

## **EC 504: REAL TIME OPERATING SYSTEMS (3-0-0:3)**

### **Review of Operating Systems**

Basic Principles – System Calls – Files – Processes – Design and Implementation of processes – Communication between processes – Operating System structures.

### **Distributed Operating Systems**

Topology – Network types – Communication – RPC – Client server model – Distributed file system – Design strategies.

### **Real Time models and Languages**

Event Based – Process Based and Graph based Models – Petrinet Models – Real Time Languages – RTOS Tasks – RT scheduling - Interrupt processing – Synchronization – Control Blocks – Memory Requirements.

### **Real Time Kernel**

Principles – Design issues – Polled Loop Systems – RTOS Porting to a Target – Comparison and study of RTOS VX works and COS – Case studies.

### **RTOS Application Domains**

RTOS for Image Processing – Embedded RTOS for voice over IP – RTOS for fault Tolerant Applications – RTOS for Control Systems - RTOS for embedded system applications.

### **Text Books and References:**

1. C. Crowley, Operating Systems-A Design Oriented approach, McGraw Hill, 1<sup>st</sup> Edition, 1997.
2. C.M. Krishna, Kang, G. Shin, Real Time Systems, McGraw Hill, 1<sup>st</sup> Edition, 1997.
3. T. Andrew, Distributed Operating Systems, Pearson Education, 1<sup>st</sup> Edition, 2002.
4. R. J.A.Bhur, D. L. Bailey, An Introduction to Real Time Systems: From Design to Networking with C/C++, PHI, 1<sup>st</sup> Edition, 1999.