2015학년도 2학기 [반도체소자] 강의계획서

◆ 수업정보 ◆

[수업정보]

시간/강의실	월(3-4) 9-211B 화(3) 9-102		
학점	3학점	학수번호(분반)	DISP382(00)
이수구분	전공선택		

[강의담당자]

성명	유종훈	소속	디스플레이·반도체물리학과
E-mail			
Homepage			
연구실호실	9-221	연락처	
면담시간			

[조교정보]

성명		소속	
E-mail			
연구실		연락처	

◆ 수업운영 ◆

[수업방법]

활동유형	강의, 토론, QnA

[평가방법]

항목	점수	항목	점수
수시과제	30 점	중간과제	100 점
기말과제	100 점	참여도	30 점
총점	260 점		
평가점수공개여부	공개		

◆ 학습계획 ◆

▶ 과목개요

This class is the second class of an introduction to the physical principles of semiconductor devices and their fabrication technology. It is intended to apply the basics of semiconductor physics to semiconductor devices such as the optoelectronic diodes, Schottky diodes, metal oxide semiconductors, and transistors. The success in understanding the semiconductor devices is not only to work problems that exercise the concepts but also to practice numerically the performance of the devices. Therefore, three or four problems at the end of each chapter are assigned to the homework every week. And two numerical calculations are given to practice the performance of the devices in the middle of the semester. The class includes devices based on both silicon and compound semiconductors, to reflect the continuing growth in importance for compounds in optoelectronic and high-speed device applications.

▶ 학습목표

The purpose of this lecture has two basic purposes: (1) to provide students with a sound understanding of existing devices, so that their studies of electronic circuits and systems will be meaningful; and (2) to develop the basic tools with which they can later learn about newly developed devices and applications.

▶ 추천 선수과목 및 수강요건

1. 일반물리학 1, 2
2. 현대물리학
3. 반도체 1

▶ 수업자료(교재)

1. Robert F. Pierret, “Semiconductor Device Fundamentals”, Addison-Wesley Publishing Company, Inc. ISBN 0-201-54393-1
2. Class Note

▶ 지정도서 및 참고문헌

지정도서	참고도서명	저자명	출판사	출판년도	ISBN
N	Semiconductor Devices, Physics and Technology	S. M. Sze	John Wiley & Sons	1985	0-471-87424-8
N	Solid State Electronic Devices	Ben G. Streetman and Sanjay banerjee	Prentice Hall, Inc.	2000	0-13-026101-7

▶ 과제물

1. 연습문제: 주별과제
2. 연구과제: 월별과제

▶ 주별학습내용

주	기간	회차	학습내용	교재	활동 및 설계내용
1	08.31 - 09.06	1	Ch 8 pn Junction Diode: Transient Response	Ch 8	
2	09.07 - 09.13	1	Ch 9 Optoelectronic Diodes	Ch 9	
3	09.14 - 09.20	1	Ch 10 BJT Fundamentals	Ch 10	
4	09.21 - 09.27	1	Ch 10 BJT Fundamentals	Ch 10	

주	기간	회차	학습내용	교재	활동 및 설계내용
5	09.28 - 10.04	1	Ch 11 BJT Static charicteristics	Ch 11	
6	10.05 - 10.11	1	Ch 11 BJT Static charicteristics	Ch 11	
7	10.12 - 10.18	1	Ch 14 MS contacts and Schottky Diodes	Ch 14	
8	10.19 - 10.25	1	Ch 14 MS contacts and Schottky Diodes		중간고사
9	10.26 - 11.01	1	Ch 14 MS contacts and Schottky Diodes	Ch 14	
10	11.02 - 11.08	1	Ch 15 Field Effect Introduction	Ch 15	
11	11.09 - 11.15	1	Ch 15 Field Effect Introduction	Ch 15	
12	11.16 - 11.22	1	Ch 16 MOS Fundamentals	Ch 16	
13	11.23 - 11.29	1	Ch 16 MOS Fundamentals	Ch 16	
14	11.30 - 12.06	1	Ch 17 MOSFETs	Ch 17	
15	12.07 - 12.13	1	Ch 17 MOSFETs	Ch 17	
16	12.14 - 12.20	1	Reviews of semiconductor devices		기말고사

▶ 기타 (설계관련사항 포함)

1. Design of metal-semiconductor contacts
2. Design of Schottky diodes