IoT and VLSI Design

Course Outcome:

1. Define VLSI technology and explain the process flow of fabrication and layout of CMOS.
2. Analyze the functioning of CMOS nWell Process and layout design principles for CMOS inverters.
3. Describe the IC production process, packaging, and the role of MOS transistors in VLSI design.
4. Design combinational and sequential circuits using Static and dynamic CMOS gates.
5. Implement VLSI automation algorithms for Physical Design Partitioning, including Group migration algorithms and Kernighan – Lin Heuristics.
6. Develop floor planning and pin assignment solutions for VLSI systems using algorithms based on Simulated Annealing and Simulated Evolution.
7. Evaluate global routing algorithms for routing between blocks in VLSI systems, including Maze routing algorithm and line probe algorithm.
8. Implement detailed routing algorithms for single layer routing, constrained & unconstrained via minimization in VLSI systems.
9. Explain the importance of testing in VLSI design and apply different types of testing methodologies.
10. Integrate digital design principles using VHDL in VLSI systems.
11. Analyze the application areas, characteristics, and enabling technologies of Internet of Things (IoT).
12. Identify and describe the components of the IoT stack and the role of Things in IoT.
13. Evaluate the theories behind IoT systems and their practical applications in various domains.