GUJARAT TECHNOLOGICAL UNIVERSITY
M.E. Computer Engineering
(Wireless Mobile Computing)
Semester: I

Subject Name: **Parallel Processing (Elective I & II- Group 1)**
Subject Code: **715308**

Course Content:

Introduction to Parallel Architectures, Why Parallel Architectures, Diversity and Convergence of Parallel Architectures, Fundamental Design Issues, Parallel Programming and Workload-Driven Evaluation

The Parallelization Process, Workload-Driven Evaluation, Cache Coherent Bus-Based Multiprocessors

Cache Coherence and Bus Snooping ,Design Space for Snooping Protocols, Single-Level Caches with an Atomic Bus , Multilevel Cache Hierarchies , Split-Transaction Bus Design, Memory Consistency

Sequential Consistency, Relaxed memory consistency models, Synchronization

Mutual Exclusion, Event, and Barrier Synchronization, Algorithms for locks and barriers

Directory-Based Cache Coherent Multiprocessors, Directory-Based Approaches, Memory-Based Directory Protocols, Cache-Based Directory Protocols, Hierarchical Coherence, Vector Processors

Vector Programming Model, Vector Instruction Set and its advantages, Vector Arithmetic Execution

Vector Memory System, Interconnection Networks, Organizational Structure, Topologies, Routing

Switch Design, Flow Control, Communication Performance

Text Book:

1. Fundamentals of Parallel Processing by Jordan Harry, Alaghband Gita/PHI Learning

Reference Books:

1. Introduction To Parallel Processing by Prakash P. Ravi/PHI learning
2. Fundamentals of Parallel Processing by Jordan/Pearson