

AE
2012

**Açık Ders'de
Yeni Yaklaşımlar**

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İÇERİK

Açık Ders'de Yeni Yaklaşımlar

- MITx
- edX
- class2go



15 dk.

MITx - mitx.mit.edu





MITx will offer a portfolio of MIT courses for free to a virtual community of learners around the world. It will also enhance the educational experience of its on-campus students, offering them online tools that supplement and enrich their classroom and laboratory experiences.



ANNOUNCEMENT



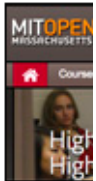
On May 2, it was announced that Harvard University will join MIT as a partner in edX. MITx, which offers online

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 **NEWS**



Preview
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OCW is

"OCW will enable us to create better educational linkages."



MITx will offer a portfolio of MIT courses for free to a virtual community of learners around the world. It will also enhance the educational experience of its on-campus students, offering them online tools that supplement and enrich their classroom and laboratory experiences.



MITx: 1 + 2 Açık Ders

The first MITx course, 6.002x (Circuits and Electronics), was launched in an experimental prototype form. Watch this space for further upcoming courses, which will become available in Fall 2012.

MITx 6.002x: Circuits & Elect x

https://6002x.mitx.mit.edu

MITx Log In

Circuits & Electronics

6.002x

View 6.002x Circuits & Electronics as a guest

6.002x (Circuits and Electronics) is an experimental on-line adaptation of MIT's first undergraduate analog design course: 6.002. This course is running, free of charge, for students worldwide from March 5, 2012 through June 8, 2012.

About 6.002x

6.002x (Circuits and Electronics) is designed to serve as a first course in an undergraduate electrical engineering (EE), or electrical engineering and computer science (EECS) curriculum. At MIT, 6.002 is in the core of department subjects required for all undergraduates

6.002x on MITx

If you successfully complete the course, you will receive an electronic certificate of accomplishment from MITx. This certificate will indicate that you earned it from MITx's pilot course. In this prototype version, MITx will not require that you be tested in a testing

ABOUT THE COURSE STAFF



Anant Agarwal

Director of MIT's Computer Science and Artificial Intelligence Laboratory (CSAIL) and a professor of the Electrical

Updates

Welcome to 6002x. Please look around.

Handouts

- Syllabus
- 6.002x At-A-Glance (calendar)
- Staff Listing
- Math Review
- Using the Interactive Laboratory
- How to Use the System
- How to Use the Question/Answer forum
- + Lecture Slides

