

G. Course Content:

UNIT I Introduction to Cloud Computing

L-9

Definition, Characteristics, Components, Cloud provider, SAAS, PAAS, IAAS and Others, Organizational scenarios of clouds, Administering & Monitoring cloud services, benefits and limitations, Deploy application over cloud, Comparison among SAAS, PAAS, IAAS Cloud computing platforms: Infrastructure as service: Amazon EC2, Platform as Service: Google App Engine, Microsoft Azure, Utility Computing, Elastic Computing.

UNIT II Introduction to Cloud Technologies

L-9

Study of Hypervisors Compare SOAP and REST Web services, AJAX and mashups-Web services: SOAP and REST, SOAP versus REST, AJAX: asynchronous 'rich' interfaces, Mashups: user interface services Virtualization Technology: Virtual machine technology, virtualization applications in enterprises, Pitfalls of virtualization Multitenant software: Multi-entity support, Multi-schema approach, Multitenancy using cloud data stores, Data access control for enterprise applications.

UNIT III Cloud security fundamentals

L-9

Vulnerability assessment tool for cloud, Privacy and Security in Cloud computing security architecture: Architectural Considerations- General Issues, Trusted Cloud computing, Secure Execution Environments and Communications, Micro-architectures; Identity Management and Access control Identity management, Access control, Autonomic Security Cloud computing security challenges: Virtualization security management virtual threats, VM Security Recommendations, VM-Specific Security techniques, Secure Execution Environments and Communications in cloud.

UNIT IV Issues in cloud computing

L-9

Implementing real time application over cloud platform Issues in Intercloud environments, QoS Issues in Cloud, Dependability, data migration, streaming in Cloud. Quality of Service (QoS) monitoring in a Cloud computing environment. Cloud Middleware. Mobile Cloud Computing. Inter Cloud issues. A grid of clouds, Sky computing, load balancing, resource optimization, resource dynamic reconfiguration, Monitoring in Cloud.

UNIT V Cloud computing platforms

L-9

Installing cloud platforms and performance evaluation Features and functions of cloud platforms: Xen Cloud Platform, Eucalyptus, OpenNebula, Nimbus, TPlatform, Apache Virtual Computing Lab (VCL), Enomaly Elastic Computing Platform

Total: 45 Hours

h. Learning Resources

i. Text Books

1. Antohy T Velte, et.al, "Cloud Computing: A Practical Approach", McGraw Hill, 2009
2. Gautam Shroff, Enterprise Cloud Computing- Technology, Architecture and Applications, Cambridge University Press, 2010.
3. Barrie Sosinsky, "Cloud Computing Bible", Wiley India, 2011.

ii. Reference Books

1. Judith Hurwitz, R.Bloor, M.Kanfman, F.Halper, "Cloud Computing for Dummies", Wiley India Edition 2009.
2. Ronald Krutz and Russell Dean Vines, "Cloud Security", Wiley – India, 2010.
3. Tim Malhar, S.Kumaraswamy, S.Latif, "Cloud Security & Privacy", SPD, O'REILLY, 2009