




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	<p>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 compulsory and individual. 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.</p> <p>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.</p>
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"> • Diode • Bipolar and MOS transistors • One-transistor amplifiers (bipolar and MOS), study of three basic configurations • Frequency response • Operational amplifier in CMOS and its basic building blocks (differential pair, current mirrors, active load, frequency response) • Operational amplifiervith bipolar transistors and its basic building blocks (differential pair, current mirrors, active load, frequency response) • Digital Circuits: <ul style="list-style-type: none"> • Abstraction for digital electronics • Basic circuits (CMOS inverter, logic gates) • Sequential and combinational locig • Mémoires: latch, D Flip-flop SRAM, DRAM, ROM, Flash • Simple micro-architectures and elementary processors
Inline resources	https://moodle.uclouvain.be/course/view.php?id=577
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

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Specialization track in Electricity	FILELEC	5		
Master [120] in Mechanical Engineering	MECA2M	5		
Minor in Electricity	LMINOELEC	5		
Mineure Polytechnique	MINPOLY	5		