The 8.02 Final Exam is scheduled for Monday Morning May 21 from 9 am - 12 noon at the Johnson Athletic Center Track 2nd floor.

**Final Exam Preparation:** The final exam will cover everything we have discussed this semester. Although the emphasis will be on the new topics discussed since Exam 2. Exam problems will involve the application of several concepts as in the problem set problems.

To study for this exam, we suggest you try the final exam practice problems and concept questions (located on the 8.02 MITx website) first without looking at solutions in order to self-assess your skills in:

1. getting started,
2. designing problem solving strategies,
3. carrying out those strategies using problem solving methodologies,
4. checking your work (units, algebra, etc.).

To help facilitate your understanding we suggest that you review:

1. relevant lightboard videos
2. Course Notes: in particular Problem Solving Strategies and Worked Examples,
3. lecture slides, with an emphasis on all the in-class problems, worked examples, and concept questions,
4. Friday Problem Solving sessions,
5. Problem Sets.

There will be a set of review problems that we will work on during the W15D2 class with answer checkers.

**New Topics Covered Since Exam 2:**

1. dc Circuits
2. RC and RL Circuits
3. Undriven LC Circuits
4. Driven RLC with an emphasis on resonance
5. Maxwell-Ampere Law and Displacement Current,
6. Maxwell’s Equations
7. Electromagnetic Plane Waves, Plane Waves and Standing Waves,
8. Poynting Vector, Energy Flow, and Radiation Pressure
9. Interference and Diffraction

**Topics on Exam 1**

1. Coulomb’s Law and Electric Fields for Point Charges and Continuous Distributions of Charge
Topics on Exam 2

1. Dielectric materials
2. Current, Resistance, and Ohm’s Law
3. Magnetic Field
4. Magnetic Force
5. Magnetic Dipole Moment Vector
6. Torque and Force on a Magnetic Dipole in an External Magnetic Field
7. Calculating Magnetic Fields Using Biot-Savart Law
8. Ampere’s Law
9. Faraday’s Law
10. Mutual and Self Inductance
11. Energy Stored in Magnetic Fields

Study Guide For each of these topics, we suggest you write up a study guide that consists of three sections

Part 1: Conceptual Explanation of Key Concepts. You may want to print up Concept Questions from Class or Old Exams and add them here.

Part II: A summary of methodological approaches to problem solving. Many students do not apply enough detail and hence make errors on exam questions even though they have understood the concept. Applying the concept is much harder and you need to be very careful. You can compare your summaries with problem set solutions and in-class problem solutions to see if your summary is comprehensive enough.

Part III: Write up a set of solutions to problems that illustrate all the basic cases. You can draw from the in-class problems, and the problem sets. This part is critical. If you have enough examples that cover the concept, then when taking practice tests you have a basis of knowledge to draw on. Reviewing Solutions You should print up and review solutions to all the in-class problems. Friday problem solving, and problem sets!

Additional Resources Go to anyone's office hours (see website for times). Go to Sunday tutoring in 26-152 before Final Exam.