Ewha International Summer College

Course Syllabus

[Analog Integrated Circuits]

Professor:	**Sung Min Park**
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Home Univ.:	Ewha Womans University
Dept.:	Department of Electronic and Electrical Engineering

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).
Prerequisite::	[Textbook needed?] Sedra & Smith, 'Microelectronics Circuits', 6th Ed., Oxford [Pre-knowledge needed?] Circuit Theory, Semiconductor Devices [Materials needed?] None

Credits	3	Contact Hours	45
Week 1	6/25(Thu)	Ch. 1 Introduction (Amplifier Overview)	
Week 2	6/29(Mon)	Ch. 5 MOSFETs (Device physics, DC operations)	
	6/30(Tue)	Ch. 5 MOSFETs (AC small signal analysis) & Discrete amplifiers	
	7/1(Wed)	Ch. 5 MOSFETs (Bias circuits, CS/CG/CD amplifiers)	
	7/2(Thu)	Ch. 6 Integrated Circuits (Overview, Active-load CS amplifier)	
Week 3	7/6(Mon)	Ch. 6 & 8 Integrated Circuits (Cascode amplifier, Frequency Response)	
	7/7(Tue)	Ch. 8 Frequency Response (OC-τ)	
	7/8(Wed)	Ch. 6 & 8 Integrated Circuits (CS/CG/CD amplifiers, Frequency Response)	
	7/9(Thu)	Ch. 6 Integrated Circuits (Current-Mirror)	
Week 4	7/13(Mon)	Ch. 7 MOS Differential Amplifiers	
	7/14(Tue)	Ch. 7 MOS Differential Amplifiers with Active Loads	
	7/15(Wed)	Ch. 8 Frequency Response of Differential Amplifiers	

	7/16(Thu)	Ch. 9 Feedback & Stability
Week 5	7/20(Mon)	Ch. 9 Feedback Compensation & Two-stage Op-amps
	7/21(Tue)	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.