

**AIM:**  
To understand the latest advances in the field of computation to optimize the utilization of resources.

**OBJECTIVES:**

- To enable resource sharing across networks.
- To integrate heterogeneous computing systems and data resources with the aim of providing a global computing Space.
- To manage and schedule the resources in grid environments.
- To know the standards and protocols used.
- To know the middleware in grid computing.

**UNIT I CONCEPTS AND ARCHITECTURE 9**  
Introduction-Parallel and Distributed Computing-Cluster Computing-Grid Computing-Anatomy and Physiology of Grid-Review of Web Services-OGSA-WSRF.

**UNIT II GRID MONITORING 9**  
Grid Monitoring Architecture (GMA) - An Overview of Grid Monitoring Systems-GridICE – JAMM -MDS-Network Weather Service-R-GMA-Other Monitoring Systems-Ganglia and GridMon

**UNIT III GRID SECURITY AND RESOURCE MANAGEMENT 9**  
Grid Security-A Brief Security Primer-PKI-X509 Certificates-Grid Security-Grid Scheduling and Resource Management-Scheduling Paradigms- Working principles of Scheduling -A Review of Condor, SGE, PBS and LSF-Grid Scheduling with QoS.

**UNIT IV DATA MANAGEMENT AND GRID PORTALS 9**  
Data Management-Categories and Origins of Structured Data-Data Management Challenges-Architectural Approaches-Collective Data Management Services-Federation Services-Grid Portals-First-Generation Grid Portals-Second-Generation Grid Portals.

**UNIT V GRID MIDDLEWARE 9**  
List of globally available grid Middlewares - Case Studies-Current version of Globus Toolkit and gLite - Architecture, Components and Features.

**TOTAL= 45 PERIODS**

**TEXT BOOK:**

1. Maozhen Li, Mark Baker, "The Grid: Core Technologies", John Wiley & Sons ,2005.

**REFERENCES:**

1. Ian Foster & Carl Kesselman, "The Grid 2 – Blueprint for a New Computing Infrastructure" , Morgan Kaufman – 2004.
2. Joshy Joseph & Craig Fellenstein, "Grid Computing", Pearson Education 2004.
3. Fran Berman, Geoffrey Fox, Anthony J.G.Hey, "Grid Computing: Making the Global Infrastructure a Reality", John Wiley and Sons, 2003
3. URLs : [www.globus.org](http://www.globus.org) and [glite.web.cern.ch](http://glite.web.cern.ch) (Unit V)