1. Introduction To VLSI System Design
   - SSI, MSI, LSI, VLSI
   - Real time applications
   - Current control Vs Voltage Control Device
   - Design Challenges
   - System Level Requirements.

2. Embedded Systems
   - Design flow of VLSI
   - Y chart in VLSI
   - FPGA
   - ASIC
   - VLSI Applications

3. MOS And CMOS based VLSI Circuits:
   - NMOS, PMOS, CMOS Gates
   - Effect Of Capacitive Loading
   - Minimizing Propagation Delay
   - Transistor Sizing For Performance
   - CMOS Power Consumption
   - Low Power Design Techniques
   - Switching Characteristics of CMOS
   - CMOS Interconnection Delays
   - MOSFET Capacitance

4. Circuit design using CMOS Technology
   - NAND Gate, AND Gate
   - NOR & OR Gate
   - XOR & X-NOR
   - Design for Boolean expression

5. Transmission Gate
   - Gate design
   - Multiplexer
   - Decoder
   - Encoder
   - Boolean Expression
6. Digital Electronics
   - Basic idea on digital electronics
   - Circuit making using gates
   - Combinational logic circuits
   - Flip-flop
   - Latch
   - Counter
   - Register

7. VHDL (VERY HIGH SPEED INTEGRATED CIRCUIT HARDWARE DESCRIPTION LANGUAGE)
   Introduction to VHDL
   - Entity and Architecture
   - VHDL Component
   - VHDL Designing Hierarchies

   Concurrent VHDL
   - Signal Assignment
   - Concurrency
   - When and with statements.
   - Behavioral Model
   - Generics.
   - Data Types
   - Vector Assignments

   Sequential VHDL
   - Process Statement
   - If Statement/Case Statement
   - Multiple Assignment
   - Wait Statement
   - Loop Statements

   Library
   - Libraries
   - Packages
   - Procedures
   - Functions

   Structural VHDL
   - Component Declaration
   - Port map
   - Generic map
   - Configuration
   - Components in a package.

   Test bench
   - Different forms of test bench
   - Text IO.

8. Layout Design in Micro wind
   - Introduction of Micro wind
   - Design of CMOS inverter
   - NAND & NOR Gate
   - Boolean expression design

Project Implementation

For feedback and suggestion reach out at feedback@ardentcollaborations.com or contact (033 4007 3507) from 4pm – 6pm. We are happy to help you always.