

The Web as a Learning Environment 216101

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Course URL: <http://moodle.technion.ac.il>

Course dates and structure: 1.8.16 – 22.8.16, nine sessions, from 9:30 to 12:30, with additional hours of personal advising. The course is based on the studio approach – short lectures, workshops, homework assignments, and students' presentations.

Course Objectives: Familiarity with advanced pedagogical approaches: from theory to practice. Experiencing various methods of online teaching and learning (asynchronous, synchronous, and blended). Discussion research topics at the forefront of contemporary education, including: 21st century skills, mobile and ubiquitous learning, the flipped classroom, MOOCs, augmented worlds, wisdom of the crowds, and citizens science.

Course requirements: Full attendance in all classroom sessions; reading of articles as preparation for the lessons; submitting assignments on time; and significant contribution to in-class and online discussions. Grades will be assigned according to the following table:

Topic and tools	Assignment	Grade	Submission date
Online collaborative writing (Google docs)	1a. Developing an interactive multimedia presentation	20	04.08.16
	1b. Conducting peer-assessment of three presentations	20	08.08.16
Wisdom of the crowds (Augmented World)	2a. Generating an online multimedia question	20	11.08.16
	2b. Providing feedback and developing information points	10	13.08.16
Citizens science (Augmented World)	3a. Generating an inquiry question	10	15.08.16
	3b. Collecting data for colleagues	10	17.08.16
	3c. Analyzing data and writing a report	10	22.08.16

Timetable

	Dates	Topics
1	01.08.16 (Mon)	Lecture: 21st century skills and reforms in engineering sciences education. Visualizations in science education. Practice: Small group learning, selecting a scientific or engineering concept/principle for the interactive presentation
2	02.08.16 (Tus)	Lecture: Mobile and ubiquitous learning. Online collaborative learning and psychological ownership. Practice: Developing an interactive presentation (Assignment 1a)
3	04.08.16 (Thu)	Lecture: Peer-assessment for promoting meaningful learning. Practice: Developing an interactive presentation. Submitting assignment 1a
Homework		Conducting peer-assessment of three presentations (Assignment 1b)
4	08.08.16 (Mon)	Lecture: Web 2.0, cloud applications, and learner-generated contents. Practice: Conducting peer-assessment of three presentations. Submitting assignment 1b
5	09.08.16 (Tus)	Lecture: Question development for higher order thinking. Writing proficiency of multiple-choice questions. Introducing AugmentedWorld (AW) platform. Practice: Generating an online multimedia question in AW (Assignment 2a)
6	11.08.16 (Thu)	Lecture: Wisdom of the crowds and citizens science. Practice: Generating an online multimedia question. Submitting assignment 2a
Homework		Providing feedback and developing information points. Submitting assignment 2b
7	15.08.16 (Mon)	Lecture: What is research and how to develop inquiry questions Practice: Generating an inquiry question. Submitting assignment 3a
8	17.08.16 (Wed)	Lecture: Students' presentation of learning outcomes. Practice: Collecting data for colleagues. Submitting assignment 3b.
9	22.08.16 (Mon)	Lecture: The flipped classroom, MOOCs. Practice: Analyzing data and writing a report. Submitting assignment 3c.

References

21st Century Skills

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Pelligrino, J. & Hilton, M. (Eds). (2012). *Education for life and work: Developing transferable knowledge and skills in the 21st century*. Washington, D.C: The National Academies Press.

Online discussion groups and peer assessment

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Animations and Simulations

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Mobile learning

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Flipped classroom

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MOOC- Massive online Open Course

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- Martin, F.G. (2012). Will massive open online courses change how we teach? *Communications of the ACM* 55(8), 26-28. DOI:10.1145/2240236.2240246