

Department of Electrical Engineering

Course ECSE 485 Winter 2007

IC Fabrication Laboratory

Instructor : I. Shih
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Lecture : Wednesday 10:35 - 11:25 (Trottier 2120)
Laboratory : TBA (McConnell 707)

Prerequisite : 304-334 Electronic circuit II
455-206 Communication in Engineering
Corequisite : 304-435 Physical Basis of Transistor Devices or
304-533 Physical Basis of Semiconductor Devices

Teaching Assistants : (simulation) Han-Jen Yang: han-jen.yang@mail.mcgill.ca
(fabrication) Yi Chen: yi.chen2@mail.mcgill.ca

Course web: <http://www.ece.mcgill.ca/~info485/>
(Students are responsible to visit the course website regularly for course news)

Text/Reference:

Introduction to microelectronic fabrication 2nd edition (Volume V, Modular series on solid state devices) by Richard C. Jaeger, Addison-Wesley publishing company 2002

Simulation Software Package:

Student version of *MicroTec: Semiconductor Process and Device Simulator* from [SiBorg](#)

Course Description:

Fundamental principles and computer simulation of essential processes for silicon semiconductor device fabrication: etching, diffusion, photolithography.

The course is subdivided into two groups*:

- (1) Fabrication and electrical characterization of simple MOS devices.
- (2) Design, simulation and optimization of MOS devices.

* Students will be divided into two groups: fabrication and simulation.

Grading:

<u>Fabrication</u>		<u>Simulation</u>	
Quiz 1	10%	Quiz 1	10%
Quiz 2	10%	Quiz 2	10%
Lab performance	25%	Simulation result	25%
Regular Presentation	10%	Regular Presentations	10%
Final Report	35%	Final Report	35%
Final Presentation	10%	Final Presentation	10%

ATTENDANCE

Attendance is required for all scheduled presentation. If no valid explanation (medical) is provided for missing a class, 1% will be deducted off the final mark.

Grade Breakdown

Quizzes:

Quiz 1: TBA

Quiz 2: TBA

Description: Quizzes consist of short questions, which focus on the understanding of silicon device process technology. Students are responsible for the reading material assigned (Required reading: Reference text chapter 1 to 9 inclusively). Each quiz will be worth 10% of the final course mark.

Final Report: TBA

Final Presentation: TBA

Lab Performance

Description: Applies to students in Fabrication group only. Grading scheme is based on familiarity with fabrication process, understanding of process principle and participation.

Simulation Result

Description: Applies to students in Simulation group only. Grading scheme is based on familiarity of simulation software, presentation contents and organization, simulation results and understanding of parameters governing device processing.