

<b>Subject Code</b>	<b>Subject Name</b>	<b>Credits</b>
<b>26CS611</b>	<b>ADVANCED CLOUD COMPUTING</b>	<b>4</b>

### **Course Objectives**

1. To understand cloud computing fundamentals
2. To get to know about various architecture for cloud computing and its technology
3. To understand web service management in cloud computing.
4. To understand cloud services and applications

### **Learning Outcomes**

After the completion of the course, the graduate will be able to

1. To get accustomed to developing applications in a cloud environment

### **Unit 1 - Cloud Computing Fundamentals (12 Hrs.)**

Cloud Computing definition, private, and public and hybrid cloud. Cloud types; IaaS, PaaS, SaaS. Benefits and challenges of cloud computing, public vs private clouds, role of virtualization in enabling the cloud; Business Agility: Benefits and challenges to Cloud architecture. Application availability, performance, security and disaster recovery; next generation Cloud Applications.

### **Unit 2 - Cloud Architecture And Cloud Computing (12 Hrs.)**

Cloud Architecture- Layers and Models Layers in cloud architecture, Software as a Service (SaaS), features of SaaS and benefits, Platform as a Service (PaaS), features of PaaS and benefits, Infrastructure as a Service (IaaS), features of IaaS and benefits, Service providers, challenges and risks in cloud adoption. Cloud deployment model: Public clouds – Private clouds – Community clouds - Hybrid clouds - Advantages of Cloud computing.

### **Unit 3 - Cloud Computing Technology (12 Hrs.)**

Clients – Mobile – Thin – Thick, Security - Data Linkage - Offloading Work - Logging - Forensics - Development – Auditing, Network- Basic Public Internet- The Accelerated Internet- Optimized Internet Overlay- Site-to-Site VPN- Cloud Providers- Cloud Consumers - Pipe Size- Redundancy, Services- Identity- Integration- Mapping- Payments- Search. Google Big table Data store- Mobile Me- Live Mesh, Storage Security, Merits and Demerits of Storage.

### **Unit 4 - Web Service Management In Cloud Computing (12 Hrs.)**

Introduction to Web Servers-Execute server-side scripts to generate a portion of or all the web page, Perform Uniform Resource Locator (URL) redirection, Hypertext transfer protocol works, Amazon Web Services (AWS), a collection of computing, storage, networking, and platform services offered over the Internet. Objectives, Storage as a Service, Storage Providers- Amazon Simple Storage Service.

### **Unit 5 - Cloud Services and Applications (12 Hrs.)**

Service Oriented Architecture: Basic concepts of message-based transactions, Protocol stack for an SOA architecture, Event-driven SOA, Enterprise Service Bus, Service catalogs - Applications in the Cloud: Concepts of cloud transactions, functionality mapping, Application attributes, Cloud service attributes, Applications and Cloud APIs. Webmail Services: Cloud mail services including Google Gmail, Mail2Web, Windows Live Hotmail, Yahoo mail, concepts of Syndication services.

### **References:**

1. Networking, Web Services, and Cloud Computing- by Richard Fox.
2. Cloud Computing Theory and Practice Second Edition Dan C. Marinescu.
3. Secure Cloud Computing - Sushil Jajodia • Krishna KantPierangela Samarati • Anoop Singhal Vipin Swarup • Cliff Wang