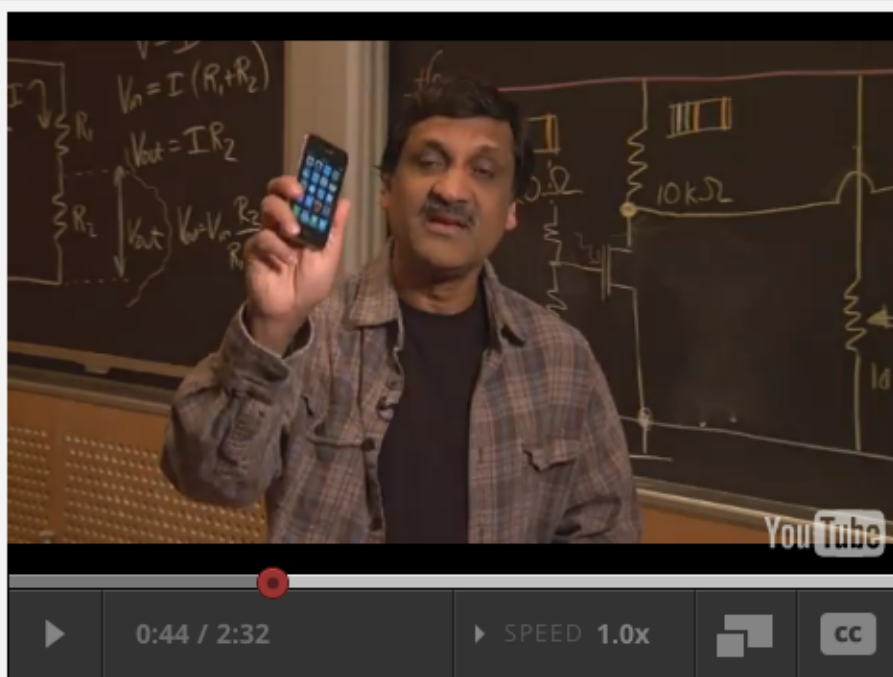


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- Welcome Video
- System Usage Sequence
- Lecture Sequence
- Lab0: Using the tools Lab
- Circuit Sandbox Lab

- Week 1
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- Week 7
- Week 8
- Midterm Exam
- Week 9
- Week 10



taken by MIT students as the first course in an EE or EECS major at MIT.

This course will help you make the transition from physics to electrical engineering.

In this course, you will learn about a lot of fun things, including the foundations behind many cool devices, such **as the smartphone.**

The course will be hard and we want you to stick with us.

It is our hope that you will have a lot of fun in this course.

Let me start by introducing you to our team.

I am Anant Agarwal.



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S0V1: Video Resources



LYLA FISCHER: Hi.

Welcome to 6002x.

I am Lyla Fischer, the head teaching assistant for 6002x.

As you know, this course is entirely online.

So before we start learning about circuits, let's learn

about the tools that you will use to navigate through the course material.

You are watching a video of me talking.

More information given in [the text](#).

Lecture Slides Handout [[Clean](#)] [[Annotated](#)]



Courseware Index

Overview

Week 1

Administrivia and Circuit Elements

Lecture Sequence

Circuit Analysis Toolchest

Lecture Sequence

Basic Circuit Analysis

Homework due March 18

Resistor Divider

Lab due March 18

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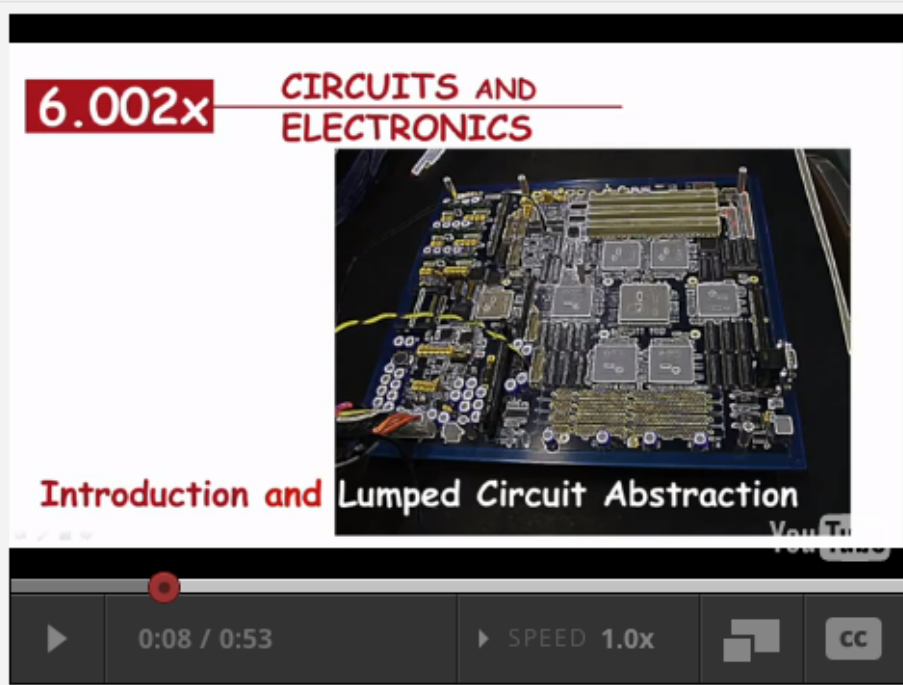
Week 7

Week 8

Midterm Exam



S1V1: Motivation for 6.002x



SPEAKER 1: 6.002x is an extraordinarily fun course.

