IT 705 Elective –II (IT- 720- Embedded System)

Unit I: Introduction to Embedded System, Categories, Requirements, Applications, Challenges and Issues. Core of Embedded system, Memory, Sensors and Actuators, communication interface, Embedded firmware, system components.

Unit II: Fundamental issues of hardware software co-design, computational models in embedded designdata flow graph, control flow graph, state machine model, sequential programmed model, concurrent model, unified modeling language.

Unit III: Architecture of 8085 microcontroller, memory organization, registers, interrupts, addressing modes, instruction sets.

Unit IV: Embedded firmware design approaches- OS based, Super loop based. Embedded firmware development languages- Assembly language based, high level language based, mixed. Programming in embedded C.

Unit V: Types of Operating system, Task, process and threads, Multi processing and multi task, Task scheduling, Task communication, Task synchronization.

References:-

- Shibu K V, "Introduction to Embedded System", TMH.
- David E Simon, "An Embedded Software Primer", Pearson education Asia, 2001.
- Steven F. Barett, Daniel J. Pack, "Embedded Systems" Pearson education, First Impression 2008.
- Vahid Frank, Tony Givargis, "Embedded System Design", John Wiley and Sons, Inc.
- Dream Tech Software Team, "Programming for Embedded Systems" Wiley Publishing house Inc.
- Sriram V Iyer, Pankaj Gupta, "Embedded Realtime Systems Programming", TMH.
- Raj Kamal, "Embedded Systems", TMH.