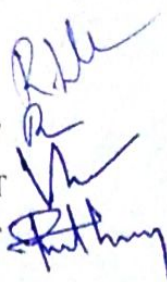


Internal Members:

- Dr.R.Subashini, Prof. and Head, IT
- Dr.P.Jeyanthi, Associate Professor, IT
- Dr.Maria Anu ,Associate Professor, IT
- Dr.S.Revathy, Associate Professor, IT



List of New Courses Introduced in the Academic Year 2018-2019

EVEN SEM

S.No	Course Code	Name of the Course
1	SIT1606	Big Data
2	SIT1608	Green Computing

SIT1606	BIG DATA	L	T	P	Credits	Total Marks
		3	0	0	3	100

COURSE OBJECTIVES

- To understand the dominant software systems and algorithms for coping with Big Data.
- Apply appropriate analytic techniques and tools to analyze big data, create statistical models, and identify insights that can lead to actionable results
- To explore the ethical implications of big data research, and particularly as they relate to the web

UNIT 1 INTRODUCTION

9 Hrs.

Introduction to Big Data - Challenges of Conventional Systems - Nature of Data - Small data - Medium data - Big Data - Small data vs Big data - Sources of Big Data - Big Data Characteristics - Big Data Analytics - Importance of Big Data, Big Data in the Enterprise - Big Data Enterprise Model - Building a Big Data Platform - Big data in Social and Behavioral sciences.

UNIT 2 HDFS, HADOOP AND HADOOP INFRASTRUCTURE

9 Hrs.

Hadoop and Databases - Typical Datacenter Architecture - Adding Hadoop to the Mix - Key Benefit - Flexibility: Complex Data Processing - HDFS - Hadoop Infrastructure - Architecture - Different in Data Model and Computing Model - HDFS Files and Blocks, Components of HDFS - Hadoop framework - HDFS - Map Reduce Framework - Data Loading techniques - Hadoop Cluster Architecture - Hadoop Configuration files - Hadoop Cluster modes - Single Node - Multi Node - Fully distributed node.

UNIT 3 HADOOP MAP REDUCE FRAMEWORK

9 Hrs.

Relationship between MapReduce and HDFS - Relationship between MapReduce and HDFS - Clients, Data Nodes, and HDFS Storage - MapReduce workloads. Hadoop framework - Hadoop data types - Hadoop map reduce Paradigm - Map and Reduce Tasks - Map reduce Execution framework - Partitioners and Combiners - Input formats (Input Splits and Records, Text Input, Binary Input, Multiple Inputs)- Output Formats (TextOutput, BinaryOutPut, Multiple Output)- Hadoop Mapreduce programming - Advanced Map reduce concepts - Counters, Custom Writables - Unit testing framework - Error Handling - Tuning - Advanced Map reduce.

UNIT 4 HADOOP IMPLEMENTATION AND HADOOP ECO SYSTEM TOOLS

9 Hrs.

Hadoop Implementation - Job Execution - Hadoop Data Types - Job Configurations - Input and Output Formats - ECO system tools - Pig's Data Model, Pig Latin, Developing & Testing Pig Latin Scripts - Writing Evaluation, Filter, Load & Store Functions - Hive - Hive Architecture - Comparison with Traditional Database - HiveQL: Data Types, Operators and Functions - Hive Tables - Querying Data - Advance Hive, NoSQL Databases - HBase - Loading Data in Hbase - Querying Data in Hbase

UNIT 5 HADOOP PROJECT ENVIRONMENT

9 Hrs.

HBase: Introduction to HBase, Client API's and their features, Available Client, HBase Architecture, MapReduce Integration. HBase: Advanced Usage, Schema Design, Advance Indexing, Coprocessors, Hadoop 2.0-MRv2 - YARN - NameNode High Availability, HDFS Federation, MRv2, YARN, Running MRv1 in YARN, Upgrade your existing MRv1 code to MRv2, Programming in YARN framework-cover Apache Oozie Workflow Scheduler for Hadoop

Max. 45 Hours

TEXT / REFERENCES BOOKS

1. WA Gmob, "Big Data and Hadoop", Kindle Edition, 2013
2. Eric Miller, "A Overview of Map Reduce and its impact on Distributed Data", Kindle Edition, 2012.
3. Strata, "Big Data Now", O'Reily Media Inc., Kindle Edition, 2012.

