

HERZEN UNIVERSITY

ICT DEPARTMENT

LECTURE ABSTRACTS

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**Course Abstract: “Web development and
cloud teaching”**

for ME (Master of Education) program

18 hours

Course outline

Target group: for students who have experience with HTML/CSS and are looking to take their teaching skills and educational web projects to the next level

Objective

- to develop an understanding of client and server web technologies and how to teach students to build a basic three-level application
- to undertake weekly exercises applying technologies to solve simple problems in using frameworks like jQuery and create assignments for the students using the boardcasting technology.
- to use cloud technology and boardcasting as a means of learning content creation.

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Assessment methods

Practical:

- Students submit a number of prescribed practical exercises throughout the course
- Students undertake several substantial interactive media (web) projects , within the guidelines set by the lecturers
- Students sit a final practical examination
- Peer assessment

Assignments

- Quiz in Week1 - 20% of final grade
- Peer Assessment in Week2 – 40% of final grade
- Peer Assessment in Week4 – 40% of final grade
- Weekly Discussions – nongraded
- PassingGrade–70%

Description

In this course, students have the opportunity to understand the nature of web-development for e-learning, develop their teaching expertise and consider further development in this area. A combination of teaching tools, including boardcasting, screencasts, webinars, feedback on other students' work, are used. Students explore practical issues related to web-development of the learning content, as well as approaches for deployment of a massive online open course (MOOC).

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At the completion of the course, students will have a teaching portfolio with two main components: 1) a statement of a teaching strategy, and 2) a detailed set of plans for a specific course of your choice. This is an intensive, “hands on” course that requires supportive and cooperative behaviors by all.

Lecture 1: introduction

Abstract

In this lecture you will be given an overview of the basic cloud technology as a means of teaching web development. A registered software Kodaktor will be introduced created by Ilia Gosudarev, the methodology of teaching based on it will be revealed.

Good afternoon, I'm glad to greet my dear colleagues. I am Ilia Gossoudarev and I am currently lecturing on the subject of E-Learning at the Herzen Uni. I am going to tell you about cloud learning - a modern and highly effective learning system. Do you remember last time when you actually wrote a paper letter to someone? It must have been long ago. But many teachers still use obsolete instruments in daily work. Why do they do

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that? Maybe because they simply don't know about the things I'm going to tell you?..

My objective is to outline the major trends of mobile learning development and to stress upon the distinguishing features of cloud learning. The reason you need to hear it is the fact that the cloud technologies give you virtually unlimited opportunities in sharing your content. You will be able to prepare it at home and use it in the web when you're at work. No disks, no flash drives, all in the cloud, or maybe a digital ocean, it's just phenomenal.

You are not going to need taking notes, as everything I'm telling is available on my web page and cloud resources. Likewise, I will be happy to answer your questions via email and on my blog.

Firstly, I'll offer you a brief overview of some modern technologies, and we will try to give a simple definition of what a cloud technology really is. Secondly, you will see an example of building a learning scenario on the basis of a cloud platform, to wit, a broadcasting editor. Then we will outline the common and distinguishing features of the mentioned above compared to the rest of instruments. and finally a conclusion about the general methodology of using cloud tools for teaching will be formed.

[here follows the screencast, see below]

Here a mobile learning environment is described, which is based upon an online HTML, CSS, Javascript code editor («Kodaktor»). Samples of its integration with other solutions (like learning management systems and cloud resources) are included. Samples of assignments for the students are

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introduced, as well as examples of the students' and the lecturers' learning and teaching activity scenarios are discussed. The article contains the description of the methodology of training which utilizes the competence-based approach to learning. Samples of the competences being formed are included. Experimental training process is described along with its positive results. The implementation of the application is revealed. The analysis of the current and prospective functionality of the Kodaktor is given. It is asserted, that the process of training becomes more rapid and effective, when web development is studied using boardcasting, that is, broadcasting shared interpreted code.

