

Course Syllabus

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Instructor: Professor Dan, Yaping

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Office Hour: 9am-10am Monday and Wednesday

Teaching Assistants:

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Course Description:

This course is designed to introduce the semiconductor devices inside circuits. In the first half part of the course, quantum mechanics as well as basic concepts like doping, Fermi level, energy band in semiconductor analysis will be covered in detail. In the second half part, P-N junction, BJT devices and MOSFETs will be analyzed. From this course, student can get a deep understand about how semiconductor device works and its applications in our daily life.

Course Objectives:

- Have basic concept about what is semiconductor device
- Knowing electron behavior from point of view of quantum mechanics
- Clearly understand the concepts of doping, Fermi level and energy band
- Understand how P-N junction works and its characteristics
- Understand how BJT works and its characteristics
- Understand how MOSFET works and its characteristics

Credits: 4

Course Policies:

Honor Code: All students in the class are bound by the Honor Code of the Joint Institute (see the related sections in JI Student Handbook for details). You may not seek to gain an unfair advantage over your fellow students; you may not consult, look at, or possess the unpublished work of another without their permission; and you must appropriately acknowledge you use of another's work;

Quiz: Quiz will be delivered during the class. Students can discuss problems with other, TAs, instructor or search online, but they should not copy from others.

Assignments: Assignments should be finished on time. If students failed to submit before deadline, they should contact instructor directly to get permissions for late submissions.

Grading Policy:

Quizzes	5%
Assignments	10%
Midterm#1	25%
Midterm#2	25%
Final	35%

total: 100%

Student will fail this course if the total grade is below 50.

The final grades will be curved to be centered at B for the grades above 50.

Midterm and final exams will cover (but not limited to) the content of quizzes and assignments.