05 1X12 REAL TIME SYSTEMS Credit : 3

1. Introduction : Hard vs. Soft real time systems, a reference model of real time system. Lecture : 2

2. 2. Real-time scheduling : Clock driven approach, Weighted Round-robin approach, Priority driven approach,

3. Dynamic vs, static system, EDF and LST algorithm, Offline vs. online Scheduling. Lecture : 8

4. 3. Resource and Resource Access control : Resource contention, resource access control, Non-primitive critical

5. section, Basic Priority- Inheritance protocol, Basic Priority Ceiling Protocol, Stack based, Priority-ceiling protocol,

6. preemption ceiling protocol, controlling access to multiple–Unit resource and data object. Lecture : 10

7. 4. Multiprocessor scheduling, Resource Access Control, and Synchronization : Model of multiprocessor &

8. distributed systems, task assignment, multiprocessor Priority-ceiling protocol, Scheduling algorithm for end-to-end

9. periodic tasks, schedulability of fixed-priority end-to-end periodic Tasks, Predictability & Validation of dynamic

10. multiprocessor system, Scheduling flexible computations and tasks with temporal distance constraints. Lecture : 14

11. Real-Time Communication : Model of Real-Time communication. Priority based discipline for switched

12. network, weighted round-robin service disciplines, medium access-control protocol of broadcast network. Lecture : 8

Text Books:

1. Real-Time system by Jane W. S. Liu, Pearson Education

2. Real-Time systems by C. M. Krishna and K. G. Shin, McGraw Hill

3. Real-time Systems Design and analysis: an Engineer Handbook by Laplante, PHI Reference Books:

4. Embedded Real Time system concept design and programming by Dr. K. V.K.K. Prasad, Willy India.