

Syllabus

Course Information

Instructor Information

Course Code	EE773	Instructor	Il-Sug Chung
Course Title	Compound semiconductor	Office	Bld.106, Rm.401-2
Year/Semester	2018/Spring	Telephone	Available after Feb. 19
School	Electrical and Computer Engineering	E-mail	ischung@unist.ac.kr
Course Classification		Office Hours	Mon 16:00-17:00
Classroom/Class Time	Bld.106, Rm.711 Mon/Wed 16:00-17:15		
Grading Type	Letter grade		

Course Objectives & Description

Compound semiconductors are attractive materials for photonic as well as electronic devices, due to the direct bandgap and high mobility. In this course, we will study fundamental principles to understand and design such devices made of compound semiconductors. As a device example, laser diodes will be studied.

We will use our knowledge from the course to analyze real devices in recent journal papers and present your understanding to peer students (see Journal presentation in Grading below). The lectures will be interactive, encouraging the participation of students in the learning process. Any questions are more than welcome!

This course could be a preparation for Optoelectronics course or Nanophotonics course.

Grading

Journal presentation (10 %) / Presence (10 %) / Midterm exam (40 %) / Final oral exam (40 %)

Text

Category	Book
Title	Semiconductor Optoelectronics: Physics and Technology
Author	Jasprit Singh
ISBN	0070576378
Remarks	Publisher: McGRAW-HILL
Course Reserves Designation	

References

Category	
Title	

Author

ISBN

Remarks

Course Reserves Designation

Weekly Schedule

Week	Contents
Feb 26, 28	Chap 1. Crystal structure and technologies
Mar 5, 7	Chap. 2. Electronic states
Mar 12, 14	Chap. 2. Electronic states
Mar 19, 21	Chap. 3. Doping and carrier transport
Mar 26, 28	Chap. 3. Doping and carrier transport
Apr 2, 4	Chap. 4. Optical properties of semiconductors
Apr 9, 11	Chap. 4. Optical properties of semiconductors
Apr 16-20	Midterm exam
Apr 23, 25	Chap. 5. Excitonic effects
Apr 30, May 2	Chap. 5. Excitonic effects
May 9	Chap. 6. Semiconductor junction
May 14, 16	Chap. 6. Semiconductor junction
May 21, 23	Chap. 10. Laser diode
May 28, 30	Chap.10. Laser diode
Jun 4	Presentations of recent journal papers on compound semiconductor devices
Jun 11-15	Final exam