



# HANYANG UNIVERSITY

## Hanyang ERICA Summer School

Office of International Affairs, Hanyang University ERICA  
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## 2025 Course Syllabus

Course Information	Course Title(Eng)	Introduction to Semiconductor Engineering	Course Category	<i>Elective Non-Major(General)</i>
	Course Title(Kor)			
	Credit-Lecture-Lab	3 credits-4.5 hrs-0 hrs	Course Restrictions	N/A
	College/School	International Summer School(ERICA)	College/School Responsible	Foreign Exchange Program(Y0000341)
	Meeting Times	9:00am-12:00pm 1:00pm-2:30pm 10times	Electronic Attendance	N

Instructor Info	Department	Semiconductor Convergence Engineering	Name	Bongyoung Yoo, Ph.D.
	Contacts	+82-31-400-5229	E-mail	byyoo@hanyang.ac.kr
	Homepage	<a href="http://nmsl.hanyang.ac.kr/bbs/board.php?bo_table=sub02_1">http://nmsl.hanyang.ac.kr/bbs/board.php?bo_table=sub02_1</a>		
Course Type	Teaching Method	Lecture, Face-to-face		

Course Description	This course introduces undergraduate students to the fundamentals of semiconductors and their applications in everyday life. It covers basic physical principles, key components such as diodes and transistors, and an overview of semiconductor manufacturing processes. Students will also participate in group activities to enhance teamwork and scientific communication skills.			
Course Objectives	<ol style="list-style-type: none"><li>1. Understand what semiconductors are and where they are used in daily life.</li><li>2. Learn the basic physical concepts behind semiconductor materials.</li><li>3. Discover how simple electronic components (like diodes and transistors) work.</li><li>4. Explore how chips are made in clean rooms (basic process overview).</li><li>5. Build basic teamwork and science communication skills through activities.</li></ol>			
Notice for Students				

Textbook	No.	Title	Author	Publisher	ISBN	Price(KRW)



Evaluation	Evaluation Criteria	Percentage(%)	Evaluation Criteria	Percentage(%)
	Attendance	40	Quiz	
	Assignments		Mid-term Exam	
	Discussion		Final Exam	30
	Team Project	30	Participation	
	Other			Percentage(%)
	Total 100 %			

Daily Lecture Plan and Assignments	Day	Title	Activity
	1	What is a Semiconductor?	Electronics in daily life, What is a chip?, History of semiconductors
	2	Atoms, Electricity & Materials	Conductors vs. Insulators vs. Semiconductors / Silicon / Simple atomic structure
	3	Diodes and LEDs	PN Junctions / How diodes work / Simple circuit with LED
	4	Transistors: The Brain of the Chip	What is a transistor? / How it switches on & off / Use in computers
	5	How Chips are Made: Part 1	From sand to silicon / Wafer / Cleanroom tour video
	6	How Chips are Made: Part 2	Photolithography, Etching, Deposition (Intro only)
	7	Packaging & Real Chips	What happens after the chip is made? / Smartphone teardown / Packaging basics
	8	Semiconductors in the World	AI, self-driving cars, smart homes, etc. / Future trends
	9	Team Project Preparation	Make a group poster or presentation about 1 semiconductor topic
	10	Team Presentations & Review	Present projects / Course recap / Final Exam