

CST - 602 (Cloud Computing)

Second Semester

Course Description

Course Code Number	CST-602	Course Title	Cloud Computing
Semester Hours	Total 2 hours per week Lecture 2 hours per week	No. of Credit Units	2
Prerequisite	None	Course Coordinator	Dr. Khine Moe Nwe Faculty of Computer Science
Course Length	15 Weeks	Type of Instruction	Lecture + Lab

Course Objectives

This course intended to understand and assist the students:

- The basic concepts related to cloud computing technologies
- The architecture and concept of different cloud models: IaaS, PaaS, SaaS
- The underlying principle of cloud virtualization, cloud storage, data management and data visualization, data analysis tools and techniques
- The different cloud programming platforms and tools
- Be familiar with application development and deployment using cloud platforms

Course Outline

This course discusses about the technological advances that have made cloud computing possible and of the economic reasons why this new paradigm is attractive for many users and applications. Then discuss the cloud computing delivery models and services - Software as a Service (SaaS), Platform as a Service (PaaS), and Infrastructure as a Service (IaaS). Then introduce about the cloud-enabling technologies- datacenter technology, virtualization technology, web technology, multitenant technology and services technology. The fundamental of cloud security, security counter measures and the specialized cloud mechanisms are presented in this course.

Learning Outcomes

After learning the course, the students should be able to:

- Understand the different architectural models of cloud computing, the concepts of virtualization and advanced cloud programming paradigms using tools and techniques
- Understand the technology related in cloud computing through the case studies
- Understand how to develop large-scale industry standard applications using cloud platforms and tools.

Text Book

[1] Cloud Computing Concepts & Architecture by Thomas Erl, Zaigham Mahmood and Ricardo Puttini, Prentice-Hall, 2013.

Reference Books

[1] Cloud Computing Theory And Practice by Dan C Marinescu)

[2] Handbook_of_Cloud_Computing

Course Organization

Student participation in this course will involve the following activities:

- Attending the lectures
- Presentation
- Assignment/Test
- Exam

Assessment Plan for the Course(70%)

Paper Exam	40 %
Presentation	10 %
Class Participation	5 %
Assignment/ Test	15 %

Lecture Plan

CST-602 : Cloud Computing

Second Semester

Period : 30 Periods for 15 weeks (50 minutes for 1 period)

No.	Topics	Week	Remark
	Understanding Cloud Computing		Chapter 3
1	3.1. Origins and Influences 3.2. Basic Concepts and Terminology 3.3. Goals and Benefits 3.4. Risks and Challenges Summary Chapter and Presentation	Week 1+ Week 2	
	Understanding Virtualization Technologies		Chapter 4
2	4.1 Roles and Boundaries 4.2 Cloud Characteristics 4.3 Cloud Delivery Models 4.4 Cloud Deployment Models Summary Chapter and Presentation	Week 3+ Week 4	
	Cloud-Enabling Technology		Chapter 5
3	5.1 Broadband Networks and Internet Architecture 5.2 Data Center Technology 5.3 Virtualization Technology 5.4 Web Technology 5.5 Multitenant Technology 5.6 Service Technology 5.7 Case Study Example Summary Chapter and Presentation	Week 5+ Week 6+ Week 7	
	Fundamental Cloud Security		Chapter 6

University of Computer Studies, Yangon
M.C.Sc. / M.C.Tech.

4	6.1. Basic Terms and Concepts 6.2. Threat Agents 6.3. Cloud Security Threats 6.4. Additional Considerations 6.5. Case Study Example Summary Chapter and Presentation	Week 8+ Week 9+	
No.	Topics	Week	Remark
	Cloud Infrastructure Mechanisms		Chapter 7
5	7.1. Logical Network Perimeter 7.2. Virtual Server 7.3. Cloud Storage Device 7.4. Cloud Usage Monitor 7.5. Resource Replication 7.6. Ready-Made Environment Summary Chapter Presentation	Week 10+ Week 11+ Week 12	
	Specialized Cloud Mechanisms		Chapter 8
6	8.1 Automated Scaling Listener 8.2 Load Balancer 8.3 SLA Monitor 8.4 Pay-Per-Use Monitor 8.5 Audit Monitor 8.6 Failover System 8.7 Hypervisor 8.8 Resource Cluster 8.9 Multi-Device Broker 8.9 Multi-Device Broker 8.10 State Management Database Summary Chapter Presentation	Week 13+ Week 14+ Week 15	