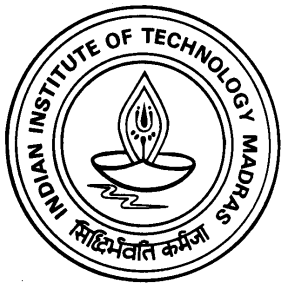
EE2001 - Digital systems lab

Vinita Vasudevan



Design of digital systems

- Objective - What is the function, inputs and expected outputs.
- What is the frequency at which it is expected to work, target power dissipation.
- Design using gates, memory elements
- Logic simulation to verify correctness of design - Use a programming language.
- Timing simulation to check frequency of operation - Use a programming language.
- Implement using actual gates - Breadboard and test.
  - Need to take into account practical aspects like fan-out, driving displays etc.

Outline and Objectives

- 16 credits - Combined theory course and Lab. The lab has 6 credits.
- Lab has two parts - Logic simulation and practical aspects of building circuits
- Experiments on Logic simulation will follow the theory course - It involves writing programs to simulate digital circuits in order to verify correctness before building the circuit.
- Experiments on practical aspects will augment the theory course. It involves wiring up the circuit on a breadboard and testing using instruments like multimeters and oscilloscopes.

General Instructions

- Divided into groups of two. Initial group assignment done by Roll numbers and put up on Moodle.
- You are allowed one round of swapping. Please inform the TA.
- There will be one TA for every six groups. You will have the same TA for all experiments.
- You have to sit in the same Table throughout the semester. Check on Moodle to see which is the room and table assigned to you.
- Expectation is you have 100% attendance. If you bunk even one of the days you will not get any marks for that experiment.
- There is one makeup session for those fall ill and have a medical certificate from the Institute hospital

General Instructions

- Lab instructions for a particular experiment will be given on Monday 2-3pm in CRC 101.
- Start the experiment on Monday 3pm and try to finish by Tuesday 5pm. You will be given marks for the experiment on Tuesday.
- If you need an extension, inform the TA on tuesday evening and show the finished experiment the subsequent Monday immediately after the lecture.
- Keep a lab notebook where you record all observations and write conclusions.