

(SYLLABUS)

1.

(Course Title)	SoC	(Instructor)			
(Year)	2026	(Semester)	2	(Course No.)	2150418301
(Class)	01	(Open to)	4 IT	(Course Classification)	-IT
/	3.0 (0) / 3		100	가	가
(Office)		(Telephone)	02-828-7489	(e-mail)	inchul.song@ssu.ac.kr
	(PBL)				
	(*) (ABEEK Classification)		(*) (ABEEK Requirement)		
(Course Description)	SoC , , , , 가 ,				

SoC	SoC	
SoC	HW & SW IP ,	
SoC		

가	(100)	(100%)
	20	20
	20	20
	40	40
	20	20

(SYLLABUS)

(Required Texts)		* / (pdf)
	()	* /ARM system-on-chip architecture/steve furber/addison wesley/2005 * /Verilog HDL / / /2023 * / with Verilog HDL/ /GS /2020
	Vivado (2024.2), Questa, Cadence Xcelium install license .	
	1) Project EL+ 2) SoC component SoC integration, Verilog-HDL Verilog-HDL	

2.

(Week)	(Keyword)	(Description)		(Texts)
01	SoC	, SoC , ASIC vs. FPGA, SoC Flow		1
02	SoC architecture	SoC block diagram, Processor/Bus/Memory/Peripheral/HW accelerator, SoC architecture design		2
03	Processor subsystem (1/2)	Processor , Pipeline/Exception/Interrupt/Privilege mode, ARM processor , Multi-core SoC		3
04	Processor subsystem (2/2)	Cache/MPU/MMU, CPU Peri.(INTC, Watchdog, Timer), HW/SW partitioning, HW offloading HW accelerator		4
05	Verilog-HDL (1/2)	Project , Verilog-HDL (Combinational logic vs. Sequential logic)		5
06	Verilog-HDL (2/2) (1/2)	Verilog-HDL (Data path vs. Control path, FSM) , (AMD Vivado Intel Questa Cadence Xcelium)		6
07	(2/2) Pilot	Pilot	, , ,	7
08	Bus subsystem (1/2)	On-chip interconnect, Shared bus/Crossbar/NoC, Bus topology		8
09	Bus subsystem (2/2)	AMBA(AXI/AHB/APB) bus protocol, Bus matrix,		9
10	Memory subsystem (1/2)	Memory hierarchy, Register vs. Memory, Internal RAM vs. External RAM, DRAM vs. SRAM vs Flash memory		10
11	Memory subsystem (2/2)	Memory controller, DMA controller, Data Mover, Memory bandwidth & bottleneck, (~13)	, , ,	11
12	Peripheral subsystem (1/2)	Peripheral interface, Low speed peripheral (GPIO, UART, SPI, I2C)	, , ,	12
13	Peripheral subsystem (2/2)	HW/SW interface, High speed peripheral (SDIO, USB, PCIe)	, , ,	13
14	& SoC	, AP/Modem/AI SoC	, ,	14
15		()		

(SYLLABUS)

[]

65 2
,
가

,가

가

[]

— :
— :
— : /
— / :

[가]

— / / :
— / : 가

(02-820-0060)

(SYLLABUS)

3. ()

()			
	가/		
	/		
	/		
	/		
	Open-ended problem		
	Teamwork		
	Communication skills		