This course is the first course in an EE or an EECS curriculum at MIT.

This course will help you make the big jump from physics to EECS.

You will learn, what, all kinds of fun things in this course.

So, for example, you will learn what's behind this.

What's behind the iPhone.

cool ideas that drive this and many other fun

More information given in [the text](#).

Lecture Slides Handout [Clean][Annotated]



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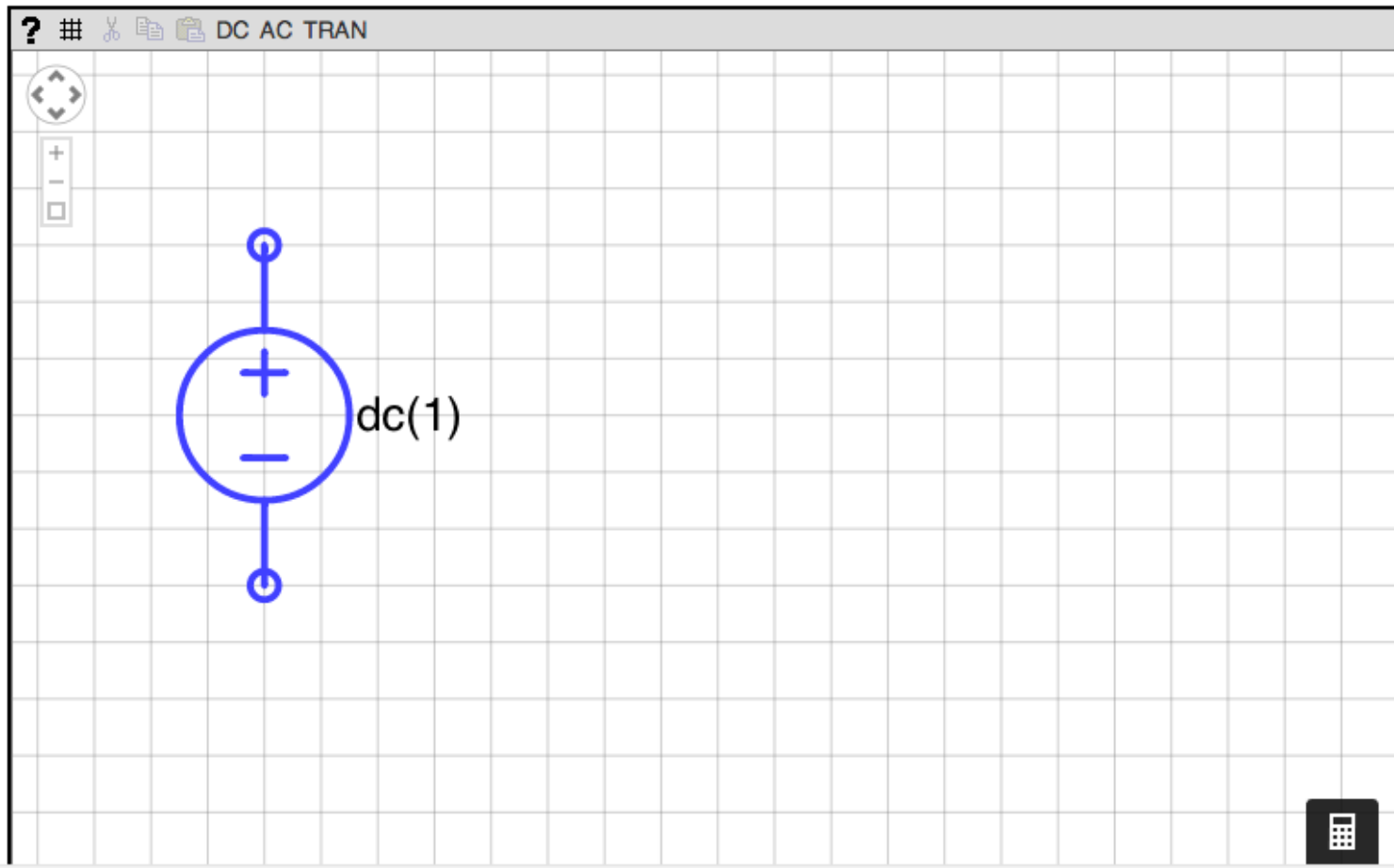
Week 7

