GUJARAT TECHNOLOGICAL UNIVERSITY

Subject Name: Cloud Computing (Elective I & II- Group 1)

Subject Code: 3715108

Semester: I

Type of course: M.E. Computer Engineering (IT systems and Network Security)

Prerequisite:

- Knowledge about Server systems
- Understanding about Cluster systems
- Understanding of cloud infrastructure
- Understanding on Network Communication
- Understanding of Linux/Unix

Rationale:

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks				Total Marks
				Theory Marks		Practical Marks		
L	T	P	C	ESE (E)	PA (M)	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	Review for networking basics and TCP/IP,	2	4
2	Introduction to cloud computing, Introduction to data centers: servers, data storage	2	4
3	networking and virtualization,	2	4
4	Data center networking:	2	4
5	Ethernet, network topologies	2	4
6	Routing	2	4
7	addressing,	2	4
8	transport layer protocols,	2	4
9	Introduction to server virtualization software:	2	4
10	VMware VSphere	2	4
11	Virtual machine management: configuration,	2	4
12	placement and resource allocation	2	4
13	Power efficiency in virtual data centers,	2	4
14	Fault tolerance in virtual data centers,	2	6
15	scheduling, performance,	2	6
16	Case studies	**3**	6

Reference Books: -

1. Cloud Computing Bible, Barrie Sosinsky, Wiley India Pvt Ltd
2. Cloud Computing and SOA Convergence in Your Enterprise: A Step-by-Step Guide, David S. Linthicum, and Pearson

Course Outcome:

After learning the course the students should be able to:

- Understand the workings of Cluster and Cloud.
- Understanding of evolution from Grid to Cloud Computing.
- Understanding of Distributed and Parallel Computing.
- Understating of IT as a Service by Cloud.
- Understanding of Big Data.
- Understanding of Need, Quality and Challenges in Cloud.
- Understanding of the Open Source Solutions.

List of Experiments: (with Open Ended Problems)

- Creating the small cluster
- Creating the private cloud
- Develop a HA/HPC Cluster
- Implementation of Open Source Cloud Software

Major Equipment:

- Linux
- VMWare
- Hypervisor
- Switches

List of Open Source Software/learning website:

- OpenStack
- Pirana
- Dijekstra