COURSE CONTENT

ENTERPRISE CLOUD CONCEPTS LAB								
II Semester: CSE								
Course Code	**Category**	**Hours / Week**			**Credits**	**Maximum Marks**		
		L	**T**	**P**	**C**	**CIA**	**SEE**	**Total**
2525881	**Foundation**	0	0	4	2	40	60	100
Contact Classes: Nil	**Tutorial Classes: Nil**	**Practical Classes: 60**				**Total Classes: 60**		
Prerequisites: A course on understanding of operating systems.								

Course Overview:

The Enterprise Cloud Concepts Lab is a practical-oriented course designed to provide hands-on experience with enterprise-level cloud computing technologies, platforms, and deployment models. This lab complements theoretical cloud computing concepts by enabling students to implement, configure, and manage cloud-based infrastructure and services in real-world scenarios.

Course Objectives:

1. To understand the fundamentals of cloud computing, virtualization, and cloud service models.
2. To develop practical skills in configuring and managing virtual machines and cloud environments.
3. To analyze cloud architectures, resource allocation, and cloud deployment mechanisms.
4. To implement cloud-based solutions using platforms such as OpenStack, CloudSim, and Hadoop.
5. To understand cloud security concepts and enterprise-level cloud infrastructure management.

Course Outcomes:

1. Design cloud delivery and deployment models for scalable e-learning and online retail
2. Analyze virtualization and resource replication mechanisms to optimize data center
3. Evaluate cloud management systems and resource monitoring to ensure compliance and
4. Differentiate fundamental cloud architecture patterns to determine their suitability for
5. Formulate cloud-centric enterprise strategies by integrating smart enterprise mechanisms to transform sectors such as healthcare and banking

List of Experiments:

1. Understand the concepts of virtualization and configure virtual machines using VirtualBox to simulate real-world computing environments.
2. Deploy and manage Linux virtual machines, perform basic operations, and troubleshoot common issues.
3. Analyze cloud computing scenarios using Cloud Sim for modeling and simulation of cloud infrastructure and resource allocation.
4. Create cloud instances in OpenStack environments, understand IaaS concepts, and implement cloud- based solutions.
5. Install and configure a single-node Hadoop cluster, perform basic data processing using HDFS and MapReduce.

TEXT BOOKS:

1. Cloud Computing: Concepts, Technology, Security, and Architecture2nd Edition, Thomas Erl, Eric Barceló Monroy, Pearson.
2. Cloud Technologies and Services: Theoretical Concepts and Practical Applications 1st Edition, M. Scott Kingsley, Springer.
3. Cloud Enterprise Architecture *1st Edition*, Pethuru Raj, Routledge

REFERENCE BOOKS:

1. Cloud Computing: Concepts, Technology, Security, and Architecture 2nd Edition — Thomas Erl, Eric Barceló Monroy.
2. Cloud Technologies and Services: Theoretical Concepts and Practical Applications 1st Edition — M. Scott Kingsley
3. Cloud Enterprise Architecture 1st Edition — Pethuru Raj

ELECTRONIC RESOURCES:

1. **https://docs.aws.amazon.com/**
2. **https://learn.microsoft.com/azure**
3. **https://cloud.google.com/docs**
4. **https://www.coursera.org/**
5. **https://www.udemy.com/**

MATERIALS ONLINE:

1. Course template
2. Open-ended experiments
3. Definitions and terminology
4. Lab Manual