

Govt. Polytechnic Hamirpur (H.P.)

Lecture Planning (Theory)

Branch : Information Technology

Semester : 5th

Subject : Cloud Computing Technologies Session: Aug-Dec 2025

Teacher: Vijay Pathania

Laboratory :

| Sr. No. | No. of Lectures Planned | Chapter/ Unit Description | Detail of Contents | Reference Resources | Remarks |
|---------|-------------------------|--------------------------------------|---|---------------------|---------|
| 1. | 12 | Introduction to Cloud Computing | Computing Paradigms: Personal Computing, Distributed Computing, Cluster Computing, Grid Computing, Utility Computing, Evolution of Cloud Computing, NIST Definition of Cloud Computing, Enabling Technologies in Cloud Computing, Essential Characteristics : On-Demand Self-Service, Broad Network Access, Resource Pooling, Rapid Elasticity, Measured Service; Advantages, Disadvantages and Applications of Cloud Computing, Challenges in Cloud Computing, Cloud Computing Impact on Environment | R1,R2,R3, R4,R5 | |
| 2. | 12 | Service Models and Deployment Models | Service Models: Software as a Service (SaaS), Platform as a Service (PaaS), Infrastructure as a Service (IaaS), Characteristics, Benefits, Applications and Popular Vendors for SaaS, Paas, and IaaS; Deployment Models : Private Cloud, Community Cloud, Public Cloud, Hybrid Cloud; Advantages and Disadvantages of Private, Community, Public and Hybrid Clouds | R1,R2,R3, R4,R5 | |
| 3. | 12 | Virtualization | Virtualization, Advantages and Disadvantages of Virtualization; Types of Virtualization: Full Virtualization, Para-Virtualization, OS-Level Virtualization; Pitfalls of Virtualization, Type I and Type II Hypervisors; Containers, Virtual Machine Life cycle, Examples of Virtualization Platforms - VMWare, Docker; Virtual Machine Migration - Live and Cold Migrations | R1,R2,R3, R4,R5 | |
| 4. | 12 | Scheduling and SLAs | Metatask, Scheduling: Static Scheduling - Min-Min, Max-Min, and Sufferage Algorithm, Service Level Agreements (SLA): Need & Types of SLAs, Common Service Metrics, Life Cycle of SLA | R1,R2,R3, R4,R5 | |

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| 5. | 12 | Cloud Services and Platforms | Compute Services, Storage Services, Database Services, Application Services, Identity & Access Management Services, Content Delivery Services, Deployment & Management Services, Introduction to Selected AWS Services - EC2, S3, DynamoDB, IAM, Beanstalk | R1,R2,R3, R4,R5 | |
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Course Outcomes : After completing this course the students will be able to :

- CO-1. Understand the fundamental cloud computing terminology.
- CO-2. Explain the importance and underlying concepts of cloud computing.
- CO-3. Compare cloud computing with other computing models.
- CO-4. Understand the working of popular commercial cloud computing platforms.

Reference Books:

1. Essentials of Cloud Computing By K. Chandrasekaran, CRC Press
2. Cloud Computing : Principles and Paradigm By Rajkumar Buyya, Wiley
3. Online resources <https://www.nist.gov>
4. Online training at <https://aws.amazon.com>
5. NPTEL course on cloud computing


01/08/2025

Signature of Teacher with Date



Signature of H.O.D.