Syllabus [2025Year 1 Term]

Course Information

Course Title	Semiconductor Process	Credits	3
Course Code	472820-1	Required/Elective (For Undergraduate Courses)	Selective majors
Department or Major	Semiconductor Convergence Engineering	Language	English
Methods of Teaching		Lecture Room	월10,11,12(3공109)/화7,8,9(2공203)
Time Allotment	Lecture(3) Experiments(0) Trainging & Practice(0) Performance(0) Designing & Planning(0)	Cyber Lectures	
Course Type	offline		

Lecturer

Lecturer	Name	Kim Min Ju	Rank	Assistant Professor	Final Academic Degree	공학박사
	Department & college	Semiconductor Convergence Engineering		Office	College of Engineering - Building 2 410	
	Office Phone Number	—		e-mail	minju9062@dankook.ac.kr	
	Field of Interest					

Course Summary

Course Description	Students will understand the semiconductor device process and develop process design capabilities. Students understand the 8 major semiconductor processes (Cleaning, Photolithography, Etching, Diffusion, Implantation, Deposition, CMP, Metallization), and enhance the ability to understand and design the CMOS Integration Process.
Description Related Courses	The course is for students in the first semester of the 4th year, and they must take the "Semiconductor Device, Solid State Electronic Material" courses in advance.
Course Goals	Understanding the 8 major semiconductor processes (Cleaning, Photolithography, Etching, Diffusion, Implantation, Deposition, CMP, Metallization) Understanding CMOS process integration and interactions between each process
Projected Results	According to the semiconductor devices structure and thier purpose, the ability to design the process flow is cultivated.

Percentage of the original language classes(%)	.

Syllabus

Times	Lecture Topic	Lecture Goals	Lecture Methods	Assignments
1	Introduction			Hand-outs
2	Overview of Semiconductor Process			Hand-outs
3	CMOS Front-end : Wafer, Cleaning			Hand-outs
4	CMOS Front-end : Oxidation, Diffusion			Hand-outs
5	CMOS Front-end : Diffusion, Implantation			Hand-outs
6	CMOS Front-end : Thin Film Deposition 1 (PVD)			Hand-outs
7	CMOS Front-end : Thin Film Deposition 2 (CVD, ALD)			Hand-outs
8	CMOS Front-end : Patterning 1 (Lithography)			Hand-outs
9	CMOS Front-end : Patterning 2 (Etching)			Hand-outs
10	CMOS Back-end : Metallization			Hand-outs
11	CMOS Back-end : CMP, ILD Passivation			Hand-outs
12	Integration of CMOS Process			Hand-outs
13	Random Quiz 1			Hand-outs
14	Random Quiz 2			Hand-outs
15	Final			Hand-outs

Methods of Grading

sequence	Description	Percentage	Details
1	Mid-tem Exam	30%	
2	Final-exam	40%	
3	Pop Quizzes	30%	
4	Assignments	0%	
5	Reports	0%	
6	Presentations & Discussions	0%	
All		100%	

sequence	Description	Percentage	Details
7	Attendance	0%	
8		0%	
9	Others	0%	
All		100%	

Core of Value

핵심가치	전공역량	역량정의	역량구분	값(%)
혁신 (Discovery)	창의적문제해결 (Creative problem-solving)	주어진 상황과 문제를 창의적으로 해결할 수 있는 능력	부역량	30%
혁신 (Discovery)	도전 (Challenging)	전공 지식을 새로운 분야와 융합하고 아우를 수 있는 능력		0%
혁신 (Discovery)	지식융합 (Knowledge convergence)	새로운 분야를 개척하거나 도전적으로 임할 수 있는 능력		0%
헌신 (Dedication)	세계시민 (Universal value)	세계 공동체 구성원으로 전공자로서 국제적 이슈에 대응할 수 있는 능력		0%
헌신 (Dedication)	상호협력 (Cooperation)	공동의 목적 달성을 위해 타인과 상호협력을 할 수 있는 능력		0%
헌신 (Dedication)	공동체 (Sense of community)	공동체의 구성원으로서 필요한 태도와 윤리의식을 가질 수 있는 능력		0%
능동 (self- Determination)	자기주도 (Self-Managing)	주어진 상황과 문제를 주도적이고 능동적으로 해결할 수 있는 능력	주역량	40%
능동 (self- Determination)	지식활용 (Knowledge application)	주어진 상황과 문제에 대해 논리적으로 파악하고 분석할 수 있는 능력	부역량	30%
능동 (self- Determination)	논리적사고 (Logical thinking)	전공관련 지식을 필요에 따라 다양하게 적용하고 활용할 수 있는 능력		0%
능동 (self- Determination)	의사소통 (Articulation)	대화를 통해 다양한 의견을 조율하고 합의를 이끌어 낼 수 있는 능력		0%

Textbook(s) & References

Description	Title	Author	Publisher
References	.	.	.

Memo

English Class
- Lecture, Project & exam problems will be in English
- Questions in Korean during class will also be allowed
- Hand-outs will be used in lecture, and Projection will be conducted to efficient explain of lecture.

Exam Policy
- Your learning will be evaluated in three times: Quiz, Midterm, and Final exams. (Closed book)
- If one cannot take the exam for some (verifiable) important reason, alternative exams or rescheduling are only possible with prior notice which is responsible of students.
- Cheating on quizzes, or exams will NOT be tolerated and will result in an immediate F
- Quizzes and exams can be written in Korean.