General Information

6.002x is a fundamental undergraduate electrical engineering course that introduces engineering in the context of the lumped circuit abstraction. 6.002x is also the historical first edX course. Materials taught in 6.002x are equivalent to those taught in 6.002. At MIT, 6.002 is in the core of department subjects required for all undergraduates in Electrical Engineering and Computer Science.

6.002.1x is the first of three modules (6.002.1x, 6.002.2x, and 6.002.3x) derived from the original 6.002x course. Topics covered include: resistive elements and networks; independent and dependent sources; linearity, superposition, Thevenin & Norton methods; digital abstraction, combinational gates; and MOSFET switches and small signal analysis. Design and lab exercises are also significant components of the course.

1. Course Overview

The course is organized by weeks. Since the course is self-paced, you may choose to complete the work at your own time, but encouraged to use the weekly schedule as a general guideline. Weekly coursework includes:

- Interactive video sequences;
- Readings from the textbook;
- Homework;
- Online laboratories;
- Optional Tutorials.

The course will also have a final exam. Those who choose the ID-verified certificate option of the course and successfully earn enough points will receive a verified certificate from MITx. You must sign up for the Verified Track before opening the final exam.
2. Interactive Learning Sequences

Lecture-style videos are presented in interactive learning sequences (or sequences for short), and are posted in the “Course” section of the website. Each sequence includes a succession of short video clips and online exercises, arranged in a logical progression. The videos from each sequence are also available for download at the end of the sequence. You can also access the videos from your mobile device using the edX mobile app. Two sequences will be given each week; please take the time to watch each video and each exercise in the sequences. Answer-check mechanisms are provided in these in-sequence exercises, but they will not contribute towards your grade.

3. Textbook

The course textbook is the following:


The textbook (physical or ebook) may be purchased from Elsevier. An electronic version will be provided as part of the online course for personal use in connection with this course only.

4. Homework & Online Laboratories

A variety of interesting circuit analysis problems will be assigned as homework. Those problems best illustrated through experimentation are given as online laboratories (or labs for short). Homework and labs associated with the materials covered each week are in the “Course” section under their corresponding weeks.

While collaboration is welcomed and encouraged, you are not allowed to post full solutions. Details on collaboration are provided in the Collaboration Guidelines handout available from the “Home” page.

Each homework and lab question allows up to 25 answer submissions. For multi-part questions, make sure you complete all fields before clicking "Check" so that you fully utilize that submission. If you accidentally click "Check", a submission will be deducted from the 25 that you are given. The submission for which you last click "Check" will be taken as your final answer. To view the solutions to a question you must either answer all fields correctly or use up all 25 submissions, after which the "Show Answer" button will appear and no new submissions will be accepted. To maximize your learning, we encourage you to work diligently to obtain the solutions to the problems, but if you really wish to see the solutions sooner, you can go through the annoying process of clicking the “Check” button 25 times.
5. Tutorials

Tutorials are conversational step-by-step videos designed to teach you how to solve the circuit problems that are encountered throughout the course. Several tutorials are issued each week, each either working through a relevant problem or illustrating an interesting principle.

The tutorials will not cover new materials, and in this sense they can be considered optional. However, they do provide an invaluable reinforcement of concepts covered during the sequences and the homework, and we highly recommend that you take the time to watch each tutorial.

6. Final Exam

A significant portion of your final grade in the course (70%) will be determined by the final exam. Exercises, homework and labs are critical to learning the material and for doing well on the exams. It is very likely that variations of one or more of the exercise, homework or lab problems will appear in the final exam.

• For those seeking an ID-verified certificate, you are required to register for it before you open the final exam.
• Since the course is self-paced, you may complete the exam in as much time as you feel is needed. However, if you would like to challenge yourself, the exam is designed to take MIT students approximately two hours to complete. Please plan your schedule accordingly.
• You may choose to start the exam at any time that is most convenient for you, and once you view the exam you must work on your own to complete the exam.
• Each exam question allows up to four answer submissions. For multi-part questions, make sure you complete all fields before clicking "Check" so that you fully utilize that submission. The submission for which you last click "Check" will be taken as your final answer. If you accidentally click "Check", a submission will be deducted from the four that you are given, and that problem cannot be reset for you.
• The exam covers everything (video lectures, readings, HWs, and Labs) from Weeks 1-4 (inclusive). If you missed any of these materials, you will want to review them before you take the exam.
• You may use online materials that are part of this course including videos, textbook, problem sets, and handouts. However, you may NOT use any other web resources, or communicate with any person about this examination while working on it. Furthermore, please do not communicate about the contents of the exam while the course is open for self-paced study.
• Anyone who posts an answer to an exam question will be violating the honor code and risks being removed from the class, forfeiting the certificate.
• If you need to alert the staff to an issue with the exam, add a post to the General discussion topic and include "[EXAM]" in the subject line.
• Check the “Home” page periodically. It is the fastest way the staff has to communicate any delays, corrections, or changes.
7. Discussion Forum

We will provide a discussion forum on our website for all students enrolled in the course. You may use these forums to discuss course concepts, problem solving approaches, interesting references, or anything else that may be of interest. You may just use it to ask questions. Please observe the appropriate online etiquette and be courteous to your fellow students when using the discussion forum. The forum is moderated by course staff.

Course staff and Community TAs will be available periodically to answer questions on the discussion forum.

8. Grading

Letter grades will be based on the following weighting:

- Homework: 15%
- Labs: 15%
- Final exam: 70%

Each of the homework and labs carries equal weight. You will need to get a total mark of 60% for a C, 70% for a B, and 87% for an A. Please note that the passing grade to obtain an edX certificate for the course is 60%, and that the letter grade obtained will not be printed on the actual certificate.

Homework and labs will be graded based on the best three out of four individual grades. Therefore, one homework assignment and one lab may be missed in total without a grade penalty.