18CSPE807	CLOUD COMPUTING	L	T	P	C
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Course Objectives:

1. To introduce the broad perceptive of Parallel Computing, Distributed Computing and Cloud Computing
2. To understand the concept of Virtualization
3. To identify the approaches of SLA and programming model in Cloud
4. To understand the Cloud Platforms in Industry and Software Environments
5. To learn to design the trusted Cloud Computing system

UNIT I	INTRODUCTION	9	+	0

Principles of Parallel and Distributed Computing – Elements of Parallel and Distributed Computing, Technologies for Distributed Computing; Vision of Cloud, Defining a Cloud, characteristics and benefits; Cloud Computing Architecture- Cloud Reference Model, Types of Clouds, Open Challenges.

UNIT II	VIRTUALIZATION	9	+	0

Introduction, Characteristics of Virtualized environments, Virtualization techniques-Machine Reference Model, Hardware-Level Virtualization, Programming Language-Level Virtualization, Application-Level Virtualization , Other types of Virtualization, Virtualization and Cloud computing, Pros and cons of Virtualization, Technology examples-Xen: Paravirtualization, VMware: Full Virtualization.

UNIT III	SLA MANAGEMENT IN CLOUD COMPUTING AND PROGRAMMING MODEL	9	+	0

Traditional Approaches to SLA Management, Types of SLA, Life Cycle of SLA, SLA Management in Cloud; Data Intensive Computing - Technologies for Data Intensive Computing, MapReduce Programming Model.

UNIT IV	CLOUD INDUSTRIAL PLATFORMS AND SOFTWARE ENVIRONMENTS	9	+	0

Cloud Platforms in Industry - Amazon Web Service, Google App Engine; Cloud Software Environments – Eucalyptus, OpenNebula; Aneka Cloud Application Platform-Aneka Framework Overview, Anatomy of Aneka Container.

UNIT V	CLOUD SECURITY AND APPLICATIONS	9	+	0

An Introduction to the Idea of Data Security, The Current State of Data Security in the Cloud, Cloud Computing and Data Security Risk, Cloud Computing and Identity; The Cloud, Digital Identity, and Data Security, Content Level Security, Pros and Cons; Cloud Scientific Applications.

Total (L+T)= 45 Periods

Course Outcomes:		
Upon completion of this course, the students will be able to:		
CO1	:	Explain the main concepts and architecture of Parallel computing, Distributed Computing and Cloud Computing
CO2	:	Analyze the concept of Virtualization
CO3	:	Identify the approaches of SLA and programming model in Cloud
CO4	:	Analyze the Cloud Platforms in Industry and Software Environments
CO5	:	Identify the security issues in scientific and real time applications

Text Books:	
1.	Rajkumar Buyya, Christian Vecchiola, S.Tamarai Selvi, 'Mastering Cloud Computing-Foundations and Applications Programming", TMGH,2013.(Unit- I,II & IV)
2.	RajKumar Buyya, James Broberg, Andrezei M.Goscinski, "Cloud Computing: Principles and paradigms", 2011(Unit-III & V)

Reference Books:	
1.	Kai Hwang.Geoffrey C.Fox.Jack J.Dongarra, " Distributed and Cloud Computing ,From Parallel Processing to The Internet of Things", 2012 Elsevier
2.	Barrie Sosinsky, "Cloud Computing Bible", Wiley Publisher, 2011