

ELEC-E3140

Semiconductor physics

Autumn 2022

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Lectures Wed 14:15-16, T2 (Computer science building), first
lecture Sep 7

Exercises Tue 14:15-16, 215 (Mechanical engineering building),
starting from Sep 13

Required background

Young, Freedman: University Physics (or similar
university physics book including basics of
quantum mechanics)

Mid-term exams (2x40%) + lecture quizzes (20%) **OR**

Exam (80%) + lecture quizzes (20%) **OR**

Exam/Mid-terms only

- The best grade is calculated automatically from the above options
- Mid-term and full exam have 5 questions: 1 about explanation of terms and phenomena, 3 essay questions, 1 calculation problem
- You can bring one A4 sheet with **handwritten** material into the mid-term exams. For exam, you can bring two similar A4 sheets.

The quizzes are YES or NO type statements about the previous week's lecture.

The quizzes are held on Wednesdays 15:15 Finnish time on MyCourses (so they are after the lecture break). The first one will be on September 14. **So remember to bring an internet device with you to the lecture.**

The quizzes are graded automatically.

This year exercise sessions contain several activities. You can ask about lecture topics, I will show model solutions to the problems, and we can discuss the next week's problems.

Problems are available on the MyCourses page a week before the exercise session.

Table of material parameters will be available on the course webpage.

This year you do not get extra credit for solving the problems, but the exams will contain at least one calculation problem similar to exercise problems.

- **Book** NO specific course book
- **Most closely follows the following books (the first half)**
 - Pallab Bhattacharya, Semiconductor Optoelectronic Devices
 - Jasprit Singh, Semiconductor Optoelectronics
- **Online book (last 2-3 lectures)**
 - C. C. Hu, Modern Semiconductor Devices for Integrated Circuits
 - <http://www.eecs.berkeley.edu/~hu/Book-Chapters-and-Lecture-Slides-download.html>