

Introductory document for ELENE 6302 : MOS Transistors

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Hello to all,

My name is Christos Vezyrtzis and I will be delighted to be your course manager for this summer's course ELENE 6303: MOS Transistors, the course being taught (on video) by Professor Yannis Tsividis. Thank you in advance for your choice to participate in the course.

The course will thoroughly analyze the typical MOS transistor structure, starting from basic principles and continuing to every detail. Today, MOS transistors are an indispensable piece of the electronics industry and large efforts are being put in the process of both improving and fully understanding their electrical characteristics (especially the way they scale). This course gives a complete insight to the process of MOS transistor modeling, which can offer a much better understanding of various phenomena in circuit design.

During the semester, homework assignments (in the form of book problems) will be assigned on a weekly basis. Typical assignments will include both mathematical problems (dealing with modeling equations) and arithmetic assignments (for which you can use any numerical program such as MATLAB).

A project will also be included in the class assignments, which will also deal with some aspect of the modeling process (an example of such issue would be parameter extraction or estimation). All students are highly encouraged to be familiarized with the use of numerical programs (MATLAB being preferred due to my ability to assist you with its use and provide some feedback), since you will have to deal with increased numerical complexity for the completion of your project.

Dealing with the numerical aspects of the course now, the grading will be based on the following scale:

- Homework problem sets (that will consist of problems from the text- book (15%))
- A summer project that will deal with an implementation of a code relevant to our course(25%)
- Midterm(20%) and Final(40%) exams

The textbook for this course will be Operation and Modeling of the MOS Transistor and for this course the entire material will be covered.

Please feel free to contact me for further inquiries. I hope that you will (as I did) enjoy this course.

Christos Vezyrtzis