Grid and Cluster Computing	**L**	**T**	**P**	Computer Networks
	3	**1**	**0**	

Course Objective: To understand concepts of Cluster based distributed computing and associated Hardware technologies

S. NO	Course Outcomes (CO)
CO1	Understand concepts in Cluster based distributed computing Hardware technologies
CO2	Learn Programming Models and Paradigms
CO3	Compare Grid Computing: Grids and Grid Technologies, Programming models and Parallelization Techniques
CO4	Study Data Management Application

S. NO	Contents	Contact Hours
UNIT 1	Cluster Computing Introduction to concepts in Cluster based distributed computing Hardware technologies for cluster computing and software for cluster computing, and different Software Architecture for Cluster Computing.	**8**
UNIT 2	Programming; Programming Models and Paradigms, features and performance of standard MPI variants, Derived data types, communicators.	**9**
UNIT 3	Resource management and scheduling Managing, cluster resources: single system images, system level middleware, distributed task scheduling, monitoring and administering system resources Parallel I/O and Parallel Virtual File System. Scheduling: Condor, Maui Scheduler, Portable Batch System (PBS).	**9**
UNIT 4	Grid Computing: Grids and Grid Technologies, Programming models and Parallelization Techniques, Grid Security Infrastructure, Setting up Grid, deployment of Grid software and tools, and application execution	**8**
UNIT 5	Standard application development tools and paradigms Performance evaluation tools, HINT, netperf, netpipe, ttcp, Iperf.message	**8**
UNIT 6	Data Management Application Case Study: Molecular Modeling for Drug Design and Brain Activity Analysis, Resource management and scheduling.	**8**
	TOTAL	**42**

REFERENCES		
S.No.	**Name of Books/Authors/Publishers**	**Year of Publication / Reprint**
1	Grid and Cluster Computing by C.S.R. Prabhu, PHI, 2008	2008
2	Introduction to grid computing - Bart Jacob, Michael Brown, 2005	2005