Microprocessor System & Interfacing

1st Semester 2023

Course Information

Instructor

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Research Portals:

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

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

Class Meeting

Evening Session: Thursday 7:30 PM – 9:30 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/Microprocessor-System-and-Interfacing-Class

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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

Schedules (The schedule is subject to change)

Lecture	Topic
01	Course Overview
02	Course Hardware and Software Toolchain Setup
03	Developmental Boards Overview
04	Programming Arduino and Nano 33 BLE
05	Nano 33 BLE Peripherals Interfacing
06	Nano 33 BLE Sensors Interfacing
07	Building Blocks of a Microprocessor
08	Introduction to RISC-V Microprocessor
09	RISC-V Microprocessor Single Cycle Design and Implementation

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