# EE337 - Microprocessors Lab

## Course Outline

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# Course Objective

- Understand and develop applications on the 8051 microcontroller
- Complements the Microprocessor theory course (EE309)

# Skills Gained

- Developing, simulating and debugging programs using the IDE
- Write assembly and embedded C programs for given problem statements
- Interface variety of peripherals like LCD, keypads using appropriate protocols

# Prerequisites

- EE 214 Digital circuits
- EE 224 Digital systems
- EE 309 Microprocessors
  - Taking it this semester is also fine
- Basic programming skills

# Grading Policy

- Lab experiments (60 %)
  - Approximately 8 labs
  - Follow deadlines for submissions - penalty for late submissions at 5% per day
- Assignments (20 %)
  - Once a week in Moodle
- Project (20 %)
  - Comprehensive use of various aspects of the microcontroller

# Lab Experiment Evaluation

- One TA will be assigned for a group of approx 15 students
- You will show your work to the TA by sharing your screen
- TA will ask questions to test your understanding
- Either CodeTantra or MS Teams (TBD)
- You are encouraged to discuss, but prepare your own solution

**Disciplinary action will be taken for any academic dishonesty.**

# Timings and Venue

- Batch timings
  - For 2nd years, Mondays : 2 to 5 PM
  - For 3rd years, Wednesdays : 2 to 5 PM
- Attend your assigned slot by joining relevant channel in MS Teams
- Additional lecture sessions as needed - mostly during lab time

# Website and Logistics

- Course website https://ee337.github.io
- MS Teams for meetings/interaction
- Course Moodle will be used for announcements, assignments, grades
  - Separate Moodle forum for debugging board issues

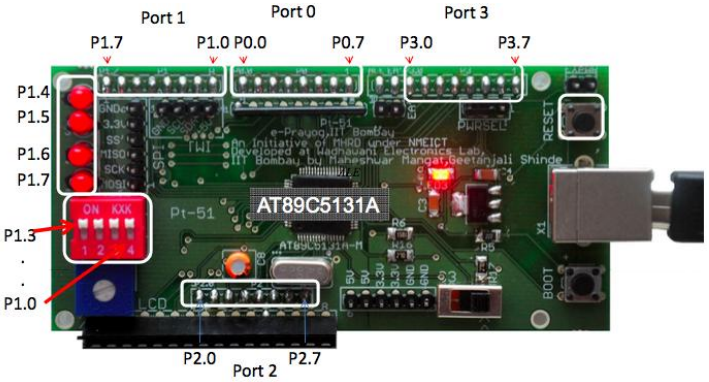
# Attendance

- Attendance is mandatory
  - Penalties for missed lab sessions will be applicable.
  - If network issues prevent you from attending, SMS/call your TA.
- If you cannot attend a lab session for medical reasons, inform us and your TA

# Reference Texts

- The 8051 Microcontroller and Embedded Systems - Using Assembly and C, Second edition
  - Muhammad Ali Mazidi, Janice Gillispie Mazidi, and Rolin D. McKinlay
  - https://www.amazon.in/dp/8131710262
- The 8051 Microcontroller, Third Edition
  - Kenneth J. Ayala
  - https://www.amazon.in/dp/8131502007

# Lab kit and softwares




- Every student will receive a lab kit
  - A Pt-51 board, LCD, a keypad, a USB cable
- Install the softwares (Keil and Flip) on your personal laptops and make sure the kit is working correctly (see the self-test procedure)

Note: The development board Pt-51 has been developed, soldered and tested in WEL. Thanks to Maheshwar, Shekhar, Shahin, Sadanand, Amit and Co.!

So please respect their efforts and use the boards carefully and return it (the lab kit) once you come back !

# Download links for softwares

- ARM Keil-C51 download
  https://www.keil.com/demo/eval/c51.htm#/DOWNLOAD
  (requires registration)

- FLIP download
  https://www.microchip.com/developmenttools/ProductDetails/FLIP

# Good Luck!


Programming Wisdom
@CodeWisdom
“Programming is the art of doing one thing at a time” - Michael Feathers
6:07 PM · Aug 20, 2019
908
194 people are Tweeting about this


Programming Wisdom
@CodeWisdom
"Debugging is like being the detective in a crime movie where you are also the murderer." - Filipe Fortes
1:33 AM · Aug 17, 2017
3.7K
2.4K people are Tweeting about this