

Course Title	Electronic Properties of Solid-State Devices	Course Code	ELEC785001	Credits	3.0
Department	전자공학부	Semester	20171	Course Categories	전공
Instructor		Hours	수 7A7B8A 수 8B9A9B	Location	IT 대학 3 호관(공대 11 호관)104 IT 대학 3 호관(공대 11 호관)104
Phone/E-mail	** 통합정보시스템 로그인- 수업/성적- 수업- "강의담당교수조회"에서 확인 가능함.				
Office Hours	Mon 9~12			language	한국어

### [ Syllabus ]

Course Goals and Objectives
<p>This course will deal with the semiconductor physics, nanoelectronic devices, DRAM, non-volatile (Flash) memory, and tunneling devices.</p>
Textbook and other references
<p>(I) Title : Nanoelectronic Devices</p> <p>Author : Byung-Gook Park, Sung Woo Hwang, Young June park</p> <p>Publisher : Pan Stanford publishing</p> <p>(II) Title : Modern Semiconductor Devices for Integrated Circuits</p> <p>Author : Chenming Calvin Hu</p> <p>Publisher : PrenticeHall</p> <p>(III)various supplements</p>
Course Description, Methods, and Materials
<p>Typed lecture notes on ABEEK board will be distributed to students.</p>
Assignments, Grading Criteria, Prerequisite Subject

The textbook exercises or examples will be imposed. And during the semester, more than twice a assessment will be tested.

#### Notice To Students

This course requires an understanding of the concept. So the attitude of attend every time and listen carefully required.

#### Notice To Students with Disabilities

A. Hearing Impaired : first row priority seating, Class transcripts may also be provided.

B. Developmentally Challenged : Extended Test Period

C. Brain lesions : Extended Test Period, Class transcripts may also be provided

D. Visually Impaired : Larger Font test will be provided

Other : Aid offered dependant on specific disabilities

#### [ Course Lesson Plan ]

no	Course Goals and Objectives	Assignment	Text & Materials	Etc.
1	2-4. p-n Junctions		Textbooks and lecture notes	
2	2-4. p-n Junctions 2-5. Metal-Semiconductor Contacts and Heterojunctions		Textbooks and lecture notes	
3	3-1. MOS Structure		Textbooks and lecture notes	
4	3-2. MOSFET and Its Operation		Textbooks and lecture notes	
5	3-3. CMOS Circuits		Textbooks and lecture notes	
6	4-1. Issues in CMOS Device Scaling		Textbooks and lecture notes	
7	4-2. Approaches to Overcoming Scaling Issues in Nanoscale MOSFETs 4-3. Double-Gate MOSFETs		Textbooks and lecture notes	
8	Mid-term exam			
9	4-4. Tunneling and Resonant Tunneling Devices 5-1. Transport in One-Dimensional Electron Systems		Textbooks and lecture notes	

10	5-1. Transport in One-Dimensional Electron Systems 5-2. Nanowire MOSFETs		Textbooks and lecture notes	
11	Power issues of future transistors and TFET		Textbooks and lecture notes	
12	Design of TFETs for improved device performance		Textbooks and lecture notes	
13	Various TFETs and Its Operation		Textbooks and lecture notes	
14	Memory devices : DRAM and Nonvolatile(Flash) memory		Textbooks and lecture notes	
15	Final exam.			

Cheating, plagiarism, and other dishonest practices will be punished as harshly as Kyungpook National University policies allow. The University specifies that cheating is grounds for dismissal. Penalties less severe may be imposed instead. A list of possible disciplinary actions is given below. Actions by the university:

- Failure in course
- Suspension from university for a designated period
- Expulsion from university