UCLouvain

lelec2590

2026

Seminars in electronics and communications

3.00 credits	30.0 h	Q2

Teacher(s)	Flandre Denis ;Huynen Isabelle ;Louveaux Jérôme ;
Language :	English > French-friendly
Place of the course	Louvain-la-Neuve
Main themes	This course takes place in the ELEC specialization in electronics, microwaves and telecommunications. The exact subjects vary each year depending on participants and latest developments in industry and research. The focus is on the discussion of R&D topics answering to future industrial needs.
Learning outcomes	**At the end of this learning unit, the student is able to :** 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, AA1.2, AA1.3 • AA2.1, AA2.2, AA2.3, AA2.4, AA2.5 • AA3.1, AA3.2, AA3.3, AA 3.4 • AA4.1, AA4.2, AA4.3, AA 4.4 • AA5.1, AA5.2, AA5.3, AA5.4, AA5.5, AA5.6, AA5.7 • AA6.1, AA6.2, AA6.3, AA6.4 At the end of the seminars series, debates and personal work, the students will have a global view on the most recent developments in their domain of expertise, i.e., electrical engineering. They will be able to : • realize a review of the state-of-the art on a given problem or technology following a methodology and criteria typically used in R&D assessment; • make a comparative and quantitative evaluation of the performances, including the balance between pros and cons, and taking in view current or forthcoming transfer to industry. Predictions and characterizations using tools and softwares available in the frame of the ELEC education program (Matlab, Comsol, ADS, etc...) is encouraged; • make oral (slides) and written (report) presentations of the group work.
Evaluation methods	Evaluation is based on a personal work (usually in a group of 2 or 3 students), on a subject approved by the teachers. The work is the subject of an oral presentation (using slides) and the writing of a synthesis report (about 15 to 20 pages per student written as a journal article, including references). The project marks might be individualized depending on the participation/presence of each student of a group in the course. The project might be represented (and hence improved) in 2nd session. The project must be the original production of the group : plagiarism of sources (including other works of students) is obviously forbidden and the use of generative AI (e.g. chatGPT) is strongly not recommended (including to improve the text of the report). Its partial use must be documented as the any other source of information.
Teaching methods	The course proposes a series of lectures related to the most recent research subjects and industrial activities in the field of the electrical engineering given by various actors (university, research center, SME, major industry, start-up), in presence, as long as rules allow. In parallel, students work in group of 2 or 3 on a subject chosen in agreement with the teachers and with the specific topics of the course. They have the opportunity of frequent interactions with teachers (individual or collective - course) to solve the faced problems, as well as with researchers of the UCL laboratories (and collaborations outside UCL).
Content	As explained before, the thematics of the proposed seminars will be defined each year and then could change depending on the progresses of the related fields in electrical engineering. The aim is to offer the students a place of exchanges and education on hot topics not yet taught in courses in electronics, microwaves and telecommunications, furthermore bridging these electricity sub-domains. Les sujets abordés seront en rapport étroit avec les développements récents et futurs de l'industrie et de la recherche universitaire qui mettent en oeuvre, de manière croisée, les domaines précités. At the end of the seminars series, debates and personal work, the students will have a global view on some of the most recent developments in their domain of expertise, i.e., electrical engineering. They will analyze and discuss the evolution of the technologies and products in comparison to recently-published scientific results. The content of the presentations given by the external lecturers and of the student groups' projects can widely address economical, societal and environmental interests and impacts of new technologies and applications of electrical engineering, as well as their critical questionning in terms of, not only, technical feasibility or financial rentability, but also ethics, life cycle analyses ....

Inline resources	https://moodle.uclouvain.be/course/view.php?id=645
Bibliography	Supports Transparents de chaque séminaire disponibles au plus tard la veille sur Moodle
Other infos	Basic education in electronics, microwaves and telecommunications. Specialized education in one of the above domains of electricity.
Faculty or entity in charge	ELEC

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Master [120] in Electrical Engineering	ELEC2M	3		
Master [120] in Electro-mechanical Engineering	ELME2M	3		
Master [120] in Mathematical Engineering	MAP2M	3		