Week 8

Midterm Exam

CIRCUIT SANDBOX

Here's a sandbox where you can experiment with all the components we'll discuss in 6.002x. If you click on CHECK button, the circuit will be saved on the server and you can return at some later time.

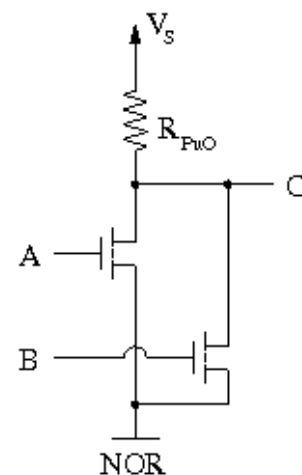
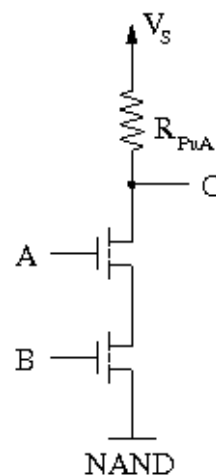
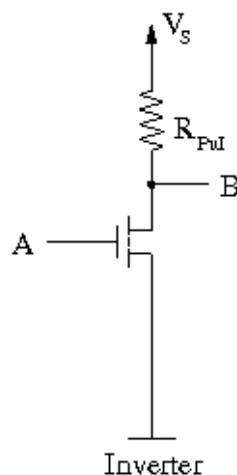


Courseware Index



H3P1: A LOGIC FAMILY

For many purposes of gate design, we can model a MOSFET used as a switch simply as an ideal switch and an "on-state resistor" R_{ON} . This is the SR model. Assuming this model for the MOSFET, consider the inverter in the figure. This inverter is intended to be used as an element in a logic family with NAND and NOR gates.



The static discipline required for this family is:

$$V_S = 5.0\text{V}, V_{OH} = 4.5\text{V}, V_{IH} = 4.0\text{V}, V_{IL} = 1.5\text{V}, V_{OL} = 1.0\text{V}.$$

What is the low noise margin (in Volts)?



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Midterm Exam

Midterm Exam

Midterm due April 30, 12:00

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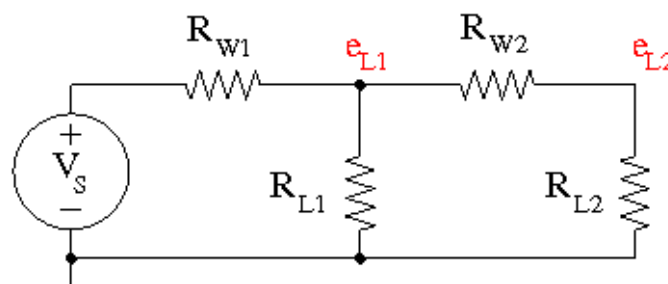
Week 12

Week 13

Week 14

Q1 : 20 POINTS

The power distribution network in a particular apparatus can be modeled by the circuit below.



The power comes from a voltage source and is delivered to two loads. The loads are modeled by the resistors R_{L1} and R_{L2} . The resistances of the interconnects are modeled by the resistors R_{W1} and R_{W2} . The values of the element parameters are $V_S = 15.0\text{V}$, $R_{L1} = 13.0\Omega$, $R_{L2} = 20.0\Omega$, $R_{W1} = 1.0\Omega$, $R_{W2} = 2.0\Omega$.

