

EE-4231 Solid State Physical Electronics

Instructor	A.K. Goel; EERC-235; 487-2868; goel@mtu.edu
Course Description	Device physics and modeling of the basic solid state devices. Pre-Requisite: EE-3130
Course Web Site	www.ee.mtu.edu/faculty/goel/EE-4231/
Class Time	11:05-11:55 PM (M, W, F); EERC-218
Office Hours	Immediately after class or by appointment
Textbook	<i>Solid State Electronic Devices</i> by Streetman & Banerjee

LECTURE TOPICS

1. Crystal Properties of Semiconductors (Ch. 1 & Notes)
2. Quantum Mechanics of Atoms and Electrons (Ch. 2 & Notes)
3. Energy Bands and Charge Carriers in Semiconductors (Ch. 3 & Notes)

First Examination: Wednesday, October 21, 6-7:30 PM, EERC-103
No Class Day - TBA

4. Excess Carriers in Semiconductors (Ch. 4 & Notes)
5. PN Junctions, Metal-Semiconductor Junctions (Ch. 5 & Notes)

Second Examination: Thursday, December 3, 6-7:30 PM, EERC-103
No Class on Friday, December 11

6. Field-Effect Transistors (Ch. 6 & Notes)

Third Examination: Thursday, December 10, 6-8 PM, EERC-103

GRADING

First Examination	100 points
Second Examination	100 points
Third Examination	150 points (Comprehensive)
Quizzes & Home Work	50 points (<i>Surprise Quizzes</i>)
Total	400 points

Course Syllabus - Other Information

Grading System

<i>Letter Grade</i>	<i>Percentage</i>	<i>Grade Points</i>	<i>Rating</i>
A	93% & above	4.00	Excellent
AB	88% – 92.99%	3.50	Very good
B	82% – 87.99%	3.00	Good
BC	76% – 81.99%	2.50	Above average
C	70% – 75.99%	2.00	Average
CD	65% – 69.99%	1.50	Below average
D	60% – 64.99%	1.00	Inferior
F	59.99% and below	0.00	Failure
I	Incomplete; given only when a student is unable to complete a segment of the course because of circumstances beyond the student's control. A grade of incomplete may be given only when approved in writing by the department chair or school dean.		
X	Conditional, with no grade points per credit; given only when the student is at fault in failing to complete a minor segment of a course, but in the judgment of the instructor does not need to repeat the course. It must be made up within the next semester in residence or the grade becomes a failure (F). A (X) grade is computed into the grade point average as a (F) grade.		

Late Assignments

Home work and other assignments are due at the beginning of the class on the due date. Late assignments will not be accepted unless excused in advance.

Collaboration/Plagiarism Rules

All graded work must be done independently.

Cell phones, Blackberries, iPods, PDAs, or any other electronic devices are not to be used in the classroom during lectures or examinations. Please turn these devices off before entering the classroom. Please make sure to bring a calculator with you to class. Calculators on other devices are strictly prohibited. Information exchange on these devices during class/examination is also prohibited and violates the Academic Integrity Code of Michigan Tech.

University Policies

Academic regulations and procedures are governed by University policy. Academic dishonesty cases will be handled in accordance with the University's policies.

If you have a disability that could affect your performance in this class or that requires an accommodation under the Americans with Disabilities Act, please see me as soon as possible so that we can make appropriate arrangements. The Affirmative Action Office has asked that you be made aware of the following:

Michigan Tech complies with all federal and state laws and regulations regarding discrimination, including the Americans with Disabilities Act of 1990. If you have a disability and need a reasonable accommodation for equal access to education or services at Michigan Tech, please call the Dean of Students Office, at 487-2212. For other concerns about discrimination, you may contact your advisor, department head or the Affirmative Action Office, at 487-3310

Academic Integrity:

http://www.studentaffairs.mtu.edu/dean/judicial/policies/academic_integrity.html

Affirmative Action:

<http://www.admin.mtu.edu/aa/>

Disability Services:

http://www.admin.mtu.edu/urel/studenthandbook/student_services.html#disability

Equal Opportunity Statement:

<http://www.admin.mtu.edu/admin/boc/policy/ch3/ch3p7.htm>