



## **F. Course Content:**

### **UNIT I Hardware Infrastructure**

**9**

Broad Band Transmission Facilities – Open Interconnection Standards – Local Area Networks – Wide Area Networks – Network Management – Network Security.

### **UNIT II Software Architectures**

**9**

Client – Server Architectures – Intranets and Groupware – Hardware and Software for Intranet – Groupware and Features – Network as a Computer – The Internet – IP Addressing – Internet Security

### **UNIT III Introduction to Parallel Computing**

**9**

Principles of parallel algorithm design – decomposition techniques – mapping & scheduling computation – templates – Programming shared-address space systems – Cilk Plus – OpenMP- Pthreads

### **UNIT IV Handling Memory in Parallel Computing**

**9**

Parallel computer architectures – shared memory systems and cache coherence – distributed-memory systems – interconnection networks and routing

### **UNIT V Parallel Programming**

**9**

Programming scalable systems – message passing: MPI – global address space languages – Analytical modeling of program performance – speedup, efficiency, scalability, cost optimality, ISO efficiency

**TOTAL: 45 Periods**

## **G. Learning Resources**

### **i. Text Books:**

1. Albert Fleishman, Distributed Systems – Software Design & Implementation, Springer-Verlag, 1994.
2. Introduction to Parallel Computing, Second Edition, AnanthGrama, George Karypis, Vipin Kumar, Anshul Gupta, Addison-Wesley, 2003, ISBN: 0201648652

### **i.Reference:**

1. MukeshSingal and Shivaratu N.G., Advanced Concepts in Operating Systems, McGraw Hill, Newyork1994.
2. George Coulouris and Jean Dollimore, Distributed Systems – Concepts and Design, Addison-Wesley, 1988.
3. Parallel Programming in C with MPI and OpenMP by M J Quinn
4. Introduction to Parallel Computing by AnanthGrama, George Karypis, Vipin Kumar, and Anshul Gupta.