광주과학기술원

SYLLABUS

Classification	GIST College	Course No.	EC4214-01	Hrs:E:Credits	3/0/3	Instructor	Ham, Byoung Seung
Course Title	Korea	광공학개론					
	English	Introduction to photonics					
Course Outline	This course introduces the basic concepts of photonics (the application and use of light in modern technologies) by discussing four broad themes of properties of light, production of light, detectioin of light and application of light. The scope of lecture include classical properties as well as quantum properties of light.						
Prerequisite							
Textbook & References	Textbook: Photonics and Lasers: an introduction by R.S. Quimby. References: Quantum communcation and qunatum information by Nielsen and Chuang; Optics and photonics by Smith & King						
Etcetera	- Prerequisite: Electromagnetism						

Weekly Course Schedule

Week	Description	*Remarks
1st	Wave description	
2nd	Characteristics of light: polarization, superposition, interference	
3rd	Light description: Jones vectors & matrices, wave partical duality	
4th	continued	
5th	Lasers: Einstein A&B coefficients	
6th	LED, LD, pn junction	
7th	Midterm exam	
8th	Photodetectors: PD, APD, PMT, etc	
9th	continued	
10th	Optical communications	
11th	continued	
12th	Qunatum communications: quantum cryptography	
13th	Qubits, Superposition, Entanglement, Entanglement swapping	
14th	Quantum teleportation, Quantum memory	
15th	special topic	
16th	Final exam	

*If there will be experiments, mark it in the "Remarks" section.

Instructor (seal)

Dept. Chair (seal)