




Due to the COVID-19 crisis, the information below is subject to change, in particular that concerning the teaching mode (presential, distance or in a comodal or hybrid format).

5 credits	30.0 h + 30.0 h	Q1
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Teacher(s)	Flandre Denis (coordinator) ;Oestges Claude ;
Language :	French
Place of the course	Louvain-la-Neuve
Aims	<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	<b>Due to the COVID-19 crisis, the information in this section is particularly likely to change.</b> The "transmission lines" part and the "electronic devices" part each count for half of the final mark, unless a major gap is noted between both parts. A dispensatory exam is normally (cfr. Moodle) organized in November for the "transmission lines" part (exercises, with a form). In this case, the students who obtained more than 12/20 in this exam can choose to keep or not their mark (for this part) for the January and / or August sessions (this mark is however not carried over to the following academic year). The evaluation of the electronic devices part consists of the written exam organized in session, and possibly of written tests carried out during the quadrimester.
Teaching methods	<b>Due to the COVID-19 crisis, the information in this section is particularly likely to change.</b> The course is organized around theoretical courses and exercise sessions (face-to-face or distance learning, depending on the sanitary situation).
Content	The first part of the course outlines the tools required to solve electromagnetics and transmission line problems and enables students to put these tools into practice. Much attention is paid to the process of modeling practical problems and their equationing. The second part dedicated to electronic devices uses a similar approach. The equations are adapted and simplified in the case of semiconductors. On this basis, the physics of usual semiconductor devices is equated and the results compared to their real characteristics. The validity conditions of simple models, their limits and second-order corrections are widely discussed.
Inline resources	Moodle <a href="http://moodleucl.uclouvain.be/course/view.php?id=7790">http://moodleucl.uclouvain.be/course/view.php?id=7790</a>
Bibliography	Livre de référence pour la partie "lignes de transmission" : Engineering Electromagnetics, Hayt et Buck, McGraw Hill, 7e édition, ainsi que des extraits disponibles sur moodle. Notes sur Moodle pour la partie "dispositifs électroniques". Quelques livres de référence sont disponibles à la BST : « Physique des dispositifs semi-conducteurs », De Boeck Université, J.-P. Colinge et F. Van de Wiele « Operation and modeling of the MOS transistor », Y. P. Tsividis, McGraw-Hill Book Company. "Physics of semiconductor devices", S. M. Sze, Wiley.
Faculty or entity in charge	ELEC

### Force majeure

Teaching methods	No change.
Evaluation methods	Un examen de modalité adaptée sera simultanément proposé aux étudiant/es pouvant faire valoir préalablement à l'examen une impossibilité de participer à l'examen organisé sur site, impossibilité attestée par un certificat médical de quarantaine. Cet examen distanciel parallèle sera identique à l'examen présentiel mais comportera un examen oral complémentaire. En cas de force majeure empêchant la tenue d'un examen présentiel, l'examen distanciel sera généralisé à l'ensemble des étudiants.
Other infos	See moodle for logistic details.

<b>Programmes containing this learning unit (UE)</b>				
Program title	Acronym	Credits	Prerequisite	Aims
Specialization track in Electricity	<a href="#">FILELEC</a>	5		
Minor in Electricity	<a href="#">LMINOELEC</a>	5		
Minor in Engineering Sciences: Electricity (only available for reenrolment)	<a href="#">MINELEC</a>	5		
Master [120] in Physical Engineering	<a href="#">FYAP2M</a>	5		