Faculty of Computer Studies (FoCS)
Sub Committee for Curriculum Development

Format to submit syllabus

Course Name: Cloud Development and Administration

(UG/PG): PG

Number of Credits: 3

Level: 4

Learning Objective(s): The objectives of this course is to understand cloud technologies by providing the view of development as well as administration.

Pedagogy:

Lectures
Discussion
Presentation
Hands-on

Pre-learning:

The knowledge of operating system and networking is required.

Course Content:

Sr No	Topic	Hours
1	Cloud Computing Basics Overview, Applications , Intranets and the Cloud. Hardware and Infrastructure - Clients, Security, Network, Services.	6
2	Software as a Service (Saas) Understanding the Multitenant Nature of SaaS Solutions, Understanding SOA. SaaS platform services (application development, application migration, SaaS implementation, business intelligence - Cloud-based/big data/real time analytics) Web services Web 2.0 Web OS Platform as a Service (PaaS) IT Evolution Leading to the Cloud, Benefits of Paas Solutions, Disadvantages of Paas Solutions. Evolution of computing paradigms and related components (distributed computing, utility computing, Cloud computing, grid computing, etc.) e.g., Spring vs. VMWare vFabric, gemstone vs. VMWare Gemfire, WMWare Hyperic/TC	12

	Server/RabbitMQ Cloud Platform and Management Computation Storage Infrastructure as a Service (Iaas) Understanding IaaS, Improving Performance through Load Balancing, System and Storage Redundancy, Utilizing Cloud - Based NAS Devices, Advantages, Server Types. Evolution of infrastructure migration approaches (virtualization-VMWare/Xen/KVM virtualization, adaptive virtualization, Cloud Computing and on-demand resource provisioning) Resource Virtualization Server Storage Network Identity as a Service (IDaaS) Understanding Single Sign On (SSO), OpenID, Mobile ID Management, LDAP authentication	
3	Service Oriented Architecture Understanding SOA, Web Services Are Not Web Pages, Understanding Web Service Performance, Reuse and Interoperability. Developing Applications	8
4	Cloud Security Cloud security challenges Cloud security approaches: encryption, tokenization/obfuscation, cloud security alliance standards, cloud security models and related patterns Mainstream Cloud security offerings: security assessment, secure Cloud architecture design	8
5	Application Scalability Load Balancing Process, Designing for Scalability, Capacity Planning Versus Scalability, Scalability and Diminishing Returns and Performance Tuning	5
6	Service Management in Cloud Computing Service Level Agreements(SLAs) Billing & Accounting Comparing Scaling Hardware: Traditional vs. Cloud Economics of scaling: Benefitting enormously Managing Data Looking at Data, Scalability & Cloud Services Database & Data Stores in Cloud Large Scale Data Processing	6
	Total	**45**

Books Recommended:

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

3. Cloud Computing: Principles, Systems and Applications, Editors: Nikos Antonopoulos, Lee Gillam, Springer, 2012
4. Cloud Security: A Comprehensive Guide to Secure Cloud Computing, Ronald L. Krutz, Russell Dean Vines, Wiley-India, 2010

Suggested Evaluation Methods:

Lab based Evaluations
Assignments
Presentation

Parallel/Similar courses the existing curriculum:

S.No.	Name of the course	Institute where it was offered
1		

Name of Member	Prof. Harshad Gune	Dr. Tejaswini Apte			
Designation	Dy.Director	Asst. Prof.			
Org. / Inst.	SICSR	SICSR			
Signature					

Name of the Expert:

Signature:

Date: