



Jansons Institute of Technology

Karumathampatti, Coimbatore - 641 659
Approved by AICTE and Affiliated to Anna University
An ISO 9001:2015 certified institution

Department of Computer Science and Engineering

Industry Readiness Course - Syllabus

Embedded OS and RTOS

2019 - 2020 EVEN Semester

Course Objectives:

- To introduce the principles shared by many real-time operating systems.
- To provide basic understanding of the requirements of Real Time Operating Systems.
- To know the structure, basic principles of construction and the scope of use of embedded operating systems.

Course Outcomes:

- Able to explain the basic concepts of real-time operating system.
- Able to explain how tasks communicate
- Able to describe scheduling and task management.

Syllabus

Module 1 Introduction to Embedded Systems

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Introduction to Embedded systems - Characteristics - Challenges - Processors in Embedded systems - hardware Units and devices in an embedded system - Embedded Software - Software Tools for Designing Embedded System.

Module 2 Real Time Operating System

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Introduction to real-time operating systems - Hard versus soft real-time systems and their timing constraints - Differences between General Purpose OS & RTOS - Terminology: RTOS concepts and definitions, real-time design issues, examples - RTOS building blocks, Basic architecture of an RTOS - Real-Time Kernel - Types of real-time tasks, Precedence constraints and data dependency among real-time tasks.

Module 3 Scheduling and Task Management

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Scheduling and Task Management - Real-time scheduling - Approaches to Real Time Scheduling - Non-preemptive Scheduling - First - Come - First - Served (FCFS) / FIFO Scheduling - Last - Come - First - Served (LCFS) / LIFO Scheduling - Shortest Job First (SJF) Scheduling - Priority based Scheduling - Preemptive scheduling - Task Creation - Intertask Communication.

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