Lect. 1: Introduction

Goals of STCC

- Learn research trends on Si devices, circuits, and systems

➔ Presentation on one topic a week by an expert

- Practice technical presentation skills in English

➔ Presentations on one topic a week by students in English

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Topics to be covered

- *Topic 1*: *Nanocale CMOS Devices* (서강대 최우영)

Review on CMOS device scaling history and discussion on present challenges and solutions.

- *Topic 2*: *High-speed devices and circuits* (고려대 이재성)

How fast can Si transistors be? How fast Si circuits can be?
What are they useful for?

- *Topic 3*: *Radio-Frequency Integrated Circuits* (연세대 김태욱)

Introduction to RFIC that have made cheap and powerful wireless communication devices a reality.

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Topics to be covered

- *Topic 4* : *High-Speed Interface Circuits* (연세대 최우영)

Everyone and demands more and more data. And now *linking* electronic devices has become a big problem. How do we solve it?

- *Topic 5* : *Semiconductor memories* (연세대 정성욱)

How do they work? Are there new types of memories?

- *Topic 6* : *Data Converters* (서울시립대 최중호)

Everything is handled *digital*, but the nature is in *analog*.
How do we convert one from the other?

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Topics to be covered

- *Topic 7*: *System-on-Chip for Communication and Multimedia Systems* (항공대 정윤호)

How can one make such powerful, yet so small, electronic devices such as a smart phone? The answer lies in System-on-Chip, a chip that can do many many things.

- *Topic 8*: Lower-Power VLSI (연세대 정성욱)

How can we make VLSI circuits more *green*? Introduction to various techniques on reducing digital circuit power.

- *Topic 9*: *E-Health Electronics* (연세대 김재석)

How can circuits help in realizing better, cheaper medical devices and systems?

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Topics to be covered

- *Topic 10* : *Microprocessor Technology* (연세대 노원우)

History of microprocessor development and review of current technologies

- *Topic 11*: *Embedded Systems* (연세대 정의영)

Hardware alone cannot do much. You always need smart software.
How can you combine these two efficiently?

- *Topic 12* : *Design for Testing* (연세대 강성호)

Making good circuits and systems is one thing.
How can you be sure that they work as they should?

Lect. 1: Introduction

- Guest Lecturers

Guest lecturers will be invited so that they can give students better perspective in their career plan. Details will be announced once they are available.

Lect. 1: Introduction

- Teaching Staffs
  - Lecturer: Prof. Woo-Young Choi (최우영)
    Room: B625, Tel: 2123-2874
    Email: wchoi@yonsei.ac.kr, tera.yonsei.ac.kr

- Class Hours
  - Lecture: Wed. 2:00-2:50 pm, Fri. 2:00-3:50 pm at A018
  - Office Hours: Wed. 3:00-4:00 pm, Fri. 4:00-5:00 pm, or by appointment

- Prerequisite: Interests, interests, interests !!!

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- Textbook: Class Notes

- Class web page: tera.yonsei.ac.kr (Click Classes)
  Friday lecture notes will be available in PDF files before the class

- Grades
  - **English presentation**: 30 points
  - **5-min Quiz**: 30 points
  - **Attendance**: 30 points (-2 points if absent, -1 points if late)
  - **Class participation**: 10 points (Qualitative evaluation)

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- English Presentation

Every student is required to choose an in-depth topic from Friday lecture, do his/her survey/investigation, and present the results in the class for 20 minutes in English. For each Friday lecture topic, two students will be assigned. These two students should discuss among themselves so that their in-dept topics do not overlap. Each presentation will be evaluated based on technical contents as well as presentation skills. They will receive A+/A-/B+/B-/C which has corresponding points of 30/25/20/15/10 points. A sign-up sheet will be available as soon as class registration is complete.

- 5-min Quiz:

Students will be evaluated for their understanding of each topic by 5-min in-class quiz. The quiz will ask students the very basics of each topic, and anyone who paid attention during the presentation should able to get a good quiz score.

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- Lunch Meetings:

Students are encouraged to participate in lunch meetings with fellow students and the professor. Lunch meetings will be held on Friday from 12:00 - 12:50 in my office. We can have free conversation on the course materials and future career plans. Sandwiches and drinks will be provided. A sign-up sheet will be available as soon as class registration is complete.

March

일	월	화	수	목	금	토
		1	2 Introduction	3	4 Topic 1 (서강 최우영)	5
6	7	8	9 Guest Lect. 1	10	11 Topic 2 (이재성)	12
13	14	15	16 Q1, P1	17	18 Topic 3 (김태욱)	19
20	21	22	23 Q2,P2	24	25 Topic 4 (최우영)	26
27	28	29	30 Q3,P3	31		

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April

일	월	화	수	목	금	토
					1 Topic 5 (정성욱)	2
3	4	5	6 Q4,P4	7	8 Topic 6 (최중호)	9
10	11	12	13 Guest Lect	14	15 Topic 7 (정윤호)	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

Mid-Term Exams

Mid-Term Exams

May

일	월	화	수	목	금	토
1	2	3	4 Q5,P5	5	6 Topic 8 (정성욱)	7
8	9	10	11 Q6,P6	12	13 Topic 9 (김재석)	14
15	16	17	18 Guest Lect 2	19	20 Topic 10 (노원우)	21
22	23	24	25 Q7,P7	26	27 Topic 11 (정의영)	28
29	30	31				

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June

일	월	화	수	목	금	토
			1 Q8, P8	2	3 Topic 12 (강성호)	4
5	6	7	8 Q9,P9	9	10 Q10,P10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

Final Exams

Final Exams