


OPTION_S8 Spring Semester Graduate	Option S8	6 credits Individual work: 50% Group work: 50%
Prerequisite: none		

DEP_2805	Microelectronics	Language 
Lecture: 36		Lab work: 28
<p>This elective course introduces the technological processes involved to produce integrated circuits. In the context of MOS or mixed MOS & bipolar transistor high performance, or FPGA targets, the design of analog and digital circuits is revisited. A rigorous method is presented to meet design goals (algorithms, performances, environment, and constraints) and achieve a physical realization.</p> <p>Contents</p> <ul style="list-style-type: none"> • Presentation of technological processes for IC, introduction to nanotechnologies • Workshop in a clean room, prototyping and characterization of a basic IC • MOS Transistor, CMOS technology • Introduction to design methods (full custom, semi-custom, prediffused). Design-flow • Topology for integrated analog circuits: Op Amps, OTA. Design of state variables filters: gm-C and switched-capacitors approach. Translinear amplifiers, Gilbert multipliers. • Initiation to Computer Aided Design in industrial environment: Cadence and its tools • Full custom CAD of a simple analog function • Innovative architectures: systems on chip <p>Laboratory project</p> <ul style="list-style-type: none"> • SOC programming <p>Partner : CEMIP (CNFM), ESIEE Paris</p>		