Determine the node potentials e_{L1} and e_{L2} , assuming a ground node as indicated in the figure. Write your answers in the spaces provided below. Express your answers in Volts.

$e_{L1} =$



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Thus the power delivered by the battery is given by

$$p = VI = 1.5 \times 0.15 = 0.225 \text{ W}$$

Not surprisingly, the power delivered by the battery is the same as the power dissipated in the resistor. Note that since the circuit current I has been defined to be directed *out* of the positive battery terminal in Figure 1.4b, and since the current is positive, the battery is supplying power.

How long will our battery last when it is connected to the $10\text{-}\Omega$ resistor? Since the battery is supplying 0.225 W of power, and since a watt represents energy dissipation at the rate of one joule per second, the battery will last $1500/0.225 = 6667 \text{ s}$.

EXAMPLE 1.16 POWER RATING OF A RESISTOR In a circuit such as that shown in Figure 1.4b, the battery is rated at 7.2 V and 10000 J . Assume that the internal resistance of the battery is zero. Further assume that the resistance in the circuit is $R = 1 \text{ k}\Omega$. You are given that the resistor can dissipate a maximum of 0.5 W of power. (In other words, the resistor will overheat if the power dissipation is greater than 0.5 W .) Determine the current through the resistor. Further, determine whether the power dissipation in the resistor exceeds its maximum rating.

The current through the resistor is given by

$$I = \frac{V}{R} = \frac{7.2}{1000} = 7.2 \text{ mA}$$

The power dissipation in the resistor is given by

$$p = I^2 R = (7.2 \times 10^{-3})^2 10^3 = 0.052 \text{ W}$$

Clearly, the power dissipation in the resistor is well within its capacity.



12,391 questions

Sort by | date | activity ▼ | answers | votes

6.00x is the sexiest course of fall 2012!

It appears to be that the sexiest course edX is offering this fall is 6.00x. This is true of course for those of us that took 6.002x during the spring in a rather similar way that...

102
views

5
answers

6
votes

3 hours ago by miter

edx Coursera

Berkeley Announces CS169.2x - A followup course to CS169.1x

So how many of you took the SaaS course? How was it? I hope MIT does quick follow up courses like this. Would really love to see signals & systems, control systems be release...

7
views

0
answers

1
vote

6 hours ago by ashwith

edx Berkeleyx CD169.2x

Found an old post in google about some mitx members :<)

Nirvana: kiwirobot Goddess Award (Most Karma): Award: amyc Justice Award: AlexWiddmann I don't understand him Award: kiwirobot HW hints Award: In the order AuMatar, hdt, snook3...

27
views

0
answers

3
votes

13 hours ago by ruudoleo

MITx

Course Discussion

Ask a question

View profile
(orcunmadran)

SEARCH QUESTIONS

INTERESTING TAGS

 add

IGNORED TAGS

 add

DISPLAY TAG FILTER

- ☒ off
- ☐ exclude ignored
- ☐ only selected

TAGS

Course Wiki

All articles

Create Article

Search Go!

Last modified: Sep 07, 2012, 06:30 PM

VIEW EDIT HISTORY

MIT Circuits and Electronics

Welcome to the 6.002x Wiki! This is a collaborative space for students to share their knowledge of the course. You are welcome and encouraged to make edits. See [how to make wiki edits](#). To experiment with the formatting before making real edits, please use the [Wiki Playground](#). New to 6.002x? Read the [MITx 6.002x FAQ here!](#)

USE THE **[SANDBOX](#)** IF YOU WANT TO USE THE CIRCUIT EDITOR.

