GUJARAT TECHNOLOGICAL UNIVERSITY
COMPUTER ENGINEERING
B. E. SEMESTER: VII

Subject Name: **Advance Computing**
Subject Code: **170704**

Teaching Scheme				Evaluation Scheme			
Theory	Tutorial	Practical	Total	University Exam (E)		Mid Sem Exam (Theory) (M)	Practical (Internal)
				Theory	Practical		
3	0	2	5	70	30	30	20

Sr. No.	Course Contents	Total Hrs
1.	**Cluster Computing at Glance :** Ease of Computing, Scalable Parallel Computer Architecture, Towards Low Cost Parallel Computing & Motivation, Windows opportunity, A Cluster Computer And Its Architecture, Cluster Classification, Commodity Components fir Clusters, Network Services/Communication SW, Cluster Middleware and Single Systems Image, Resource management & Scheduling (RMS), Programming environment Tools, Cluster Applications, Representative Cluster Systems, Clusters of SMPS	08
2.	**Cluster Setup and Administration :** Setting up the cluster, Security, System Monitoring, System Tuning,	06
3.	**Constructing Scalable Services :** Environment, Resource sharing, Resource sharing enhanced locality, prototype implementation and extension	06
4.	**Introduction to Grid and its Evolution :** Beginning of the grid, building blocks of the grid, grid applications and application middleware, future of the grid, Evolution of the Grid: first, second and third generation	05
5.	**Implementing Production Grids :** Grid context, Grid support for collaboration, Building an initial multisite, computational and data grid, cross site trust management, Transition to a prototype production grid	05

6.	**Anatomy of Grid :** Virtual organizations, Nature of grid architecture, Grid architecture description and practice, intergrid protocols, relation to other technologies, other perspective on grids	07
7.	**Introduction to Cloud Computing :** Defining Clouds. Cloud Providers, Consuming Cloud Services, Cloud Models – Iaas, Paas, SaaS, Inside the cloud, Administering cloud services, technical interface, cloud resources	04
8.	**Nature of cloud :** Tradition data center, cost of cloud data center, Scaling computer systems, economics, cloud work load, managing data on clouds, public, private and hybrid clouds	08
9.	**Cloud elements :** Infrastructure as a service, Platform as a Service, Software as a Service	05

Text Books:

1. High Performance Cluster Computing, Volume 1, Architecture and Systems, Rajkumar Buyya, Pearson Education
2. Grid Computing – Making the Global Infrastructure A Reality, Edited by Berman, Fox and Hey, Wiley India
3. Cloud Computing for Dummies, Hurwitz, Bllor, Kaufman, Halper, Wiley India.

Reference Books:

1. Cloud Computing, A Practical Approach, Anthony Velte, Toby Velte, Robert Elsenpeter, McGrawHill
2. Clouding Computing with Windows Azure Plaform, Roger Jennings, Wiley India
3. Virtualization for Dummies – Bernand Golden, Wiley India
4. Cloud Computing – Bible, Berrie Sonsisky, Wiley (India)
5. Cloud Security – Ronald Krutz, Wiley (India)