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| Hours / Week | : | 4 | |  | Sessional Marks | : | 40 |
| Credits | : | 4 | |  | End Examination Marks | : | 60 |

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| **UNIT - I** |
| **CONCEPTS AND ARCHITECTURE:** Introduction - Parallel and Distributed Computing -Cluster Computing - Grid Computing - Anatomy and Physiology of Grid - Web and Grid Services - Grid Standards – OGSAWSRF - Trends, Challenges and applications. |
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| **UNIT – II** |
| **GRID MONITORING:** Grid Monitoring Architecture (GMA) - An Overview of Grid Monitoring Systems- R-GMA - GridICE – MDS- Service Level Agreements (SLAs) - Other Monitoring Systems - Ganglia, GridMon, Hawkeye and Network Weather Service. |
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| **UNIT – III** |
| **GRID SECURITY AND RESOURCE MANAGEMENT:** Grid Security - A Brief Security Primer – PKI - X509 Certificates - Grid Security - Grid Scheduling and Resource Management, Gridway and Gridbus Broker - principles of Local Schedulers - Overview of Condor, SGE, PBS, LSF - Grid Scheduling with QoS. |
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| **UNIT – IV** |
| **DATA MANAGEMENT AND GRID PORTALS:** Data Management - Categories and Origins of Structured Data - Data Management Challenges - Architectural Approaches - Collective Data Management Services - Federation Services - Grid Portals - Generations of Grid Portals. |
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| **UNIT – V** |
| **GRID MIDDLEWARE:** List of globally available Middlewares - Case Studies - Recent version of Globus Toolkit and gLite - Architecture, Components and Features. Features of next generation grid. |
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| REFERENCE BOOKS |
| 1. The Grid 2: Blueprint for a New Computing Infrastructure by Ian Foster, Carl Kesselman, Elsevier Series, 2004. 2. Grid Computing for Developers by Vladimir Silva, Charles River Media, January 2006. 3. Global Grids and Software Toolkits: A Study of Four Grid Middleware Technologies, High Performance Computing: Paradigm and Infrastructure by Parvin Asadzadeh, Rajkumar Buyya, Chun Ling Kei, Deepa Nayar, and Srikumar Venugopal, Laurence Yang and Minyi Guo (editors), Wiley Press, New Jersey, USA, June 2005. 4. Grid Resource Management: State of the Art and Future Trends , (International Series in Operations Research & Management Science) by Jarek Nabrzyski, Jennifer M. Schopf, Jan Weglarz, Springer; First edition, 2003 5. Designing a Resource Broker for Heterogeneous Grids, Software: Practice and Experience, by Srikumar Venugopal, Krishna Nadiminti, Hussein Gibbins and Rajkumar Buyya, Wiley Press, New York, USA, 2008. 6. Grid Computing: Making The Global Infrastructure a Reality by Fran Berman , Geoffrey Fox, Anthony J.G. Hey, Wiley, 2003 7. The Grid: Core Technologies by Maozhen Li , Mark Baker , Wiley, 2005 8. Grid Computing by Joshy Joseph, Craig Fellenstein, IBM Press, 2004 9. Toolkit 4 : Programming Java Services by Borja Sotomayor , Lisa Childers, Globus, The Elsevier Series in Grid Computing, Morgan Kaufmann, 2005 |
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