과목명	전자물성	과목번호	ELEC781001	학점	3.0
개설대학	전자공학부	개설학기	20172	교과구분	전공
담당교수	이정희	강의시간	화 1A1B2A 화 2B3A3B	강의실명	IT 대학 3 호관(공대 11 호관)103 IT 대학 3 호관(공대 11 호관)103
연락처/E-mail	** 통합정보시스템 로그인- 수업/성적- 수업- "강의담당교수조회"에서 확인 가능함.				
면담시간	After class			강의언어	한국어

[강의계획서]

강의개요 및 목적

The goal of this graduate-level class is to understand more advanced physics and electrical properties of semiconductors.

- Introducing the classification of materials and basic properties of semiconductors

- Discussing basics of quantum mechanics that are required to understand semiconductor properties

- Discussing energy band theory and equilibrium carrier concentration in semiconductors

- Discussing the charge transports in semiconductors

교재 및 참고문헌

1. [Textbook-1] R. F. Pierret, Advanced Semiconductor Fundamentals (2nd Ed)

2. [Reference-1] C. M. Wolfe, Physical Properties of Semiconductors

3. [Reference-2] J. H. Davies, The Physics of Low-dimensional Semiconductors

강의진행 방법 및 활용매체

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과제, 평가방법, 선수과목

* Assignments

- Two or three homework assignments will be given.

* Grading Criteria

- Midterm exam (40%), final exam (40%), homework (10%), attendance (10%)

- It can be adjust

수강에 특별히 참고할 사항

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장애학생을 위한 학습지원 사항

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

B. Develpmenatlly 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.

[강의 내용 및 일정]

no	강의 요목 및 수업목표	과제 및 연구문제	교재 및 참고자료	비고
1	Class overview and introduction to semiconductors		Textbook and handout	
2	The crystal structure of semiconductors		Textbook and handout	
3	Basics of quantum mechanics		Textbook and	

	for semiconductors (1)		handout	
4	Basics of quantum mechanics for semiconductors (2)		Textbook and handout	
5	Energy band theory (1) -Approximateone-dimensionalanalysis		Textbook and handout	
6	Energy band theory (2) -Extrapolationofconceptstothreedimensions		Textbook and handout	
7	Equlibrium carrier statics (1) -Densityofstates		Textbook and handout	
8	Midterm exam			
9	Equlibrium carrier statics (2) -Equilibriumcarrierconcentration		Textbook and handout	
10	Equlibrium carrier statics (3) -ConcentrationandFermilevelcalculations -DeterminationofFermilevel		Textbook and handout	
11	Recombination-generation processes		Textbook and handout	
12	rrier transport (1) -Drift		Textbook and handout	
13	Carrier transport (2) -Diffusion		Textbook and handout	
14	Carrier transport (3) -Continuityequationsanddiffusionequations		Textbook and handout	
15	Final exam			

수험부정행위시, 경북대학교 수험부정행위에관한처벌규정에 의거 그 정상에 따라 수험자격박탈, 근신, 유기·무기정학, 또는 제적 처분될 수 있으니, 각별히 유의하여 주시기 바람.