







ELECTRONICS_S6 Spring Semester Undergraduate/Junior	Electronics and components	6 credits Lab: 33% Final exam: 66% (3h)
This course aims at providing the basic notions in understanding electronic systems and follows the Electronics S5 module. Outcomes and skills are therefore the same. It also allows the students to understand the physical phenomena that take place in semiconductors and modelize them.		
Prerequisite: Electronics S5		

DEP_1321	Solid-state Physics	Language  
Lecture: 20	Tutorials: 12, TDM 8	
The aim of the course is to enable students to understand a model of electrical components in terms of physical phenomena within the material itself.		
<ul style="list-style-type: none"> - Crystal structures - Energy bands in solids: statistics in semiconductors, charge carriers dynamics in crystals - Population in thermodynamic equilibrium, Fermi surface - Effective mass - Intrinsic and Extrinsic semiconductors - Non-equilibrium semiconductors - Conduction & Diffusion currents, generation & recombination phenomena - Continuity equation - Classical devices: diodes, bipolar transistors, FET - Applications 		

DEP_1322	Analog electronics II	Language  
Lecture: 10	Tutorials: 10	
Transistor amplifiers: dynamics		
<ul style="list-style-type: none"> - Optimal operating point: bipolar transistor and FET - Power Amplifiers classes, efficiency - Introduction to Microelectronics - Differential structures - Differential pair, current sources (discrete & integrated), active loads, operational amplifier intern design - Active & Passive filters synthesis - Frequency and impedance normalization, transposition - Butterworth, Tchebychev approximation - Active & Passive filters synthesis - Sensitivity 		

DEP_1323	Physics & Electronics Lab	Language  
		Lab work :20
Lab work sessions illustrate the two lectures of the module.		
<ul style="list-style-type: none"> - Electronic components modelization - Power amplification, integrated structures - Active filters conception & simulation 		