

Massachusetts Institute of Technology  
Department of Electrical Engineering and Computer Science

**6.012 Microelectronic Devices and Circuits**

Spring 2007

GENERAL INFORMATION

**Staff:**

LECTURER:	Prof. Charles G. Sodini	Rm. 39-527B	x3-4938	<a href="mailto:sodini@mtl.mit.edu">sodini@mtl.mit.edu</a>
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**Lectures:** Tuesday and Thursday, 11 AM, Room 34-101.

**Recitations:** Wednesday and Friday, 10 AM, 11 AM, Room 26-204, 1 PM Room 36-153.

**Tutorials:** The TAs will conduct one-hour tutorial sessions each week for small groups of students. Times and rooms to be arranged shortly.

**Required Text:**

R.T. Howe and C.G. Sodini, "Microelectronics: An Integrated Approach," Prentice-Hall, 1997.

**Reference Text:**

C.G. Fonstad, "Microelectronic Devices and Circuits", McGraw-Hill, 1994.

Neudeck & Pierret, "Modular Series on Solid State Devices," Vols. 1-4, Addison-Wesley, 1983.

Sedra and Smith, "Microelectronic Circuits", Fourth Edition, Oxford University Press, 1998.

Horenstein, "Microelectronic Circuits and Devices", Prentice-Hall, 1996.

**Handouts:** Lecture notes will be available on the Web.

## GRADING

All the items below will enter into the computation of the final grade.

**Quizzes:** Two evening quizzes will take place on Wednesday, March 14, and Wednesday, April 25, from 7:30 to 9:30 PM in 50-340 (Walker Memorial). There will be no formal recitation sessions on March 14 or April 25. The instructors will be available in their offices to entertain your questions on those days. Quizzes are open book and a calculator is required.

**Final Exam:** To be scheduled by the Registrar within the period of May 21 – 25. (Three hours, open book, calculator required.)

**Homework:** A total of eight problem sets will be handed out. The homework must be at the TAs' office by 5 PM sharp on the due date. A 50% penalty will be applied to homework turned in after 5 PM. Homework turned in after solutions are distributed ( $\approx 3$  days) will be graded, but no credit will be given. All exceptions to this policy have to be approved by the lecturer. All homework sets will weigh equally towards the final grade.

**Design problem and web labs:** The design problem will be handed out around March 21 and will be due on April 13. There will also be two web labs that will introduce you to real live device characterization. If you turn in the design problem or any of the web labs after its due date, the same policy as late homework applies.

**Attendance:** We expect students to attend lectures and recitations, and we will keep track of attendance to these important sessions. The attendance record will be counted for 10% of the final grade.

The course grade will be established in consideration of the following weight factors:

QUIZ 1	15%
QUIZ 2	15%
FINAL EXAM	35%
HOMEWORK	10%
DESIGN PROBLEM & WEB LABS	15%
ATTENDANCE	10%

The final letter grade will also take into consideration non-numerical assessments of your command of the subject matter as evaluated by lecturer, instructors, and TAs.

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### Policy for Academic Conduct

The homework and design problem in 6.012 are prepared with the aim of complementing lectures and recitation sessions, as well as reinforcing key material. It should be no surprise to you that typically there is a strong correlation between the homework grade and the total course grade, therefore you are far better off doing your homework in a timely manner. There, too, should be no doubt to you that working on the problem sets and design problem is extremely effective in assuring your command of the course material. Keeping this in mind, you may have questions about what constitutes ethical and unethical behavior while completing homework in 6.012.

Our judgement is that the primary purpose of homework is to help students learn and gain practical experience in the subject matter. Allowing and encouraging collaboration with fellow students best serves this purpose. Modern engineering is, after all, almost exclusively a team effort. On the other hand, fairness requires us to be able to assess your *own* contribution – doing so will provide to you valuable feedback and help alleviate misunderstandings. Therefore, the written material that you hand in *must be your own work*, and any discussions or collaborations with fellow students must be identified in writing on your solution (e.g. noting "the solution to problem #2 benefited from discussions with John Moll", or "the optimization strategy of design problem #3 was worked out together with Jim Early"). Each party must acknowledge the collaboration. We will view two nearly identical solutions from two different students that do not cross-reference each other's designs as statistically "unlikely," thus worthy of further examination.

This policy is intended to help you make the most out of 6.012 by allowing you to freely work with your classmates. If you have doubts as to what constitutes ethical or unethical behavior, please contact any member of the staff. We will be happy to assist you in your judgement.

Violations of this policy will be handled with the maximum severity allowed by the Institute's regulations regarding academic honesty as outlined on the web at <http://web.mit.edu/discipline/academic.html>.