



GUJARAT TECHNOLOGICAL UNIVERSITY
Syllabus for Integrated MSc, 6th Semester
Branch: Computer Science
Subject Name: Fundamental of Cloud Computing
Subject Code: 1360303

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks				Total Marks
L	T	P		Theory Marks		Practical Marks		
			ESE(E)	PA (M)	PA (I)	ESE (V)		
3	0	2	4	70	30	20	30	150

Content:

Sr. No.	Content	Teaching Hours	(%)Module Weightage
1	Introduction: Cloud Computing, Layers and Types of Clouds, Cloud Infrastructure Management, Challenges and Applications. Virtualization: Virtualization of Computing, Storage and Resources. Cloud Services: Introduction to Cloud Services IaaS, PaaS and SaaS	04	15
2	Software as a Service (SaaS): Evolution of SaaS, Challenges of SaaS Paradigm, SaaS Integration Services, SaaS Integration of Products and Platforms. Infrastructure As a Services (IaaS): Introduction, Background & Related Work, Virtual Machines Provisioning and Manageability, Virtual Machine Migration Services, VM Provisioning and Migration in Action. Platform As a service (PaaS): Integration of Private and Public Cloud, Technologies and Tools for Cloud Computing.	08	15
3	Abstraction and Virtualization: Introduction to Virtualization Technologies, Load Balancing and Virtualization, Understanding Hyper visors, Understanding Machine Imaging, Porting Applications, Virtual Machines Provisioning and Manageability Virtual Machine Migration Services.	08	20
4	Cloud Infrastructure and Cloud Resource Management: Architectural Design of Compute and Storage Clouds, Layered Cloud Architecture Development, Design Challenges, Inter Cloud Resource Management, Resource Provisioning and Platform Deployment, Global Exchange of Cloud Resources. Administrating the Clouds, Cloud Management Products.	08	15
5.	Cloud Middleware: OpenStack, Eucalyptus, Windows Azure, CloudSim, EyeOs, Aneka, Google App Engine	05	05
6.	Cloud Based Case-Studies: Overview of Cloud services, Designing Solutions for the Cloud, Implement & Integrate Solutions, Emerging Markets and the Cloud, Tools for Building Private Cloud: IaaS using Eucalyptus, PaaS on IaaS – AppScale	05	10

Reference Books:

1. Rajkumar Buyya, James Broberg, Andrzej M Goscinski, Cloud Computing: Principles and Paradigms, Wiley publication.
2. Toby Velte, Anthony Velte, Cloud Computing: A Practical Approach, McGraw-Hill Osborne Media.



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3. George Reese, Cloud Application Architectures: Building Applications and Infrastructure in the Cloud, O'Reilly Publication.
4. John Rhoton, Cloud Computing Explained: Implementation Handbook for Enterprises, Recursive Press.

Course outcomes:

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

No.	CO statement
CO-1	Compare the strengths and limitations of cloud computing
CO-2	Identify the architecture, infrastructure and delivery models of cloud computing
CO-3	Apply suitable virtualization concept.
CO-4	Choose the appropriate cloud player, Programming models and approach
CO-5	Address the core issues of cloud computing such as security, privacy and interoperability