




5 credits

30.0 h + 30.0 h

Q2

Teacher(s)	Francis Laurent coordinator ;Hackens Benoît ;Raskin Jean-Pierre ;
Language :	English
Place of the course	Louvain-la-Neuve
Main themes	Processing of micro and nanoscopic devices, MEMs, NEMs, and integrated circuits : <ul style="list-style-type: none"> <li>• - semiconductor materials and their processing,</li> <li>• - oxidation, ion implantation ionique, doping, metallisation, plasma...</li> <li>• - micro &amp; nanolithography, laser machining, etc.</li> <li>• - micro &amp; nanocharacterisation : SEM, AFM, Ellipsometry, Dektak,...</li> </ul>
Aims	Regarding the learning outcomes of the program of "Master in Electrical Engineering", this course contributes to the development and acquisition of the following learning outcomes : <ul style="list-style-type: none"> <li>• AA1.1, AA1.2, AA1.3</li> <li>• AA2.1, AA2.2, AA2.3, AA2.4, AA2.5</li> <li>• AA3.1 , AA3.2, AA3.3</li> <li>• AA4.1, AA4.2, AA4.3, AA4.4</li> <li>1 • AA5.1, AA5.2, AA5.3, AA5.4, AA5.5, AA5.6</li> <li>• AA6.1, AA6.3</li> </ul> At the end of this course, students will be able to : <ul style="list-style-type: none"> <li>• Design the process of a particular micro &amp; nanoscopic device.</li> <li>• Use process simulation tools</li> <li>• Make specific process steps in the clean rooms</li> <li>• Characterize step results in WinFab and Welcome platforms</li> </ul> - - - - <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>
Evaluation methods	Report and oral exam in group
Teaching methods	A few courses set the ground of major processing techniques. Students then choose a project and design a process based on available informations (iCampus) and bibliography. They interact frequently with a researcher in the field. They finally realize & characterize the designed steps in WinFab and Welcome.
Content	A first step, using simulation tools, allows students to get familiar with processing and characterization of devices.. A second step, in the clean rooms, give the opportunity to realize a few key processing steps, and characterize them.
Inline resources	<a href="https://moodleucl.uclouvain.be/course/search.php?search=LELEC2560">https://moodleucl.uclouvain.be/course/search.php?search=LELEC2560</a>
Bibliography	Supports disponibles sur iCampus
Faculty or entity in charge	ELEC

<b>Programmes containing this learning unit (UE)</b>				
Program title	Acronym	Credits	Prerequisite	Aims
Master [120] in Electrical Engineering	<a href="#">ELEC2M</a>	5		
Master [120] in Physical Engineering	<a href="#">FYAP2M</a>	5		
Master [120] in Chemical and Materials Engineering	<a href="#">KIMA2M</a>	5		
Master [120] in Biomedical Engineering	<a href="#">GBIO2M</a>	5		