GUJARAT TECHNOLOGICAL UNIVERSITY

Subject Name: Cloud Computing
Subject Code:3725504

Semester II

Type of course: ME - Computer Engineering (HIGH PERFORMANCE COMPUTING [HPC])

Prerequisite:

1. Operating Systems
2. Networking
3. Computer Architecture

Rationale: NA

Teaching and Examination Scheme:

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

L- Lectures; T- Tutorial/Teacher Guided Student Activity; P- Practical; C- Credit; ESE- End Semester Examination; PA- Progressive Assessment;

Content:

Sr. No.	Content	Total Hrs	% Weightage
1	Introduction to Cloud Computing, Evolution, Benefits and Barriers, Cloud SPI models, Cloud Computing Vs Cluster Computing, Technology Involved in Cloud Computing , Infrastructure as a Service (IaaS),Virtualization, Platform as a service (PaaS), Cloud platform management, Software as a Service, Case studies	15	35
2	Service Management in Cloud Computing, Service Level Agreements (SLAs), Billing & Accounting, Scaling Cloud Hardware, Managing Data, Cloud Security and Privacy, Infrastructure security, Data security and Storage, Data privacy, access management, Cloud computing standards and Interoperability, technical considerations for migration to the cloud, integrating existing applications with the cloud.	15	35

Reference Books:

1. Cloud Computing Bible, Barrie Sosinsky, Wiley-India, 2010
2. Cloud Computing: Principles and Paradigms, Editors: Rajkumar Buyya, James Broberg, Andrzej M. Goscinski, Wile, 2011
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
5. Cloud Security and Privacy: An Enterprise Perspective on Risks and Compliance, Tim

Mather et al., O'Reilly Media, 2009

Course Outcome:

After learning the course the students should be able to:

1. Understanding the key dimension of the Challenges of Cloud computing
2. Applying relevant methodologies to assess the privacy, compliance and legal challenges organizations face in deploying cloud computing solution to support their mission and Processes
3. Applying relevant methods to assess the important security and sustainability challenges involved in adopting various cloud architectures and making informed decisions for the organization \
4. Applying relevant Comparative methodologies to assess the technological and economic comparative advantages of various cloud computing Architecture
5. Effectively participate in the informed process of selecting the cloud Computing Solution most appropriate for mobile Platform.

List of Experiments: (with Open Ended Problems)

1. Cloud SPI models,
2. Case studies on
    a. Infrastructure as a Service (IaaS),Virtualization, Platform as a service
    b. (PaaS), Cloud platform management,
    c. Software as a Service,
3. Data security and Storage, Data privacy,
4. access management,Cloud computing standards and Interoperability,

Review Presentation (RP): The concerned faculty member shall provide the list of peer reviewed Journals and Tier-I and Tier-II Conferences relating to the subject (or relating to the area of thesis for seminar) to the students in the beginning of the semester. The same list will be uploaded on GTU website during the first two weeks of the start of the semester. Every student or a group of students shall critically study 2 papers, integrate the details and make presentation in the last two weeks of the semester. The GTU marks entry portal will allow entry of marks only after uploading of the best 3 presentations. A unique id number will be generated only after uploading the presentations. Thereafter the entry of marks will be allowed. The best 3 presentations of each college will be uploaded on GTU website