Course Information

Instructor

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Research Portals:

https://www.researchgate.net/profile/Dennis-Gookyi

https://sites.google.com/view/eisedlab

Textbooks

1. David A. Patterson, John L. Hennessy: *Computer Organization and Design, The Hardware/Software Interface – RISC-V Edition*
2. Simon Monk: *Programming Arduino*

Course Site

https://github.com/dennisgookyi/VLSI-and-Embedded-System-Class

Expected Learning Outcomes

- Learn how to select development boards and toolchains for application prototyping
- Program MCU and SoC to read sensor data and control actuators
- Analyze sensor data and interface peripherals to microprocessors
- Identify components of a microprocessor
- Understand the building blocks of an Integrated Circuit (IC)

Schedules (The schedule is subject to change)

Lecture	Topic
01	Course Overview
02	Course Hardware and Software Toolchain Setup
03	Building Blocks of an Embedded System
04	Developmental Boards Overview
05	Programming Arduino and Nano 33 BLE
06	Nano 33 BLE Peripherals Interfacing
07	Nano 33 BLE Sensors Interfacing
08	Building Blocks of an Integrated Circuit
09	Transistors to Logic Gates
10	Combinational Logic Design
11	Memory Elements
12	Sequential Logic Design

Homework

Homework will be posted on the site. Check regularly.

Projects

Projects will be posted on the site. Check regularly.

Useful Links

1. https://riscv.org

2. https://en.wikichip.org/wiki/WikiChip

3. https://www.arduino.cc/

4. https://riscv.org/wp-content/uploads/2017/05/riscv-spec-v2.2.pdf

5. https://www.elsevier.com/__data/assets/pdf_file/0011/297533/RISC-V-Reference-Data.pdf#RISC-V%20Reference%20Data

6. https://www.st.com/en/microcontrollers-microprocessors/stm32-32-bit-arm-cortex-mcus.html

7. https://www.espressif.com/en/products/socs/esp32