



Module PMRF-ISSS083

# Digital VLSI Circuits

## Name of the PMRF student

Krishna Sai Tarun Ramapragada

## Required background of the students taught

- UG Students of Electronics Engineering, Electrical Engineering

## Online session coordinator

Will be chosen from the list of registrants

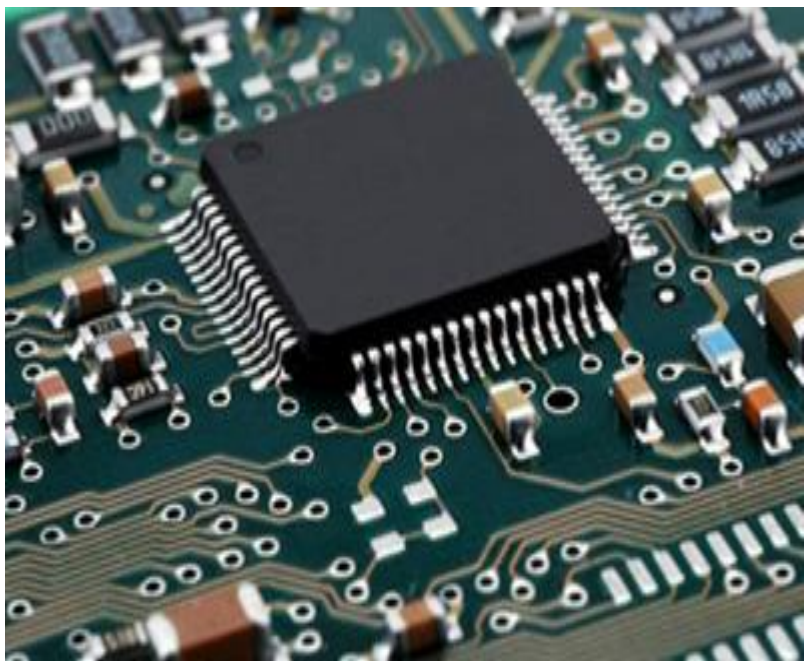


Image Credits: IndiaMart

## Schedule of the module

**Start Date:** January 14, 2024

**End Date:** August 04, 2024 (Tentative)

**Total Duration:** 30 to 35 hours

**Class Schedule:** Every Sunday

**Class Timings:** 11 am to 12 pm IST (1 hour)

## Details of the content of the module

### Module 1 (~ 4 hours) :

Revisit required MOSFET Basics, Velocity Saturation and Sub Threshold Leakage

### Module 2 (~ 9 hours) :

CMOS Inverter in detail which includes Voltage Transfer Characteristics, Transient Characteristics, Propagation Delay Calculation, Dynamic and Static Power Dissipation

### Module 3 (~ 6 hours) :

Combinational and Sequential circuits using Static CMOS Logic

### Module 4 (~ 4 hours) :

Timing constraints of Sequential Circuits which includes max and min delay constraints, effect of skew and jitter and brief on time borrowing with latches

### Module 5 (~ 6 hours) :

Various Adder, Multiplier and Shifter Implementations which includes ripple carry adder, carry bypass adder, carry select adder, Combinational Multiplier, Fixed Coefficient Multiplication, Sequential Multiplier (radix-2), Booth radix-4 sequential multiplier, Barrel Shifter and Logarithmic Barrel Shifter

**Summary: 1 hour**

Meeting link : Will be shared later

[Link](#)

Contact email ID: [issf.forum@gmail.com](mailto:issf.forum@gmail.com)

Registration link:

<https://forms.gle/uQUZp3ymhEJJ4MT07>