CLOUD COMPUTING SYLLABUS

Module 1: Introduction

- Definition of Cloud Computing
- Challenges of Cloud Computing
- Evolution of Cloud Computing
- Cloud Services Architecture
    - NIST Architecture
    - Business Models
- Benefits and Cloud Deployment

Module 2: Virtualization

- Introduction to Virtual Machine (VM)
- Basics of Virtualization
- Types of Virtualization
    - Desktop Virtualization
    - Application Virtualization
    - Server Virtualization
    - Storage Virtualization
    - OS Level Virtualization
- Virtualization for Cloud Computing
- Software-Defined Data Center (SDDC)

Module 3: Public Cloud

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- Public Cloud Benefits
- Challenges of Public Cloud
- Public Cloud Services
    - AWS Compute, Storage, and Network Services
    - Google Cloud Services (GCP)
    - Compute, Storage, Network Services
    - Cloud AI Services

- Multitenancy
- Case Study

Module 4: Private Cloud

- Private Cloud Benefits
- Challenges of Private Cloud
- Private Cloud Services
- VM Migration
- Cloud Provisioning
- Managing Private Cloud
- OpenStack Architecture and Components
- OpenStack Installation
- Google Private Cloud Services
- Case Study

Module 5: Cloud Management & Security

- Data Center and Cloud Management
- Resource Management
- Automation and Benefits of Automation
- Infrastructure Security
- Network Security
- Host Level Security

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Module 6: Security Principles

- Cloud Security Overview
- CIA Triad
- Threats and Risk Management
- Computer Security Incident Response Team (CSIRT)
- Cloud Security Design Principles
- Cloud Security Standards: Privacy, Confidentiality, and Integrity
- Cloud Security Policy

- Service Level Agreement (SLA)

Module 7: Cloud Application Development (7 hours)

- Tools for Cloud Development
- Simulators (e.g., CloudSim)
- Developing and Deploying Applications in Public Cloud Services
- Deploying AI Applications in the Cloud
- IoT Cloud Services
- Cloud Security Services

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