

GUJARAT TECHNOLOGICAL UNIVERSITY

Master of Engineering (VLSI System Design Engineering)

Semester – II

Subject Code: 1724208

Subject Name: Mixed Signal VLSI Design Lab

Subject Content :

VLSI Design: Familiarization with EDA tools for schematic and layout entry, circuit simulation using SPICE, DC transfer Characteristics of Inverters, Transient response, Calculating propagation delays, rise and fall times, Circuit design of inverters, complex gates with given constraints. Circuit Simulation and Performance Estimation using SPICE. Layouts of Inverters and Complex gates, Layout Optimization, Design Rule Check (DRC), Electrical Rule Check (ERC), Comparison of Layout Vs. Schematics, Circuit Extraction.

A project based on the above exercises.

Analog IC Design: Introduction to Analog Design tools, Review of EDA Tools. Analysis of Various Analog Building Blocks such as, Current and Voltage, References/ Sources, Current Mirrors, Differential Amplifier, Output Stages design and analysis of Op-Amp and its Characterization. Analog Layout Constraints, Layout Designs and Analysis.