




5.00 credits

30.0 h + 30.0 h

Q1

Teacher(s)	Andraud Martin ;Flandre Denis ;
Language :	French
Place of the course	Louvain-la-Neuve
Prerequisites	<i>The prerequisite(s) for this Teaching Unit (Unité d'enseignement – UE) for the programmes/courses that offer this Teaching Unit are specified at the end of this sheet.</i>
Learning outcomes	
Evaluation methods	An oral or written exam (depending on the session) will be organized, in addition to a possible ongoing evaluation. Works on Moodle or Gradescope are <b>compulsory</b> and <b>individual</b> . They count for 4 points in the final mark of the January and August exams. The mark obtained for the works cannot be changed for the August session. On-going evaluation works lead to a unique global mark. The non-respect of methodological guidelines, as defined on moodle, in particular with regards to personal production or fraud, for any work leads to a global mark of 0 for the on-going evaluation part.
Teaching methods	Learnig is based on lectures, mantarory personal homeworks (SPICE simulation and practical experiments on circuits) and exercise sessions.
Content	<ul style="list-style-type: none"> <li>• Diode</li> <li>• Bipolar and MOS transistors</li> <li>• One-transistor amplifiers (bipolar and MOS), study of three basic configurations</li> <li>• Frequency response</li> <li>• Operational amplifier in CMOS and its basic building blocks (differential pair, current mirrors, active load, frequency response)</li> <li>• Operational amplifierwith bipolar transistors and its basic building blocks (differential pair, current mirrors, active load, frequency response)</li> <li>• Digital Circuits:                             <ul style="list-style-type: none"> <li>• Abstraction for digital electronics</li> <li>• Basic circuits (CMOS inverter, logic gates)</li> <li>• Sequential and combinational locig</li> <li>• Mémoires: latch, D Flip-flop SRAM, DRAM, ROM, Flash</li> <li>• Simple micro-architectures and elementary processors</li> </ul> </li> </ul>
Inline resources	<a href="https://moodle.uclouvain.be/course/view.php?id=577">https://moodle.uclouvain.be/course/view.php?id=577</a>
Bibliography	- Notes de cours sur le site Moodle - Microelectronic Circuits by Sedra/Smith - Oxford University Press - CMOS Circuit Design, Layout, and Simulation, Third Edition - R. Jacob Baker - Wiley-IEEE Press
Faculty or entity in charge	ELEC

<b>Programmes containing this learning unit (UE)</b>				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Specialization track in Electricity	<a href="#">FILELEC</a>	5		
Master [120] in Mechanical Engineering	<a href="#">MECA2M</a>	5		
Minor in Electricity	<a href="#">LMINOELEC</a>	5		
Mineure Polytechnique	<a href="#">MINPOLY</a>	5		