BITS Pilani
Hyderabad Campus

Department of Electrical and Electronics Engineering

Analog IC Design Lab

Introduction

- The course deals with practical aspect's of Analog integrated circuits, starting with MOSFET characterization to major analog building blocks; like operational amplifiers, trans-conductance amplifiers, advance biasing circuits switched capacitors circuits the characterization and the performance of the linear integrated circuits will be verified by powerful EDA tools like cadence using standard CMOS foundry model files.

Scope of the Lab

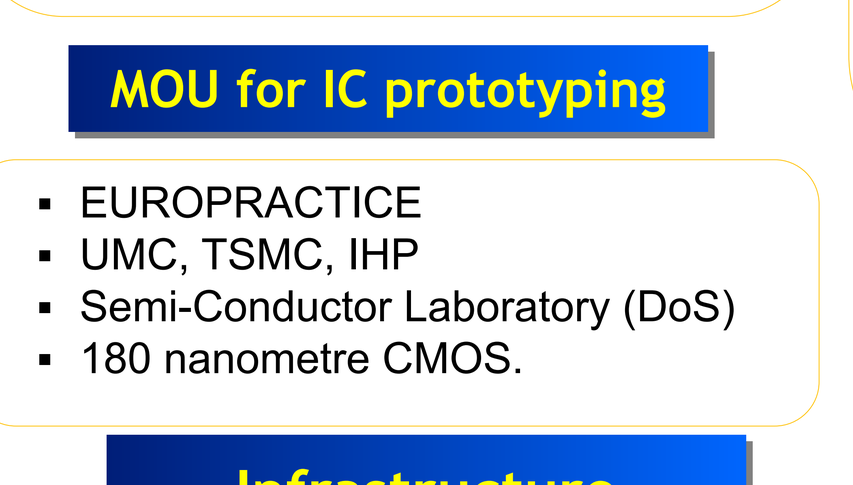
- This Course deals with the Analysis and Design of Analog CMOS integrated circuits, emphasizing fundamentals and new paradigms that that student need to master in today's industry .
- The objective of this course is to develop both a solid Foundation and methods of analysing analog circuits by inspection.

MOU for IC prototyping

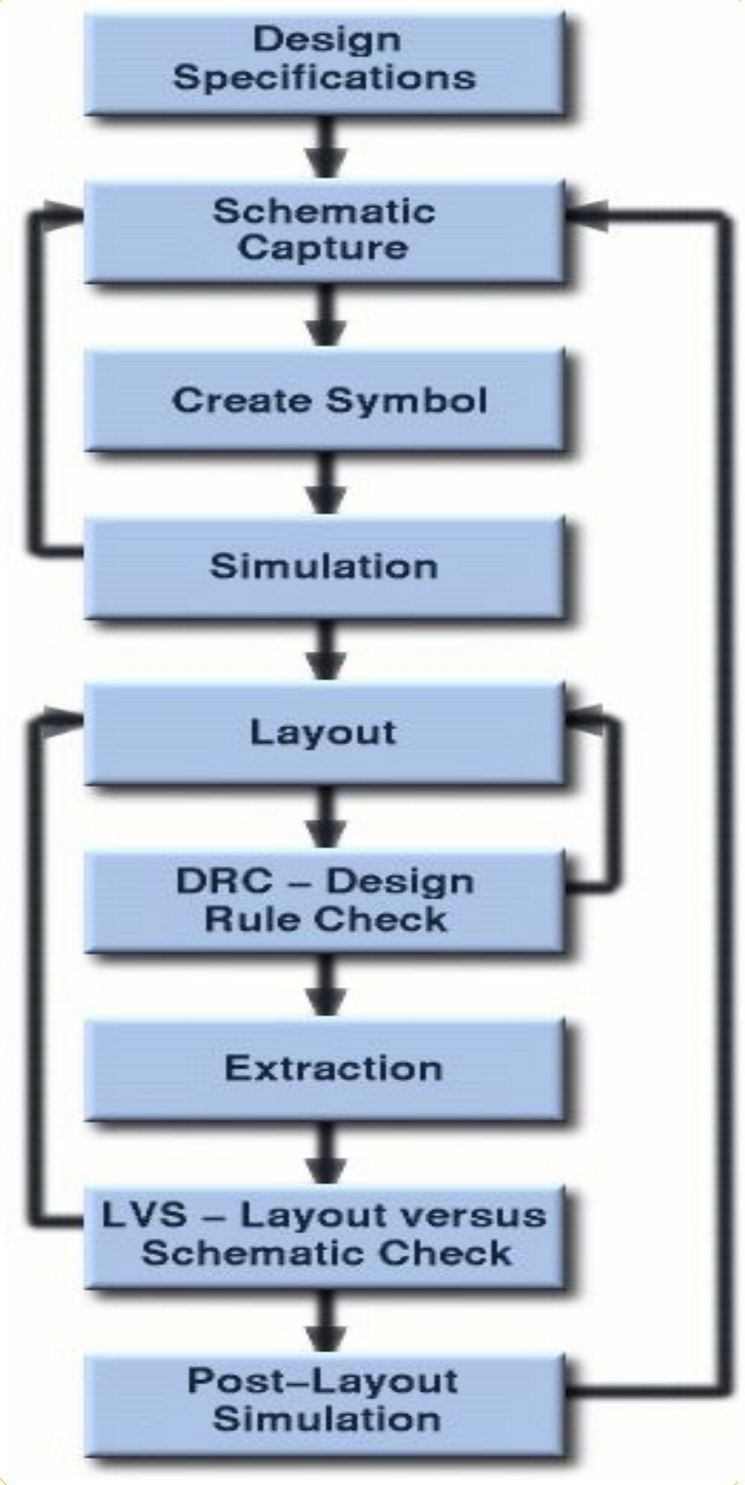
- EUROPRACTICE
- UMC, TSMC, IHP
- Semi-Conductor Laboratory (DoS)
- 180 nanometre CMOS.

Infrastructure

- **Design tools**:
  - Cadence (research bundle) – 50 licences
  - Synopsis (research bundle) – 15 licences
  - Mentor Graphics – 50 licences



Analog IC Design Flow



Applications

- Voice and Data Communication networks.
- Processing of natural signals.
- Digital communication
- Disk Drive Electronics
- Radio frequency communication.
- Optical receivers
- Microprocessor and Memories

List of experiments

- Characterization of NMOS and PMOS transistors for analog figure of merits.
- Design of single stage amplifiers (CS,CD and CG).
- Design of CMOS current mirrors.
- Design of active load single stage amplifiers.
- Design of CMOS differential amplifier.
- Design of CMOS transconductance amplifiers.
- Design of a two stage CMOS operational amplifier.
- Design of CMOS cascade operation amplifier.
- Design of basic feedback circuits.
- Design of Band-gap reference circuit.
- Mini projects (PLL, LDO, LNA, Mixer, ADCs, oscillators, filters, DC-DC converters, etc.)

Faculty Coordinator

Prof.Surya Shankar Dan.

Other Faculty Users

Dr. Sumit Kumar Chatterjee.
Dr. Syed Ershad Ahmed.
Dr. Parikshit Sahatiya.

Research Scholars

Mr.Arun Mohan.
Mr.Anil Kumar.
Mr.Sahith.

Technicians

Mr.Rajashekhar.
Mr.N.V.V Satish kumar

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