UCLouvain

lelec2550

2024

Special electronic devices

5.00 credits	30.0 h + 15.0 h	Q1

Teacher(s)	Bayot Vincent ;
Language :	English > French-friendly
Place of the course	Louvain-la-Neuve
Main themes	Training on special electronic devices. At the R&D level, topics will change every year to track last developments, in phase with students interests for specific devices. Examples : exotic silicon or SOI devices, photovoltaïcs, SiGe, organic and molecular devices, optoelectronics, MEMs-NEMs, RF devices (HEMT, balistic), RTD, SET, sensors...
Learning outcomes	**At the end of this learning unit, the student is able to :** 1 In consideration of the reference table AA of the program "master in electrical engineering ", this course contributes to the development, to the acquisition and to the evaluation of the following experiences of learning: • AA1.1 • AA2.1, AA2.3, AA2.5 • AA3.1, AA3.3 • AA4.1, AA4.2, AA4.3, AA4.4 • AA5.3, AA5.4, AA5.5, AA5.6 • AA6.1, AA6.2, AA6.3 At the end of this course, students will be able to : • Understand the physics underlying special electronic devices (R&D in academic and indutry labs). • Make extended bibliographic searches, critically analyse available informations and synthetize them. • Present their work in written and oral forms.
Evaluation methods	Report + interview (66%) and oral presentation (33%) of the work (scientific seminar format) The report is due in week 13, while the oral presentation and the interview is during week 14.
Teaching methods	- Group or individual work on a topic chosen by the students, and accepted by the course coordinator, in the field of special electronic devices (bibliography, experiments, simulations, and any means useful for in depth understanding of the choosen devices). - Close interactions (individuals or groups) with the coordinator to solve faced problems (topic definition, understanding, bibliography, writing,... (see below)). - Interactions with researchers in UCL and outside UCL. - Training to the writing of a scientific review article in english. A schedule is followed along the semester (informations, plan, content, writing) - Oral presentation - Publication on the Web (if wished by the students).
Content	Devices are choosen by the students, in agreement with the coordinator.
Inline resources	https://moodleucl.uclouvain.be/course/search.php?search=lelec2550
Bibliography	Recherches bibliographiques sur le web et dans des revues scientifiques, livres L'utilisation d'outils d'intelligence artificielle n'est pas interdite si elle est faite intelligemment. Elle doit permettre une meilleure compréhension du thème abordé. La discussion qui suivra l'exposé oral permettra de vérifier le degré de compréhension effectif.
Other infos	Background in physics of electronic devices.
Faculty or entity in charge	ELEC

Programmes containing this learning unit (UE)

Program title	Acronym	Credits	Prerequisite	Learning outcomes
Master [120] in Chemical and Materials Engineering	KIMA2M	5		
Master [120] in Electrical Engineering	ELEC2M	5		
Master [120] in Physical Engineering	FYAP2M	5		
Advanced Master in Nanotechnologies	NANO2MC	5		