

## **Course Information**

### **Instructor**

Name: Dennis Gookyi

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### **Class Meeting**

Morning Session: Thursday 11:00 AM – 13:00 PM

### **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/Embedded-Systems-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 schematic of a RISC-V microprocessor

## Schedule

Lecture	Topic
01	Course Overview
02	Course Hardware and Software Toolchain Setup
03	Developmental Boards Overview
04	Building Blocks of an Embedded System
05	Building Blocks of an Embedded System: RISC-V Microprocessor
06	Programming Arduino: Nano BLE Peripheral and Sensors Interfacing
07	Project

## 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](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>