Textbook

- [Textbook Info Page](#)
- [Online Textbook](#) | [Supplemental Sections and Examples](#)
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Sequence Notes

- [Administrivia and Circuit Elements](#) | [Circuit Analysis Toolchest](#)
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- [Capacitors and First Order Circuits](#) | [Inductors and First Order Circuits](#)



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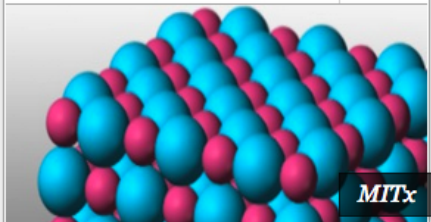
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3.091x Introduction to Solid State Chemistry



MITx

CS50x Introduction to Computer Science I



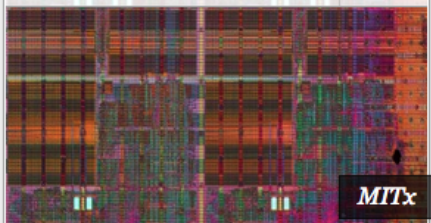
HarvardX

CS169.1x Software as a Service



BerkeleyX

6.002x Circuits and Electronics



MITx

PH207x Health in Numbers:
Quantitative Methods in
Clinical & Public Health



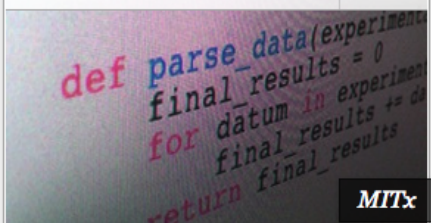
HarvardX

CS169.2x Software as a Service



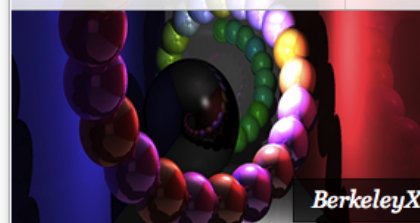
BerkeleyX

6.00x Introduction to Computer Science and Programming



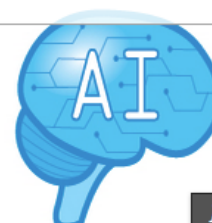
MITx

CS184.1x Foundations of Computer Graphics



BerkeleyX

CS188.1x Artificial Intelligence

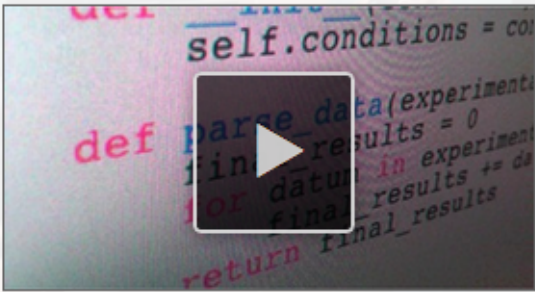


BerkeleyX

6.00x: Introduction to Computer Science and Programming MITx

YOU ARE REGISTERED FOR THIS COURSE
(6.00X)

VIEW COURSEWARE



overview

ABOUT 6.00X

Introduction to Computer Science and Programming

6.00x is an introduction to using computation to solve real problems. The course is aimed at students with little or no prior programming experience who have a desire (or at least a need) to understand computational approaches to problem solving. Some of the people taking the course will use it as a stepping stone to more advanced computer science courses, but for many, it will be their first and last computer science course.

Since the course will be the only formal computer science course many of the students take, we have chosen to focus on breadth rather than depth. The goal is to



Course Number **6.00x**

Classes Start **Sep 26, 2012**

Classes End **Jan 14, 2013**

Estimated Effort
12 hours/week

Prerequisites **Yes**

During the exam, the forums will be closed. They will reopen once the exam deadline has passed.



