



HANYANG UNIVERSITY

2019 HISS Syllabus (Microprocessor and IoT)

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Dept.: Electrical Engineering

Description: This course discusses about how microprocessor works, using x86 and RISC architectures as case studies, followed by its usage on microcontroller (case study: ARM and ATmega) to Arduino and Raspberry. The last 2 classes discuss about future research and enhancement possibilities in microprocessor world including IoT and its supporting technologies.

Objective: - Students should be able to explain how microprocessor works by comparing x86 and RISC architecture
- Students should be able to design and program an Arduino system using emulator such as TinkerCAD.com
- Students should be able to explain the future trends of microprocessor technologies

Preparations: - Textbook: Computer Architecture: A Quantitative Approach, by John L. Hennessy and David A. Patterson
- Pre-requisite knowledge: Understanding on Logic Circuit and C Programming is needed

Schedule:	Class 1	Computer Organization and History of Microprocessor
	Class 2	Microprocessor and Memory Interaction (Hardware) part 1
	Class 3	Microprocessor and Memory Interaction (Hardware) part 2
	Class 4	Machine Instruction part 1 (case study: x86 and RISC)
	Class 5	Machine Instruction part 2 (case study: x86 and RISC)
	Class 6	Memory Management (case study: IBM PC and Apple Mac)
	Class 7	Memory Management (case study: FAT32 and NTFS)
	Class 8	Pipeline (case study: DLX architecture)

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Class 9	Microcontroller (case study: ARM and ATmega)
Class 10	Designing an Arduino system and Raspberry system
Class 11	Project (Assignment) Discussion (using TinkerCAD.com)
Class 12	Project Discussion
Class 13	Presentation for the Best Arduino System Design
Class 14	Future Research on Microprocessor: Quantum Computing
Class 15	Future Research on Microprocessor: Intelligent Internet of Things

Evaluation:	Midterm (%)	Final (%)	Attendance (%)	Assignments (%)	Participation (%)	Pop Quiz. (%)
	30	30	0	20	10	10