

교과목번호	430.322	강좌번호	001	교과목명	컴퓨터조직론 (Computer Organization)	학점	3
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수업목표	<p>This course introduces the basic principles of a modern computer system, and hardware and software design techniques and analysis related with computer architecture and organization, which is based on basic concepts of digital system design. This course will discuss how to design the control and datapath for a pipelined RISC processor, memory and storage, and multi/many-core systems. and emerging computer systems. The principles presented in lecture are reinforced in the laboratory through the practical exercises of system-level implementation (e.g., HDL implementation, simulator).</p>
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교재 및 참고문헌	<p>Title: “Computer Organization and Design : The Hardware / Software Interface” (5/E) Author: David A. Patterson & John L. Hennessy Publisher: Morgan Kaufmann 2014 ISBN: 0124077269 / 9780124077263</p>
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평가방법	출석	과제	중간	기말	평소학습	기타	합계
	10%	30%	30%	30%	%	%	100%
	비고						

수강생 참고사항	<p>*** Lab & Q&A Session</p> <p>- There will be weekly lab and Q&A sessions to cover simulator/verilog coding and recitations. Students MUST attend this weekly meeting (Tuesday 5pm-6:30pm)</p>
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부정행위자 에 대한 처리	
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강의 계획	주(기간)	강의내용
	1주	<ul style="list-style-type: none"> - Introduction - Instruction Set Architecture (ISA), part 1
	2주	<ul style="list-style-type: none"> - Instruction Set Architecture (ISA), part 2 - Performance Metric
	3주	<ul style="list-style-type: none"> - Single-cycle CPU - Multi-cycle CPU
	4주	<ul style="list-style-type: none"> - Pipelined-CPU (basic) - Pipelined-CPU (data hazard)
	5주	<ul style="list-style-type: none"> - Pipelined-CPU (control hazard) - Pipelined-CPU (exception)
	6주	<ul style="list-style-type: none"> - Modern-CPU (superscalar, out-of-order execution) - Modern-CPU (multi-threading, multi-core)
	7주	<ul style="list-style-type: none"> - Memory (cache), part 1 - Memory (cache), part 2
	8주	<ul style="list-style-type: none"> - Memory (virtual memory), part 1 - Memory (virtual memory), part 2
	9주	<ul style="list-style-type: none"> - Multi-core (coherency), part 1 - Multi-core (coherency), part 2
	10주	<ul style="list-style-type: none"> - Synchronization - I/O & Bus
	11주	<ul style="list-style-type: none"> - SRAM/DRAM - Flash/NVM devices
	12주	<ul style="list-style-type: none"> - HDD and storage - Interconnection Network
	13주	<ul style="list-style-type: none"> - Vector and HPC - GPU and CUDA
	14주	<ul style="list-style-type: none"> - Datacenter/Cloud computing - Big Data/Distributed
	15주	<ul style="list-style-type: none"> - Future systems (neuromorphic, quantum)