

Course Syllabus

Course Information

Course Number/Section	EEMF/MSEN 6322 / MECH 6348
Course Title	Semiconductor Processing Technology
Term	Fall 2023
Days & Times	MW 11:30am - 12:45pm
Place	ECSN 2.110 + Sessions are streamed and recorded via elearning collaborate

Professor Contact Information

Professor	Siavash Pourkamali
Office Phone	(972) 883-4532
Other Phone	n/a
Email Address	siavash.pourkamali@utdallas.edu
TA Email Address	TBD
Office Location	NSERL 3.414
Office Hours	By Appointment, email me with 2-3 timeframes that match your schedule, both virtual and in person appointments possible

Course Pre-requisites, Co-requisites, and/or Other Restrictions

None.

Course Description

Modern techniques for the manufacture of semiconductor devices and circuits. Techniques for both silicon and compound semiconductor processing are studied as well as an introduction to the design of experiments. Topics include: wafer growth, oxidation, diffusion, ion implantation, lithography, etch and deposition.

Required Textbooks and Materials

Required Texts

- No required textbook

Suggested Texts (These books are reserved in the McDermott Library. You may borrow these books for 2 hours. You may recheck if the books are not reserved by other students.)

- "Silicon Processing for the VLSI Era, Vol. 1: Process Technology" 2nd edition, Stanley Wolf, Richard N. Tauber. Lattice Press, 1999. ISBN: 0961672161
- "Silicon VLSI Technology" Plummer, J., M. Deal, P. Griffin. Prentice Hall, 2000. ISBN: 0130850373

Additional Course Materials

1. Slides and necessary materials will be available for download through the eLearning.

Approximate Course Schedule: Readings are based on Wolf/Tauber, but lectures may lead or lag.

Topics	<ul style="list-style-type: none">• Introduction• Silicon, crystal growth and defects (Ch. 1, 2)• Contamination control and cleaning (Ch. 5)• Lithography (Ch. 12, 13)• Oxidation (Ch. 8)• Diffusion (Ch. 9)• Ion implantation (Ch. 10)• Basics of thin films (Ch. 4)• Chemical vapor deposition (Ch. 6)• Physical vapor deposition (Ch. 11)• Dry etching (Ch. 14)• Multilevel interconnects (Ch. 15)
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Grading Policy

10 %	HWs
25 %	Midterm Exam
40 %	Final Exam
20 %	Term paper/presentation
5+5% Extra	Attendance
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100 + 5% Extra	

Attendance is required: Sign-in sheets will be circulated in every class throughout the semester. Two unexcused absences allowed without penalty. Each unexcused absence beyond two is penalized 1 point. If you have unexcused absences more than 7 times, there is no extra credit and 1 point will be continually deducted for each absence.

Course Policies

Make-up exams: Students MUST get pre-approval from the instructor for exams or receive a score of zero.

Late Work: Late work will be penalized by 25% per day beyond the deadline (no credit if more than 3 days late).

Class Attendance: Mandatory. For excused absence, pre-approval from the instructor is required.

Comet Creed

This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same: "[As a Comet, I pledge honesty, integrity, and service in all that I do.](#)" **It is very important for participating students in online class to keep their Comet Creed pledge.**

UT Dallas Syllabus Policies and Procedures

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus. Please go to <http://go.utdallas.edu/syllabus-policies> for these policies.

Student Accessibility

"It is the policy and practice of The University of Texas at Dallas to make reasonable accommodations for students with properly documented disabilities. However, written notification from the Office of Student AccessAbility (OSA) is required. If you are eligible to receive an accommodation and would like to request it for this course, please discuss it with me and allow one-week advance notice. Students who have questions about receiving accommodations, or those who have, or think they may have, a disability (mobility, sensory, health, psychological, learning, etc.) are invited to contact the Office of Student AccessAbility for a confidential discussion. OSA is located in the Administration Building, suite 2.224. They can be reached by phone at 972- 883-2098, or by email at studentaccess@utdallas.edu.

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.
