SUBJECT NO-EC60503, SUBJECT NAME- EMBEDDED SYSTEMS DESIGN

LTP- 3-1-0,CRD- 4

SYLLABUS :-

Pre-requisites: EC30004 and EC30006Introduction: Introduction to embedded systems, Design standards, Characteristics of embedded systems, Peripherals and interfacing, System-on-Chip paradigm; Modeling Techniques: Finite state machines models, Petri nets, Event nets, Data flow and Control flow models, Flow chart based models; Specification and representation of embedded systems: Behavioural and Structural hierarchy, Data driven and Control-driven concurrency, Communication and synchronization, Timing, Hardware design languages, VHDL, System C, State Charts; Hardware/Software Codesign: Hardware software partitioning and scheduling, Hardware and Software estimation models, Cosimulation, synthesis and verifications, Architecture mapping, HW-SW Interfaces and Reconfigurable computing, System-level power management, Trade-offs; System-on-Chip and IP cores: Core based designs, On-chip networking; Embedded processors: ARM, MIPS, PowerPC etc. along with their programming, FPGA, CPLD, DSP based controllers; Software for Embedded Systems: Time-critical IO handling, Embedded software design under size, performance, and reliability constraints, Software timing and functional validation, Programming methods and compilation for embeddable software, Real time operating systems, Device drivers; System level testing and reliability issues; Case study of embedded system design tools and real-world embedded designs.