Next, I'd like to draw your attention to the most important facts from the content of my lecture. Mobile learning is a specific type, or mode of e-learning, which utilises the mobile learning environment. This provides facilities for students to study and do their research independently, without any attachment to their desktop, room or generally their geographical position. My point is, such independence can be obtained using a new class of tools known as cloud technologies. Briefly, cloud computing means working with remote software installed on internet servers, with the data stored there as well. My next point is, any access to this software is established via browser - a relatively small program on a mobile device like a tablet computer, e.g. iPad or iPhone.

That is all I wanted to say about cloud learning for now. We have done some good work here. Firstly, you've received an overview of some modern technologies, and we will try to give a

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simple definition of what a cloud technology really is. Secondly, you have see an example of building a learning scenario on the basis of Google Documents and Dropbox. We have also outlined the common and distinguishing features of various of instruments.

Finally, I'd like to focus on the main idea I have been trying to convey. The rapidly developing environment around us requires that we adapt to the new tools and technologies, that tend to destroy the hard links between students and places. The conclusion is, teachers need to learn how to use cloud tools in their daily work and this requieres much additional preparation.

Thank you! I will be happy to answer all of the questions now or responding to your emails.

Introducing Kodaktor (A screencast lecture)

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And I am glad to introduce an online-editor for HTML, CSS and Javascript code. H1, known also as kodaktor. I am going to describe the process of teaching based on this innovative type of media called boardcasting. Do you know that most people who teach programming at school, use NOT up-to-date software? I am offering a solution to this problem. First, I'll tell you about the interface of the boardcsting editor, then about the way the boardcasting works. Finally I'll describe the methodology of teaching based on the Kodaktor.

SO let's start with the interface. The kodaktor's URL is being displayed now on the screen.

After the URL has been entered and the application has been loaded we can see its interface on the current stage of development

I want to point out right away that web applications boast rapid evolution so even tomorrow, very soon, the interface may change. Of course in this case you'll be provided a new screencast and a new reference.

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At present the interface contains two parts: the top pane of editing and the bottom pane of display.

In the top panel you edit the highlighted code. The line numbers are indicated on the left gutter.

In the bottom pane the edited code is displayed so when you alter it the changes are applied instantly.

If you need the changes not to be applied during some period of time, you can switch off the trigger “Refresh” button

and after that all changes will take place only in the editor pane.

if we want to apply those changes we have to switch the Refresh button ON back again.

The album button of vertical orientation makes the editor pane go left, and the display pane go right.

While working with the H1 editor you are recommended to use an available monitoring tool. Because now we are doing it in the Chrome browser which we highly recommend, we use Ctrl-Shift-J keys in Windows and Cmd Option J in Mac to open web developer and console.

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Some templates are available in the Red drop-down menu. You can use a simple jQuery template, an HTML5 template, a Bootstrap template and so on. With the future ongoing development of the editor the number of the available templates will of course increase.

Also when you choose a certain template you can insert some code snippets into it like DIV from the Green drop-down menu.

The code in the editor pane (the Refresh button pressed) is displayed when you type something or left-click. Now we see the console.log command being executed each time we press a key or click.

When we launch the H1 editor for the first time it switches into a personal mode. The code is in the editor's pane only, saved nowhere else. To download the edited code to your PC's hard drive, select the Download item from the Blue drop-down menu. The file is then saved with the HTML extension.

One of the planned 'coming soon' features is uploading from your computer into the editor. Now you can import your code from your Dropbox site (it being logged on) and export it there.

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You can use H! as a validator. For instance, if you load the strict XHTML 1.0 template, you can select the Validate item from the Blue menu to search for errors. The template doesn't contain them, but if you omit the closing tag, you will see the error message at once.

NEXT we come to boardcasting. Apart from the personal mode you can manage the so called board casting or transmission. If you press the Blank Board button in the left corner or the corresponding item from the Blue menu, the blank board is created with a random personal key. It now consists of 7 alphanumeric symbols.

It is displayed as a link to the left from the blank board button. If you click that link, this new board will be opened in the new tab in the reception or listening mode. You can affirm this by seeing the Board button. A user who has created a new casting will now pass its key to their audience, be it colleagues or pupils, or students etc.

