

Measurements of Nano and Micro Devices (奈微米元 件量測實驗)

Course level: Graduate students

Pre-requisite: Students are expected to have a bachelor's degree in science- or engineering-related fields

Course goals: This lecture aims on providing operation skill of fundamental facilities for students in order to help students to be ready for their researches.

Text Book:

Handouts or lecture notes will be provided by each lecturer.

Course Outline

1. Introduction
2. Unit one (Prof. Lo and Prof. Yeh): Optical Thin Film: 1. Multilayer Optics 2. Simulation 3. Practice
3. Unit two (Prof. Feng): Microfabrication: 1. Thermal oxidation of silicon 2. Thermal actuator
4. Unit three (Prof. Wang): Semiconductor devices: 1. Principles. 2 Practical device measurements (PN diode, BJT, FET)
5. Unit four (Prof. Chen): 1. Microfluidics 2. Electrophoresis

Grading: Project (Reports, Participation): 70%. Final Exam: 30%

Each lecture handles few weeks during the semester. In those few weeks, oral lectures will be performed by the corresponding lecturer, and practices will be arranged and operated by the students. Corresponding teaching assistants will help the students for the practices.

After the corresponding project, students have to hand in personal reports (homeworks) for evaluation. Before the end of the semester, a final examination will be held.

Students might be divided into several groups to conduct experiments by the TA or the lecturer. Lecture notes are provided either online or offline (print-outs), depending on individual lecturer.