MITx: 6.00x Introduction to Computer Science and Programming

orcunmadran

Courseware

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Introduction to Computation
Lecture Sequence



Core Elements of Programs
Lecture Sequence



Problem Set 1
Problem Set

Week 2

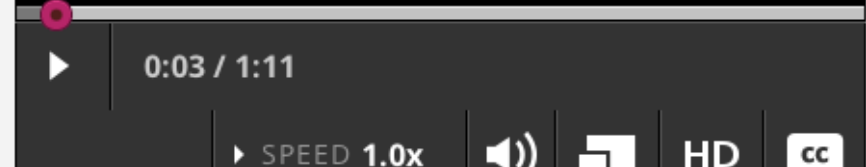
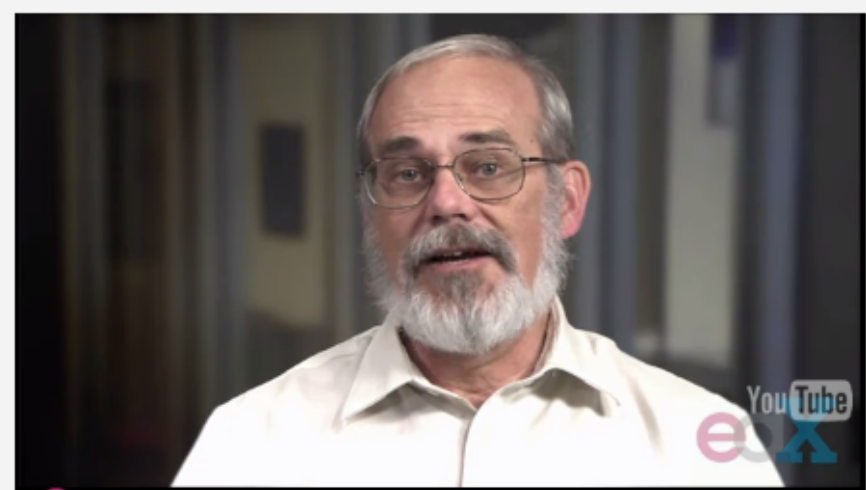
Week 3

Week 4

Week 5



LECTURE 2 INTRODUCTION



Eric Grimson: Welcome back to 600x.

In this second lecture we are going to start developing knowledge of programming languages.

During the exam, the forums will be closed. They will reopen once the exam deadline has passed.



MITx: 6.00x Introduction to Computer Science and Programming

orcunmadran

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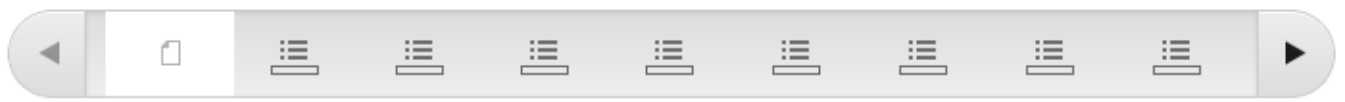
Week 4

Week 5

Midterm Exam 1

Midterm Exam 1

Midterm due November 4, 23:59



6.00x - Introduction to Computer Science Midterm Exam, Fall 2012

Out 11/01/12 10:00 (10:00 am) - Due 11/04/12 23:59 (11:59 pm) [Boston time](#)

This exam is designed to take roughly 2 hours of time; however, to compensate for any Internet or power outages in your area you will have 12 hours to finish this exam. You can start the exam when it is convenient for you, but you must complete this examination by 11:59 pm (almost midnight) Boston time on November 4th. Please look up this time in your local time zone, keeping in mind that daylight savings time ends in Boston over the weekend.

When you open the next page, you will have started the exam. You do not need to start now; you will not be timed until you open the next page. Once you have opened the next page you must complete the exam and make your final submission within twelve (12) hours of starting the exam.

Class2Go - class.stanford.edu





Class2Go

Take Stanford Online Classes. **Anywhere.**

Welcome to Class2Go! We're Stanford Online's internal platform, designed to be an open platform for online learning and research.

