

- 1. Introduction 9**
Challenges of Embedded Systems – fundamental components – examples of embedded systems – hardware fundamentals – gates – timing diagrams – memory – direct memory access – buses – interrupts – schematics – build process of embedded systems.
- 2. Memory Management And Interrupts 9**
Memory access procedure – types of memory – memory management methods – Pointer related issues – polling versus interrupts – types of interrupts – interrupt latency – re-entrancy – interrupt priority – programmable interrupt controllers – interrupt service routines.
- 3. Real-Time Operating Systems – RTOS 9**
Desktop Operating Systems versus RTOS – need for Board Support Packages – task management – race conditions – priority inversion – scheduling – inter task communication – timers – semaphores – queues.
- 4. Embedded System Design And Implementation 9**
Requirements of an embedded system – architecture styles and patterns – design practices – implementation aspects and choices.
- 5. Embedded Software Development Tools 9**
Host and target machines – cross compilers – linker and locators for embedded software – address resolution – locating program components – initialized data and constant strings – PROM programmers – ROM emulators – Flash memory.

TOTAL = 45**Text Books:**

1. Sriram V.Iyer, Pankaj Gupta, “Embedded Real-time Systems Programming”, Tata McGraw Hill publishers, 2004.
2. David E.Simon, “An Embedded Software Primer”, Pearson Education publishers, 1999.

References:

1. Raj Kamal, “Embedded Systems” Tata McGraw Hill.
2. A unified Hardware/Software Introduction, “Embedded System Design” Frank Vahid and Tony Givargis, John Wiley & Sons publishers, 2002.