



**FORMAT FOR COURSE CURRICULUM**

**Course Title: Cloud Computing Practitioner**

**Credit Units: 4**

**Course Level: UG**

**Course Code: CSE314**

L	T	P/S	SW/FW	TOTAL CREDIT UNITS
2	0	2	2	4

**Course Objectives:**

After finishing this course student will be able to get introduction of Cloud Computing technology, its applications and importance. This course explores the basic characteristics of Cloud infrastructure and its services in details. It helps in learning implementation of web application and its deployment in Cloud. it also gives broad overview of service-orientation architecture and its usage.

**Pre-requisites:**

**Knowledge of Networking and Operating System**

<b>Course Contents/Syllabus:</b>	<b>Weightage (%)</b>
<b>Module I : Introduction to Cloud Computing</b>	
Course Overview -advantages of cloud computing, a comparison of cloud and on- premises computing, and a description of the Cloud Adoption Framework , Cloud Economics- pricing philosophy, fundamental pricing characteristics and total cost of ownership (TCO), Global Infrastructure- regions and availability zones, edge locations.	<b>20%</b>
<b>Module II : Cloud Core Services</b>	
Compute Services-Introduction to Amazon EC2,different Amazon EC2 types and their usage ,Amazon Machine Image (AMI) ,Amazon EC2 pricing and billing Explain server less computing, Review Elastic Beanstalks, Storage Services-Working with EBS, Identify the appropriate storage solution, pricing differences between different storage alternatives, Storage Service (i.e. Amazon S3) , File System (i.e. Amazon EFS), Amazon Glacier ,Amazon VPC-Build your VPC and Launch a Web Server, Database Services and different database solutions , SQL and NoSQL database solutions, Build your DB server and interact with your DB using an App ,Elastic Load Balancing, Cloud Monitoring tools i.e. Amazon Cloud Watch, Auto Scaling, Scale and Load Balance your Architecture.	<b>20%</b>
<b>Module III : Cloud Security</b>	
Shared Responsibility Model-difference between Identity and Access Management (IAM) Users, Groups and Roles, different types of security credentials , Identity and Access Management , Trusted Advisor ,Cloud Trail , Configuration , Security and Compliance Programs , Security Resources, security compliance and security compliance resources.	<b>20%</b>

<b>Module IV: Cloud Architecture</b>	<b>20%</b>
Introduction to the Well-Architected Framework-architectural best practices for designing and operating reliable, secure, efficient, and cost-effective systems in the cloud ,architectural pillars , Well-Architected Design Principles, Understanding Reliability and High Availability, business impact of design decisions, Example: Transitioning a Data Centre to the Cloud,	
<b>Module V: Cloud Billing and Support</b>	<b>20%</b>
Organizations of identifying different support plan levels and their associated service levels , Billing and Cost Management and Billing Dashboard's elements, different tools available in Billing and Cost Management to review current billing and forecast future costs ,Support Services-prices associated with each of the support plans.	

### Student Learning Outcomes:

1. Define what the Cloud is including the basic global infrastructure
2. Describe the Cloud value proposition and the key services and their common use cases (e.g., compute, analysis, etc.)
3. Describe basic Cloud architectural principles
4. Describe basic security and compliance aspects of the platform and the shared security model
5. Define the billing, account management, and pricing models
6. Identify sources of documentation or technical assistance (e.g., whitepapers, support tickets, etc.)
7. Describe basic/core characteristics of deploying and operating in Cloud.

### List of Lab Experiments:

Lab 01 – Introduction to Amazon EC2 ON

Lab 02 – Working with EBS

Lab 03 – Build your VPC and Launch a Web Server

Lab 04 – Build your DB server and interact with your DB using an App

Lab 05 – Scale and Load Balance your Architecture

Lab 06 – Introduction to AWS IAM

### Pedagogy for Course Delivery:

The class will be taught using theory and case studies of latest processors. Apart from assigning the case studies, the course instructor will cover the quantitative approach for classification of modern processors.

### Assessment/ Examination Scheme:

<b>Theory L/T (%)</b>	<b>Lab/Practical/Studio (%)</b>	<b>Total</b>
75%	25%	100%

**Theory Assessment (L&T):**

Continuous Assessment/Internal Assessment					End Term Examination
Components (Drop down)	Class Test	Home Assignment	Attendance	Viva	
Weightage (marks)	5	8	7	10	70

**Lab Assessment**

Continuous Assessment/Internal Assessment					End Term Examination
Components (Drop down)	Attendance	Lab Record	Performance	viva	
Weightage (%)	5	10	10	5	70

**Text Reading:**

- **Cloud Computing : A Practical Approach by Anthony T. Velte Toby J. Velte, Robert Elsenpeter, 2010 by The McGraw-Hill.**
- **Cloud Computing: SaaS, PaaS, IaaS, Virtualization and more. by Dr. Kris Jamsa.**
- **AWS Cloud Practitioner**

**References:**

- **Cloud Computing Bible by Barrie Sosinsky, Published by Wiley Publishing, 2011.**
- **Cloud Computing for Dummies by Judith Hurwitz, Robin Bloor, Marcia Kaufman, and Dr. Fern Halper, Wiley Publishing, 2010.**
- **Moving to The Cloud, Dinakar Sitaram, Elsevier, 2014.**
- **Cloud Computing Theory And Practice Danc.Marinercus, Elsevier, 2013.**

**Additional Reading:**

**Cloud Computing Whitepapers**

- **Overview of Amazon Web Services whitepaper, April 2017**
- **Architecting for the Cloud: AWS Best Practices whitepaper, February 2016**

- **How AWS Pricing Works** whitepaper, March 2016
- **The Total Cost of (Non) Ownership of Web Applications in the Cloud** whitepaper, August 2012
- **Compare AWS Support Plans** webpage