

5.0 credits	30.0 h + 30.0 h	2q
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Teacher(s) :	De Jaeger Emmanuel ; Janssens Noël ;
Language :	Français
Place of the course	Louvain-la-Neuve
Main themes :	Identical to description
Aims :	<p>- To introduce the future engineer into the design, the computation and the exploitation of electric power systems, - To give a basic training on the electric power systems in use in the industrial environment (large industry or SME), as well as in the generation, transmission and distribution companies, or designed in engineering consultancies.</p> <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 :	<ul style="list-style-type: none"> <li>- Signals : speech, audio, image, video, data</li> <li>- Analysis of the electromagnetic fields in transmission lines, fundamental parameters of lossless and lossy transmission lines</li> <li>- Fundamental equations of transmission lines in harmonic regime : voltage, current, line impedance, reflection coefficient and voltage standing wave ratio</li> <li>- Construction and use of the Smith Chart, matching methods</li> <li>- Line matching and conjugate matching, power transfer</li> <li>- Calculation of transients on transmission lines</li> <li>- Noises : thermal noise, impulse noise</li> <li>- Signals and systems : analytic signal, complex envelope, random signals</li> <li>- Decibels</li> <li>- Analog modulations : DSB (SC), SSB, VSB, demodulation, noise effect, frequency change</li> <li>- Angle modulations : FM (narrow and wide band), demodulation, noise effect, capture, threshold effect</li> <li>- Superhétérodyne receiver</li> </ul>
Other infos :	<p>Teaching method :</p> <ul style="list-style-type: none"> <li>- Interactive course, based on a thorough professional experience in the domain,</li> <li>- Practical exercises proposed via Internet + training together</li> <li>- Computer computations on power flows, voltage control and frequency control in a meshed network (two students teams).</li> </ul> <p>Prerequisites :</p> <p>Nihil</p> <p>Assessment :</p> <p>Report of the computer computations and related topics Written (theory + exercise) and oral examination the same half-day</p>
Cycle and year of study :	<p><a href="#">&gt; Master [120] in Electro-mechanical Engineering</a></p> <p><a href="#">&gt; Master [120] in Electrical Engineering</a></p>
Faculty or entity in charge:	ELEC