



Ewha International Summer College

Course Syllabus

[Analog Integrated Circuits]

Professor: TBA
E-mail: TBA
Home Univ.: TBA
Dept.: TBA

Description: This course covers a wide range of basic integrated circuits utilizing MOSFET transistors, which includes basic amplifier configurations (such as common-source, common-gate, common-drain, cascode), differential amplifiers, and two-stage operational amplifiers (op-amps). Certainly, it is a goal for attendees to enable to analyze the characteristics of these various circuits in frequency and time domains, i.e. gain, bandwidth, common-mode range, slew-rate, etc. In addition, various crucial issues (such as stability, frequency compensation, etc) in the design of analog circuits will be covered as well.

Objective: In this course, attendees are requested to understand the characteristics of MOSFET devices and to attain in-depth knowledge of various analog MOS amplifiers such as common-source/common-gate/common-drain/cascode amplifiers. Also, attendees should be able to analyze and design two-stage CMOS operational amplifiers (op-amps).
 [Textbook needed?] Sedra & Smith, 'Microelectronics Circuits', 6th Ed., Oxford

Prerequisite: [Pre-knowledge needed?] Circuit Theory, Semiconductor Devices
 [Materials needed?] None

Credits	3		Contact Hours	45
Week 1	6/29(Tue)	Ch. 1 Introduction (Amplifier Overview)		
	6/30(Wed)	Ch. 5 MOSFETs (Device physics, DC operations)		
	7/1(Thu)	Ch. 5 MOSFETs (AC small signal analysis) & Discrete amplifiers		
Week 2	7/5(Mon)	Ch. 5 MOSFETs (Bias circuits, CS/CG/CD amplifiers)		
	7/6(Tue)	Ch. 6 Integrated Circuits (Overview, Active-load CS amplifier)		
	7/7(Wed)	Ch. 6 & 8 Integrated Circuits (Cascode amplifier, Frequency Response)		
	7/8(Thu)	Ch. 8 Frequency Response (OC- τ)		
Week 3	7/12(Mon)	Ch. 6 & 8 Integrated Circuits (CS/CG/CD amplifiers, Frequency Response)		
	7/13(Tue)	Ch. 6 Integrated Circuits (Current-Mirror)		
	7/14(Wed)	Ch. 7 MOS Differential Amplifiers		
	7/15(Thu)	Ch. 7 MOS Differential Amplifiers with Active Loads		

Week 4	7/19(Mon)	Ch. 8 Frequency Response of Differential Amplifiers
	7/20(Tue)	Ch. 9 Feedback & Stability
	7/21(Wed)	Ch. 9 Feedback Compensation & Two-stage Op-amps
	7/22(Thu)	Final exam.

Evaluation(%)	Midterm	Final	Attendance	Assignments	Participation	Etc.
	15+30 = 45%	50%	5%			

※ Applicants with intent for more than one course are asked to make up a syllabus for each, repeatedly using the above template.