Summary
Objective of this practical is to apply in specific experimental settings the knowledge acquired in various MEMS related class

Content
The practical is organized in several lab experiments. The part I (winter semester) is dedicated to MEMS technology and MEMS simulation:
• Finite element simulation of MEMS
• Design of MEMS actuators
• Fabrication of MEMS actuators
• Characterization of MEMS actuators
• Noise in sensors

The part 2 (spring semester) is dedicated to sensors:
• capacitive accelerometer
• ISFET
• Glucose sensor
• piezoresistive pressure sensor
• Electrokinetic chip

Keywords
MEMS, FEM simulation, microsensors, microtechnology, microactuators, silicon micromachining

Learning Prerequisites
Recommended courses
Capteurs, Advanced MEMS, Materials and technology of microfabrication, Modeling and simulation of microsystems, Nanotechnology, Flexible bioelectronics, Scaling laws in micro- and nanosystems

Learning Outcomes
By the end of the course, the student must be able to:
• Conduct an experiment
• Report on experiments

Transversal skills
• Demonstrate the capacity for critical thinking

Teaching methods
Practicals supervised by assistants

Expected student activities
• Make the experiments
• Use a lab notebook
• Write a short report after each experiment

Assessment methods
• Based on work in the lab, answer to questions during experimental sessions and quality of the report

Supervision
Office hours Yes
Assistants Yes

Resources
Moodle Link
• http://moodle.epfl.ch/course/view.php?id=14283