcare and Medical Big Data, Collective Intelligence, Smart Grid.	CO5	• Discuss case studies of Bigdata applications from functionality domain perspectine	• Lecture / Discussion • Daily Quiz through polling	Assignment (Week 10-18) Mid-Test 2 (Week 22)
22	MID test2				
23/24	END EXAM				