This fall, we're offering two free courses to the world:

- **Computer Networking** with Nick McKeown & Philip Levis
- **Solar Cells, Fuel Cells, & Batteries** with Bruce Clemens

Here's what you will like about Class2Go:

Videos from Stanford professors with interactive in-video quizzes give you a chance to learn from Stanford professors and then practice what you've learned.

It's **open**.

The platform is open source so that anyone who wants to can collaborate with us. We would love to have others use the platform, or to work together with similar efforts in other places.

It's **portable**.

The platform is open source so that anyone who wants to can collaborate with us. We would love to have others use the platform, or to work together with similar efforts in other places. We believe strongly that valuable course content shouldn't be tied to any one platform. Documents are already portable; the videos are outside our system (on YouTube) and the assets themselves can be repurposed as faculty see fit. And our exercises

An Introduction to Computer Networks

WEEK 4



WEEK 3



WEEK 2



WEEK 1



GUEST LECTURES



SCREENSIDE CHAT



Help/FAQs

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Recent Announcements

[View all announcements](#)*Oct. 30, 2012, 1:35 p.m.*

Extended deadline for graded problem set 1

As a consequence of hurricane Sandy, we've decided to push back the deadline of the first graded problem set to Wednesday, November 7th, 3pm PDT.

Oct. 29, 2012, 9:49 p.m.

Updates

- Week 4 materials are now live. You may find the first two videos useful for the graded problem set.
- Screenside Chat 2 is live as well. We're experiencing a delay with the captioning process, which is why the video is up a bit later than intended. We hope to fix the problem as soon as possible.
- Last but not least, this week's guest lecture is a talk from Jon Peterson, member of the Internet Architecture Board. Even if this week is pretty busy, don't miss this very good opportunity to learn more about IPv6 deployment!

Oct. 26, 2012, 11:38 a.m.

First Graded Problem Set

As we explained a few days ago, the Statement of Accomplishment for this course will be awarded based on your grade for two problem sets. The first problem set is out now at the following

An Introduction to Computer Networks

[View with quizzes included](#) ☒[« Previous video](#)[Next video »](#)

00 - Welcome





Course Materials (An Introduction to Computer Networks)

Week 4

 **40 - Names and addresses - ARP (6:32)** 

 **40 - Names and addresses - ARP (slides)**  Download

 **41 - Names and addresses - DHCP (12:25)** 

 **41 - Names and addresses - DHCP (slides)**  Download

 **42 - Names and addresses - DNS 1 (15:44)** 

 **42 - Names and addresses - DNS 1 (slides)**  Download

 **43 - Names and addresses - DNS 2 (19:17)** 

 **43 - Names and addresses - DNS 2 (slides)**  Download

 **44 - Names and addresses - IPv4 (13:12)** 



Biz ne yapacağız?



İşler & Güçler

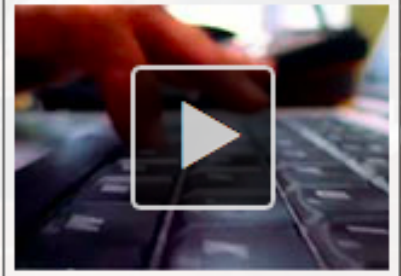
- Mevcut açık ders platformlarının tanıtılması
- Bu yeni nesil derslere öğrencilerin kayıt olması, teşvik edilmesi
- Yüksek kalitede örnek derslerin üretilmesi
- Geniş kitlelerin bu eğitimlerle tanıştırılması
- Yöneticilerin bu konuda eğitilmesi



Sonuç

The Future of Online Education

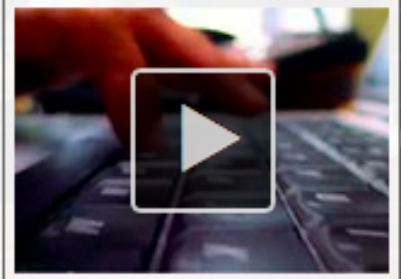
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