

# EE480 Special Topics in Electrical Engineering : Modern Physics for Electrical Engineers

## Lecture time & room:

- Tuesday/Thursday 09:00 – 10:15
- Bld. 106, Rm. T206

## Instructor

- Prof. Il-Sug Chung
- Office: Bld. 106, Rm. 401-2
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## Course general objective

This course covers introductory subjects of modern physics, which is essential for studying *semiconductor devices* such as photonic devices, electrical devices, and integrated circuits. Principles of quantum mechanics, crystal structures, and statistical mechanics will be studied with various interesting examples in real device applications. This course is adequate for Year 2 students in the EE track and can be a preparation for courses Electronic Devices I, Optoelectronics, and Nanophotonics.

## Textbook

Kenneth S. Krane, *Modern Physics*, 3<sup>rd</sup> edition, John Wiley & Sons

## Pre-requisite

General Physics I, General Physics II

## Grading:

- Class attendance: 5% (F for more than 8 absences)
- Quiz: 25%
- Midterm exam: 35% (Oral exam)
- Final exam: 35% (Oral exam)

## Course Schedule

Week	Subject
1	Particle-like properties of electromagnetic radiation
2	Particle-like properties of electromagnetic radiation
3	Wave-like properties of particles
4	Wave-like properties of particles
5	Models of atoms
6	Models of atoms
7	Hydrogen atom
8	Mid-term exam
9	Hydrogen atom
10	Many electron atoms

11	Many electron atoms
12	Statistical physics
13	Statistical physics
14	Solid-state physics
15	Solid-state physics
16	Final exam