(EC535) ADVANCED DIGITALSYSTEM DESIGN
(ELECTIVE - II)

Objective of the Course : *A student who successfully completes this subject should be able to (a) implement digital signal processing techniques in new applications; (b) demonstrate an understanding of both theoretical and applications-related problems of the image and video processing systems; (c) apply advanced digital signal processing solutions to problems in research or industrial environments; and (d) implement a real-time application or simulation using image and video processing systems.*

UNIT- I
Design of Digital systems: ASM charts, Hardware description language and control sequence methods, Reduction of state tables, state assignments.Sequential circuit design: design of iterative circuits, design of sequential circuits using ROMs and PLAs, sequential circuit design using CPLD, FPGAs.

UNIT- II
Fault modeling: Fault classes and models, stuck at faults, bridging faults, transition and intermittent faults.Test Generation: Fault diagnosis of combinational circuits by conventional methods, Path sensitization technique, Boolean difference method, Kohavi algorithm.

UNIT- III
Test pattern generation: D-algorithm, PODEM, Random testing, transition count testing, signature analysis, testing for bridging faults.Fault diagnosis in sequential circuits: state identification and fault detection experiments, machine identification, design of fault detection experiment.

UNIT- IV
Programming logic arrays: design using PLAs, PLA minimization and PLA foldingPLA testing: Fault models, test generation and testable PLA design

UNIT- V
Asynchronous sequential machine: Fundamental mode model, flow table, state reduction, minimal closed covers, races, cycles and hazards.

REFERENCE BOOKS:
1. Z.Kohavi, "Switching and finite automata theory", TMH2.
2. N.N.Biswas, "Logic Design theory", PHI3.
3. Nolman Balabanian, Bradley calson, "Digital logic design principles", Wiley student edition, 2004