END SEMESTER EXAM QUESTION PAPER PATTERN

Max. Marks : 100

Exam Duration: 3 Hrs.

PART A: 10 questions of 2 marks each - No choice

20 Marks

PART B : 2 Questions from each unit with internal choice, each carrying 12 marks

80 Marks

SIT1608	GREEN COMPUTING	L	T	P	Credits	Total Marks
		3	0	0	3	100

COURSE OBJECTIVES

- To study about existing green computing strategies
- Fundamental challenges in achieving green operations of computing units
- Assess enterprise-wide and personal computing and computing related energy consumption.

UNIT 1 GREEN COMPUTING FUNDAMENTALS

9 Hrs.

Green IT fundamentals: Business, IT, and the environment - Green computing: Carbon foot print - scoop on power - Green IT strategies: Drivers, Dimensions, and Goals - Environmentally responsible business: Policies, Practices and Metrics.

UNIT 2 GREEN ASSETS AND MODELING

9 Hrs.

Green Assets: Buildings, data centers, networks and devices - Green business process management: Modeling, optimization and collaboration - Green enterprise architecture - Environmental intelligence - Green supply chains - Green information systems: Design and development models.

UNIT 3 GRID FRAMEWORK

9 Hrs.

Virtualizing of IT systems - Role of electric utilities, telecommuting, teleconferencing and teleporting - Materials recycling - Best ways for green PC - Green data center - Green grid framework

UNIT 4 GREEN COMPLIANCE

9 Hrs.

Socio-cultural aspects of green IT - Green enterprise transformation roadmap - Green Compliance: protocols, standards and audits - Emergent carbon issues: technologies and future. The Way Climate Savers Computing Initiative Do - The Climate Savers Computing Initiative - What Green Computing Impact Organization Supplies - Green Computers Initiatives - Green Computing Impact Organization Overview - Green Electronics Council - Going Green Can Be Truly Challenging - The Green Grid Framework - The CSCI Top Secrets Revealed - The EPEAT Standards - To Have a Green Computer - Green Computing Means to Save Your Money and Your Business - Finances - Green Computing Initiative Platforms.

UNIT 5 CASE STUDIES

9 Hrs.

The Environmentally Responsible Business Strategies (ERBS) - Case study scenarios for trial runs - Case studies - Applying green IT strategies and applications to a home, hospital, packaging industry and telecom sector.

Max.45 Hours

TEXT / REFERENCE BOOKS

1. Bhuvan Unhelkar, "Green IT Strategies and Applications - Using Environmental Intelligence", CRC Press, June 2011.
2. Woody Leonhard, Katherrine Murray, "Green Home computing for dummies", August 2009. Warland & Pravin Varaiya, "High Performance Communication Networks", Jean Harcourt Asia Pvt. Ltd., II Edition, 2001.
3. Jason Harris, "Green Computing and Green IT - Best Practices on regulations & industry", Lulu.com, 2008.
4. Alin Gales, Michael Schaefer, Mike Ebberts, "Green Data Center: steps for the Journey", Shoff/IBM rebook, 2011.
5. John Lamb, "The Greening of IT", Pearson Education, 2009.

END SEMESTER EXAM QUESTION PAPER PATTERN

Max Marks : 80

Exam Duration: 3 Hrs.

PART A : 10 questions of 2 marks each - No choice -

20 Marks

PART B : 2 questions from each unit with internal choice, each carrying 12 marks

80 Marks