



C-DAC & Gujarat Technological University
M.E. Computer Engineering
(IT Systems and Network Security)
Gandhinagar

Semester: I

Subject Name: Parallel programming (Elective I & II- Group 1)

Subject Code: 2715106

Course Content:

Concepts of parallelism, Introduction Amdahl's law and Gustafson's law, Dependencies, Interconnection networks, Race conditions, mutual exclusion, synchronization, and parallel slowdown, Fine-grained, coarse-grained, and embarrassing parallelism, Types of parallelism, Bit-level parallelism, Instruction-level parallelism Data parallelism, Task parallelism, Classes of parallel computers, Multicore computing, Symmetric multiprocessing, Distributed computing, Cluster computing, Massive parallel processing, Grid computing Specialized parallel computers, MPI Programming.

Text Book:

1. **Parallel Programming:** Techniques and Applications Using Networked Workstations and Parallel Computers by Barry Wilkinson, Pearson

Reference Book:

1. **Parallel Programming:** For Multicore and Cluster Systems, Gudula Ranger, Springer