COURSE CONTENT

CLOUD COMPUTING

VII Semester: CSE

Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P	C	CIA	SEE	Total
24X0532	Foundation	3	0	0	3	40	60	100
Contact Classes: 48	Tutorial Classes: Nil	Practical Classes: Nil				Total Classes: 48		

Prerequisites: Computer Networks,Operating System

Course Overview:

This course introduces the fundamental concepts, architectures, technologies, and security aspects of Cloud Computing. It covers computing paradigms, cloud service and deployment models, enabling technologies, virtualization, cloud programming models, networking in data centers, and cloud security. The course aims to provide both theoretical understanding and practical exposure to modern cloud platforms and applications.

Course Objectives:

1. To understand computing paradigms, cloud fundamentals, architecture, and management principles
2. To explore cloud deployment models, service models, and the technological drivers supporting cloud computing.
3. To apply virtualization techniques and programming models such as MapReduce and Cloud Haskell for cloud-based software development.
4. To analyze networking aspects of cloud computing including data center environments, transport layer issues, and cloud service providers.
5. To evaluate security concerns and advanced concepts in cloud computing for research and industrial applications.

Course Outcomes: After Completion of the Course, Students should be able to

1. Understand different computing paradigms and potential of the paradigms and specifically cloud computing
2. Describe cloud service types, cloud deployment models and technologies supporting and driving the cloud
3. Implement the knowledge of programming models for cloud and development of software application that runs the cloud and various services available from major cloud providers
4. Analyze the security concerns and issues in cloud computing
5. Acquire the knowledge of advances in cloud computing.

UNIT - I: Computing Paradigms, Cloud Computing Fundamentals, Cloud Computing Architecture and Management

UNIT - II: Cloud Deployment Models, Cloud Service Models, Technological Drivers for Cloud Computing: SOA and Cloud, Multicore Technology, Web 2.0 and Web 3.0, Pervasive Computing, Operating System, Application Environment

UNIT - III: Virtualization, Programming Models for Cloud Computing: MapReduce, Cloud Haskell, Software Development in Cloud

UNIT – IV: Networking for Cloud Computing: Introduction, Overview of Data Center Environment, Networking Issues in Data Centers, Transport Layer Issues in DCNs, Cloud Service Providers

UNIT – V: Security in Cloud Computing, and Advanced Concepts in Cloud Computing

TEXT BOOKS:

Chandra sekaran, K. Essentials of cloud computing. CRC Press, 2014

REFERENCE BOOKS:

1. Cloud Computing: Principles and Paradigms, Editors: Rajkumar Buyya, James Broberg, Andrzej M. Goscinski, Wiley, 2011
2. Enterprise Cloud Computing - Technology, Architecture, Applications, Gautam Shroff, Cambridge University Press, 2010
3. Cloud Computing Bible, Barrie Sosinsky, Wiley-India, 2010

ELECTRONIC RESOURCES:

1. **https://www.tutorialspoint.com/cloud_computing/index.htm**
2. **https://www.ibm.com/cloud/learn/cloud-computing**
3. **https://learn.microsoft.com/en-us/training/paths/azure-fundamentals/**

MATERIALS ONLINE:

1. Course template
2. Tutorial question bank
3. Tech talk and Concept Video topics
4. Definitions and terminology
5. Assignments
6. Model question paper – I
7. Model question paper – II
8. Lecture notes
9. E-Learning Readiness Videos (ELRV)