

4.0 credits	30.0 h + 15.0 h	2q
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Teacher(s) :	Louveaux Jérôme ;
Language :	Français
Place of the course	Louvain-la-Neuve
Inline resources:	http://icampus.uclouvain.be/claroline/course/index.php?cid=ELEC2930_001
Prerequisites :	Basic knowledge in electricity (circuits) and mathematics (Fourier transform). <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>
Main themes :	-- Signals used in telecommunications -- Propagation -- Modulations -- Telecommunications systems (GSM/3G/4G, Wifi, xDSL) -- Error correcting codes -- Cryptography
Aims :	AA1.1, 1.3, 5.2 At the end of the course, the student will be able to : -- Describe the various signal formats used in major telecommunications systems. -- Understand and explain the main characteristics of a communication channel (wired or wireless). -- Perform a simple link budget. -- Understand and explain the basic modulation schemes (digital and analog). -- Understand and explain the basic concepts used in some common communication systems : GSM/3G/4G, Wifi, xDSL. -- Understand, explain and compute the basics characteristics of error correcting codes. -- Identify and describe the basic elements of a simple communication scheme. <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 :	The exam is individual and written. The questions are based on the objectives described above and focus on the understanding and ability to explain the various concepts taught during the course (as opposed to pure memorization). The exam duration is around 3 hours.
Teaching methods :	The course contains 14 lecture sessions. 3 exercice sessions.
Content :	- Introduction : signals in telecommunications - Basis of line theory ; description of most common cables - Propagation, antennas and link budget - Analog modulations (AM, FM) - Digital modulations - TV and radio systems - Error correcting codes - Data compression - Cryptography - Mobile communications (GSM,3G, Wi-fi)

	- xDSL
Bibliography :	Slides available on iCampus
Faculty or entity in charge:	ELEC

Programmes / formations proposant cette unité d'enseignement (UE)				
Intitulé du programme	Sigle	Credits	Prerequis	Acquis d'apprentissage
Master [120] in Electro-mechanical Engineering	ELME2M	4	-	
Bachelor in Computer Science	SINF1BA	4	LMAT1111F and LMAT1111E and LSINF1140 and LSINF1101 and LSINF1102 and LSINF1103	
Minor in Scientific Culture	LCUSC100I	4	-	