

SYLLABUS :-

Pre-requisites: EC30004Introduction: VLSI Design flow, general design methodologies; Mapping algorithms into Architectures: Signal flow graph, data dependences, datapath synthesis, control structures, critical path and worst case timing analysis, concept of hierarchical system design; Datapath elements: Datapath design philosophies, fast adder, multiplier, driver etc., datapath optimization, application specific combinatorial and sequential circuit design, CORDIC unit; Pipeline and parallel architectures: Architecture for real time systems, latency and throughput related issues, clocking strategy, power conscious structures, array architectures; Control strategies: Hardware implementation of various control structures, microprogrammed control techniques, VLIW architecture; Testable architecture: Controllability and observability, boundary scan and other such techniques, identifying fault locations, self reconfigurable fault tolerant structures; Tradeoff issues: Optimization with regard to speed, area and power, asynchronous and low power system design, ASIC (application specific integrated circuits) and ASISP (application specific instruction set processors) design;