UNIT – III (8 hours)
Memory fault modeling, testing and memory design for Testability and fault tolerance, RAM fault modeling, electrical testing, Pseudo random testing, megabit DRAM testing nonvolatile memory modeling and testing, IDDQ fault modeling and testing, application specific memory testing.

UNIT – IV (10 hours)
Semiconductor memory reliability and radiation effects: General Reliability issues, RAM failure modes and mechanism, nonvolatile memory reliability, reliability modeling and failure rate prediction, design for reliability, reliability test structures, reliability screening and qualification. Radiation effects, single event phenomenon (SEP)- radiation hardening techniques, radiation hardening process and design issues, radiation hardened memory characteristics, radiation hardness assurance and testing, radiation dosimetry, water level radiation testing and test structures.

UNIT – V (7 hours)
Advanced memory technologies and high-density memory packaging technologies: Ferroelectric Random Access Memories (FRAMs), Gallium Arsenide (GaAs) FRAMs, Analog memories magnetoresistive random access memories (MRAMs), Experimental memory devices. Memory hybrids and MCMs (2D), Memory stacks and MCMs (3D), Memory MCM testing and reliability issues- memory cards- high density memory packaging future directions.

TEXT BOOKS:

REFERENCES: