

(CS608) EMBEDDED SYSTEMS

Objective of the course :

Emphasis on Comprehensive treatment of Embedded Hardware and Real Time Operating systems along with case studies in tune with the requirements of Industry. The example-driven approach puts you on a fast track to understanding embedded-system programming and applying what you learn to your projects.

UNIT - I

Introduction to Embedded Systems : Applications of ES, Embedded Hardware Units and Devices , Embedded Software, Examples of Embedded Systems, Design Metrics in ES, Challenges in ES Design.

UNIT - II

Introduction : 8051 Micro controller Hardware, Input/Output Ports and Circuits, External Memory, Counter and Timers, Serial data Input/Output, Interrupts.

UNIT - III

Data Transfer and Logical Instructions : Arithmetic Operations, Decimal Arithmetic. Jump and Call Instructions, Further Details on Interrupts.

UNIT - IV

Introduction to Real Time Operating Systems : Tasks and Task States, Tasks and Data, Semaphores, and Shared Data; Message Queues, Mailboxes and Pipes, Timer Functions, Events, Memory Management, Interrupt Routines in an RTOS Environment.

UNIT - V

Principles Basic Design : Using a Real-Time Operating System :, Embedded Software Development Tools: Host and Target machines, Linker/Locators for Embedded Software, Getting Embedded Software into the Target System.

TEXT BOOKS :

1. Embedded Systems, Raj Kamal, TMH.
2. The 8051 Microcontroller, 3rd ed., Kenneth J. Ayala, Thomson.
3. An Embedded Software Primer, David E. Simon, Pearson Education.

REFERENCE BOOKS :

1. Computers as Components-principles of Embedded computer system design, Wayne Wolf, Elsevier
2. Embedding system building blocks, Labrosse, via CMP publishers.
3. Micro Controllers, Ajay V Deshmukhi, TMH.
4. Embedded System Design, Frank Vahid, Tony Givargis, John Wiley. Microcontrollers, Raj kamal, Pearson Education.