

5.0 credits

30.0 h + 30.0 h

2q

Teacher(s) :	Francis Laurent ; Raskin Jean-Pierre ; Bayot Vincent (coordinator) ; Flandre Denis ;
Language :	Anglais
Place of the course	Louvain-la-Neuve
Main themes :	Identical to description
Aims :	<p>At the end of the course, the students will be able to :</p> <ul style="list-style-type: none"> - understand the fabrication processes of electronic and electromechanical devices at micro and nanometer scales, - use the numerical simulation tools for running and optimizing fabrication processes, - make themselves micro and nanofabrication steps in cleanrooms <p><i>The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".</i></p>
Content :	<p>The content of this course is the following : description of fabrication processes for semiconductor integrated devices and circuits, material deposition methods, oxidation, implantation, doping, photolithography, electron-beam lithography, wet and dry etching, plasma surface treatments, etc.</p> <p>A first project based on the use of numerical simulation tools will help the students to learn more about modelling of fabrication procedures and characterization of integrated devices.</p> <p>The students will have the opportunity to realize some key fabrication steps of a particular complete process flow in the cleanroom facilities during a second project.</p>
Other infos :	<p>5-6 classroom lectures will be given about the main micro and nanofabrication as well as characterization (electrical and physical) techniques. Afterwards, the students will make 2 projects in groups of 2-3 students depending on the chose subject : (1) process simulations, (2) fabrication/characterization in cleanrooms.</p> <p>Prerequisites : Basic knowledges in electronics, solid-state physics and chemistry</p> <p>Assessment : Oral presentation and writing of a report (about 15-20 pages written as a journal article) for the 2 projects approved by the teachers.</p> <p>Could be given in English</p>
Cycle and year of study :	<p> > Master [120] in Electrical Engineering > Master [120] in Electro-mechanical Engineering > Master [120] in Physical Engineering > Master [120] in Chemical and Materials Engineering > Master [120] in Biomedical Engineering </p>
Faculty or entity in charge:	ELEC