

**EMBEDDED SYSTEMS**

**Unit I      PC Hardware**

Motherboard – Daughterboard – FDD – HDD – I/O Port Address – Post Sequence SMPS – Functional Units and Intercommunications. Reset Logic – CPU Nucleus Logic – DMA Logic. Wait state Logic – Bus arbitration Logic.

**Unit II      Peripheral Interface and Controller**

Printer Parallel Interface – Floppy Disk controller – Hard Disk controller – CRT display controller 6815 – CGA – Advanced graphic Adapters – RS232 Interface – 1488, 1489.

**Unit III      Trouble Shooting**

Computer faults – Trouble shooting tools – bus faults – Trouble Shooting Levels – Post sequences – PC Diagnostic Software – Motherboard Problems Diagnostic – Printer Interface Problems – Serial port problems – HDC problems – Display adopter problems.

**Unit IV      Survey of Software Architecture**

Introduction – A first look at Embedded Systems – Examples of Embedded Systems – Typical Hardware – Round Robin – with Interrupts – Function Queue – scheduling Architecture – Real Time Operating System – Introduction to RTOS – Tasks and task states – Task and data – shared data problem – Semaphores and shared data – Ways to protect data.

**Unit V      Embedded Software Development Tools**

Cross Compiler – Assemblers – Linker / Locators for embedded software – Output File Formats – Locator Maps – Getting Embedded Software in to the target system – ROM – Emulator – Incircuit Emulators – Debugging Techniques – Basic Techniques – Calling Interrupt Routines – Calling Timer Interrupt Routines using Laboratory tools – Logic Analyser.

**Text Books:**

1. IBM PC & Clones : Hardware, Trouble Shooting & Maintenance – B.Govindarajalu. Tata McGraw Hill (Unit I, II & III).
2. Embedded System : A software Primer – E.Simon (Unit IV, V).

**Reference Book:**

1. IBM PC: Troubleshooting and Repair Guide – Robert C Brenner, BPB Publications, New Delhi.