

MT 200 Semiconductor Processing - Syllabus

Spring 2020

This is a web based syllabus and is best viewed/utilized on-line

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Course Description: Semiconductor Processing Explores aspects of semiconductor processing. Covers semiconductor device design (photo-voltaic cells, diodes, bipolar and MOSFET transistors) and the following manufacturing processes: oxidation, lithography, etch, doping, deposition, planarization, and test/sort.

Credits: 3

Text Book: Use your MT Intro textbook. Several texts on the subject are also available from the library collection and on reserve.

Prerequisites: MT102 Intro to Semiconductor Devices, MT103 Intro to Micro and Nano Processing or MT104 Intro to Solar Voltaic Processing, MT240 Plasma Technology, COMM130 Business and Professional Speech Communication or COMM215 Small Group Communication, or instructor permission

Outcomes: students will be able to:

- Monitor and maintain device production by recognizing how they look and function in silicon planar technology, including: resistors, capacitors, diodes, PV cells, and MOSFET transistors
- Monitor and maintain device production by following the manufacturing flows to create these devices
- Develop increasing competence in an assigned production area by researching various aspects, such as: effects on device structure, relationship to process flow, resulting film properties, process mechanisms, effects of process inputs and settings, interactions between processes, equipment used, equipment options, process monitoring.
- Enhance production and maintenance teams by presenting these topics to teammates so that they can understand, and similarly learning other processes and topics from teammates.

Recording: Given students potentially limited access to internet, I plan to record our sessions together for viewing later. These recordings will only be visible to those enrolled in this class, and students have the option for additional layers of privacy by renaming themselves in the Zoom room, muting their video, and muting their audio. If you have any concerns or questions, please let me know

Instructional Program: The focus of the student in this course is to explore a particular process used in semiconductor manufacturing, including process parameters, equipment configuration, logistics and issues in operation. The first half of the term will be lectures by the instructor on devices, circuits and manufacturing flows. The second half will be presentations based on student research. All students will be responsible for all material presented in class. Besides the course project, there will be daily quizzes, one midterm, and a final exam.

Grading:

Homework	20%	88 – 100% of total points	A
Quizzes	10%	75 – 88% of total points	B
Midterm Exam	15%	65 – 75% of total points	C
Project	30%	55 – 65% of total points	D
Final Exam*	25%	< 55% of total points	F

*Final will be optional for those with an A or B average.

Other:

- No phones, not even in vibrate mode
- Attendance: counts as participation. Please see me regarding any class you must miss. You are responsible for all material presented in class.
- The classroom is open – come and go, as you need.
- Assignments and exams can only be made up by prearrangement. Work submitted late will be penalized 5% per day.
- Tests and quizzes are closed book, one hand written crib sheet (8.5”x11”) allowed
- Assignment/exam calendars may be changed in response to the weather or institutional problems.
- If you have an accommodation form from Disability Services (DAS) [www.pcc.edu/resources/disability], please make arrangements to meet with me privately at the beginning of the term to discuss your needs.
- Grades are assigned based on the PCC grading policy [<http://www.pcc.edu/resources/academic/standardspractices/AcademicStandardsandPractices-GradingGuidelines.html>]. Students should be aware of the grading options and the associated deadlines.
- Academic Integrity: Submitting improperly cited work copied from other sources is a violation of PCC's Code of Student Conduct [<http://www.pcc.edu/about/policy/student-rights/documents/student-conduct.pdf>] and Academic Integrity policy [<http://www.pcc.edu/about/policy/student-rights/documents/academic-integrity.pdf>]. All work submitted (homework, presentations) should be the student's original work. Any assignment in violation will receive a zero.
- Here are some other items you should know as a PCC student: <http://catalog.pcc.edu/handbook/s704-syllabus-standardsforcreditcourses/>