The casting window has a question mark and an exclamation mark in its address bar. By this difference you can tell the casting window from the reception window.

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So in the beginning of the board casting process the board caster does what they need to do and the listeners see all the changes simultaneously.

The Refresh button in the board casting window can be used to temporarily pause the board casting process. And the other way round, the Board button in the listener's window is used to stop listening for a while and maybe edit the code.

As soon as a listener chooses to return to listening, they have to switch the Board button back again. The changes they made will be lost, of course without previously being saved.

The created board can be accessed for editing just once. It's URL is stored in the database and it becomes read-only.

AND FINALLY about the methodology of teaching. To create a new board you just click the Blank Board button again and again. Then you give the key to the audience in any available way.

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Some addresses on the system are pre-occupied. These are keys from 1 to 100. This pool contains the selected examples of solving different tasks in JavaScript with the aid of jQuery library and other similar tools.

For example, the fifth board contains the code for embedding video into HTML5 pages. Or the second board, which shows a sample of key frame based CSS3 animation.

Now the process of samples accumulating is going on. Each board in principle is potentially a task, an assignment for the students, because the instructions and recommendations can simply be inserted into the code.

So let's outline the most important ideas. You start by creating a blank board with a task or a code snippet and somehow give its key to your audience

The students create their own boards and somehow give their keys to you, maybe posting them to their blogs.

One of the possible coming soon features is the simultaneous multiple user editing mode like in public Google documents.

I've told you about the interface of the boardcasting editor, about the way the boardcasting works. And I have also described the

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methodology of teaching based on the Kodaktor. Now you can use it for teaching Javascript, HTML and cascading stylesheets. And now you know *why it is so important* for a teacher to use boardcasting: *because* you visualise the process of programming in the most natural way, provide collaborative technology and develop a portfolio of solutions.

The demonstration is over by now. Thank your for watching, the updates are at hand. Looking forward to your feedback, bye.

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Other lectures

Lecture 2 abstract

In this lecture we will find out what stands behind the concept of markup and cascading stylesheets, what the essence of client web development really is. The HTTP protocol will be discussed, the GET and POST methods will be played with using telnet. You will learn to teach the students the basics of client-side web technology.

Lecture 3 abstract

In this lecture we will define the determining features of markup. The process of validation will be discussed. The standards of HTML5 and XHTML1 will be described along with the formal grammar approach to a markup language standardization. You will see how it is possible to teach markup with the aid of DTD.

Lecture 4 abstract

In this lecture you will learn more about the modern way to use the cascading style sheets. See <http://kodaktor.info/css1> for a

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detailed plan of discussion. You will learn to teach students how to create animation using CSS3 and how to avoid the flash technology.

Lecture 5 abstract

In this lecture the concept of a screen cast will be clarified. We will discuss the HTML media formats. You will learn how to teach students to insert video into the web pages using the HTML video tag with the aid of the kodaktor:

<http://kodaktor.info/5>

Lecture 6 abstract

In this lecture we will discuss Javascript – the client side programming language. You will learn to write simple scripts using the basic constructions and create assignments for the students using the Kodaktor broadcasting editor.

Lecture 7 abstract

In this lecture you will discuss frameworks and APIs compared to basic and natural Javascript. For example, the board

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<http://kodaktor.info/bubble> contains basic bubble sorting algorithm implementation, and the board

http://kodaktor.info/bubble_jq – introduces the same algorithm but with the client interface generated with jQuery.

Lecture 8 abstract

This lecture allow you to deal with the massive online open courses (MOOC). You will joining the Coursera project, take a look at the edX platform and try out your hand at integrating different tools into one mobile learning environment.

Lecture 9 abstract

This final lectures gives you an overview of what was discussed in the course. You have developed an understanding of client and server web technologies and how to teach students to build a basic three-level application; undertaken weekly exercises applying technologies to solve simple problems in using frameworks like jQuery and create assignments for the students using the boardcasting technology. You have used cloud technology and boardcasting as a means of learning content creation. Now you can apply this knowledge and methodology in service at school.

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