

Syllabus(2026-1st semester)

Course	Electronic Circuit I	Department	Division of Electronic and Semiconductor Engineering	Office Hours	
Course No. and Class	35328-01	Hours	3.0	Academic Credit	3.0
Professor	Kim Jusung		Office		
Telephone			E-MAIL		
Value of competence	Pursuit of Knowledge(70), Creative Convergence(20), Global Citizenship(10)		Keyword	Integrated Circuits, Analog Circuits, Amplifiers	

1. Course Description

This course introduces fundamental concepts in microelectronics, including semiconductor device physics, diode and transistor circuits, and basic amplifier design. This course emphasizes circuit analysis, modeling, and design using MOSFETs and BJTs.

Topics covered in this course include:

- Circuit analysis and Bode plots
- Operational amplifier
- Basic and multi-stage amplifiers (MOSFETs and BJTs)
- Differential amplifier (MOSFETs and BJTs)

2. Prerequisites

Circuit Theory, Semiconductor Engineering I

3. Course Format

Lecture	Discussion/Presentation	Experiment/Practicum	Field Study	Other
100%	0%	0%	0%	0%

- explanation of course format :
- power-point(ppt) presentation

4. Course Objectives

This course aims to provide an understanding of semiconductor devices, including diodes, BJTs, and MOSFETs, and their application to analog circuits. Students will learn to analyze and design basic amplifier circuits, evaluate frequency response. The course also introduces operational amplifiers and the fundamentals of analog integrated circuit design.

5. AI Use Principles and Guidelines

*The following items present example principles and guidelines regarding the use of AI in a course. The course professor may revise and supplement them as necessary, depending on the characteristics and needs of the course.

1) General Principles for AI Use

- This course is conducted on the premise of learners' responsible use of AI and academic integrity. Learners are expected to understand and comply with the AI Ethics Guidelines for Learners posted on the THE BEST Integrated Educational Support Service website.

<https://cyber.ewha.ac.kr/ethicsguide.php>

- Learners must adhere to the scope of permitted AI use and prohibited practices as specified by the course professor according to the purpose of each assignment, assessment, or learning activity. AI may be used only within the permitted scope.

- When learners use AI to complete assignments, they must clearly disclose the use of AI and submit a Disclosure Statement.

※ The Disclosure Statement includes information such as the purpose of AI use, the stage(s) at which AI was used, the content generated or assisted by AI, and the extent of AI's contribution to the final output.

Examples of Disclosure Statements are available on the THE BEST Integrated Educational Support Service website.

2) Examples of Permitted AI Use

- Information and resource search
- Idea brainstorming
- Improvement of grammar, writing style, and translation
- Data analysis
- Coding and debugging support
- Others ()

3) Examples of Prohibited AI Use

- Submitting, in whole or in part, AI-generated content as learning outputs (e.g., reports, essays, presentation materials) without the learner's own revision or supplementation
- Using AI during examinations, quizzes, or other assessments without the course professor's prior permission
- Submitting AI-generated fabricated citations, references, or sources as if they were authentic materials
- Others ()

4) Consequences for Misuse

- Violations of the AI use policy may be regarded as academic misconduct.
- In the event of academic misconduct, the course professor will determine appropriate follow-up actions after a comprehensive review of the student's explanation, AI usage records, and the writing or development process.

6. Evaluation System

* Relative evaluation

Midterm Exam	Final Exam	Quizzes	Presentation	Projects	Assignments	Participation	Other
40%	40%	0%	0%	0%	20%	0%	0%

* Evaluation of group projects may include peer evaluations.

- explanation of evaluation system

- Midterm 40%, Final 40%, Assignments 20%

- A grade: within 40%, A & B grades: within 80% (based on the number of students after the course change period)

- F grade will be given in case of absence from the midterm or final exam, or insufficient attendance (attending less than 2/3 of the course)

7. Required Materials

Sedra & Smith, "Microelectronic Circuits", 6th (~8th) editions, Oxford

8. Supplementary Materials

Behzad Razavi, Fundamentals of Microelectronics, 3rd edition, Wiley

9. Optional Additional Readings**10. Course contents**

Week	Date	Topics, Materials, Assignments
Week 1	2026/03/03(TUE)	Introduction to (micro-)electronics
	2026/03/06(FRI)	Circuit analysis
Week 2	2026/03/10(TUE)	Circuit analysis and Bode plots
	2026/03/13(FRI)	Circuit analysis and Bode plots
Week 3	2026/03/17(TUE)	Concepts on input/output impedances and gain
	2026/03/20(FRI)	Operational Amplifier and Circuit analysis
Week 4	2026/03/24(TUE)	Operational Amplifier and Circuit analysis
	2026/03/27(FRI)	Operational Amplifier and Circuit analysis
Week 5	2026/03/31(TUE)	Operational Amplifier and Circuit analysis
	2026/04/03(FRI)	Diode: Operation Principle and Device Model
Week 6	2026/04/07(TUE)	Diode: Operation Principle and Device Model
	2026/04/10(FRI)	Diode: Operation Principle and Device Model
Week 7	2026/04/14(TUE)	Bipolar Junction Transistor: Operation Principle and Device Model
	2026/04/17(FRI)	Bipolar Junction Transistor: Operation Principle and Device Model
Week 8	2026/04/21(TUE)	Bipolar Junction Transistor: Operation Principle and Device Model
	2026/04/24(FRI)	Basic and Multi-stage Amplifiers (BJTs)
Week 9	2026/04/28(TUE)	Mid-term Exam (중간고사)
	2026/05/01(FRI)	Labor day
Week 10	2026/05/05(TUE)	Children's Day
	2026/05/08(FRI)	Basic and multi-stage amplifiers (BJTs)
Week 11	2026/05/12(TUE)	Basic and multi-stage amplifiers (BJTs)
	2026/05/15(FRI)	MOSFET Transistor: Operation Principle and Device Model
Week 12	2026/05/19(TUE)	MOSFET Transistor: Operation Principle and Device Model
	2026/05/22(FRI)	Basic and Multi-stage Amplifiers (MOSFETs)
Week 13	2026/05/26(TUE)	Basic and Multi-stage Amplifiers (MOSFETs)
	2026/05/29(FRI)	Ewha's 140th Anniversary Ceremony
Week 14	2026/06/02(TUE)	Integrated Circuit Amplifiers (MOSFETs)
	2026/06/05(FRI)	Integrated Circuit Amplifiers (MOSFETs)
Week 15	2026/06/09(TUE)	Current Mirror
	2026/06/12(FRI)	Final Exam (기말 고사)
Makeup Classes 1	2026/06/16(TUE)	recorded video will be provided during the semester
Makeup Classes 2	2026/06/17(WED)	recorded video will be provided during the semester

10. Course contents

Week	Date	Topics, Materials, Assignments
Makeup Classes 3	2026/06/18(THU)	recorded video will be provided during the semester

11. Course Policies

* For laboratory courses, all students are required to complete lab safety training.

12. Special Accommodations

* According to the University regulation #57, students with disabilities can request special accommodation related to attendance, lectures, assignments, and/or tests by contacting the course professor at the beginning of semester. Based on the nature of the students' requests, students can receive support for such accommodations from the course professor and/or from the Support Center for Students with Disabilities (SCSD).

* The contents of this syllabus are not final—they may be updated.