**Lesson Plan**

**Name of Faculty: Dr. Deepak Kumar**

**Discipline: Computer Engineering Department**

**Semester: 3rd**

**Subject: Cloud Computing and Virtualization**

Lesson plan Duration: 15 Weeks (August 2022– November 2022)

Work load (lecture) per week (in hours): Lectures: 3 hours,

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| **Lecture No** | **Description** | **Remarks If any** |
| 1 | **Unit-1**: Overview of Computing Paradigms Recent Trends in Computing: Distributed Computing |  |
| 2 | Cluster Computing, Grid Computing, Utility Computing |  |
| 3 | Cloud Computing Evolution of Cloud Computing: Migrating into a Cloud. |  |
| 4 | Cloud Computing Basics Cloud Computing Overview; |  |
| 5 | Characteristics of cloud computing |  |
| 6 | Applications; Benefits; Limitations; Challenges |  |
| 7 | SOA; Cloud Computing Service Models: Infrastructure as a Service |  |
|  | Minor test |  |
| 8 | Platform as a Service; Software as a Service |  |
| 9 | Cloud Computing Deployment Models: Private Cloud |  |
| 10 | Public Cloud; Community Cloud |  |
| 11 | Hybrid Cloud, Major Cloud Service providers |  |
| 12 | **Unit-2** Virtualization Concepts Overview of Virtualization Technologies |  |
| 13 | Types of Virtualization |  |
| 14 | Benefits of Virtualization |  |
|  | Minor test |  |
| 15 | Hypervisors VM Provisioning & Migration |  |
| 16 | VM Lifecycle, VM Provisioning Process |  |
| 17 | VM Migration Techniques |  |
| 18 | Scheduling in Cloud Overview of Scheduling problem |  |
| 19 | Different types of scheduling |  |
| 20 | Scheduling for independent and dependent tasks |  |
| 21 | Static vs. Dynamic scheduling |  |
| 22 | Optimization techniques for scheduling |  |
| 23 | **Unit-3**: Cloud Storage Overview; Storage as a Service . |  |
| 24 | Benefits and Challenges, Storage Area Networks(SANs) |  |
| 25 | Case Study of Amazon S3 |  |
| 26 | Cloud Security Infrastructure Security: Network Level Security |  |
| 27 | Host Level Security and Application Level Securit |  |
| 28 | Data Security: Data Security & Privacy Issues |  |
| 29 | Identity & Access Management; Legal Issues in Cloud Computing |  |
| 30 | **Unit-4** Mobile Cloud Computing Overview of Mobile Cloud Computing |  |
| 31 | Mobile Cloud Computing, Advantages, Challenges |  |
| 32 | Using Smartphones with the Cloud |  |
| 33 | Offloading techniques - their pros and cons |  |
| 34 | Mobile Cloud Security |  |
| 35 | SLA Management: |  |
| 36 | Overview of SLA |  |
| 37 | Types of SLA |  |
| 38 | SLA Life Cycle |  |
| 39 | SLA Management Process |  |