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Conference Proceedings

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A multimedia course for teachers of physics and science

Abstract: We have organized a training course for teachers of physics and science on the use of MM in teaching and learning. The course was partly a satellite program of MPTL11 in 2006 in Szeged. 6 months later the teachers came again, presented their own MM material, and filled out an interactive test to prove their ability to navigate on physics realated pages of the internet. We give an overview of the lectures we offered the teachers, we present the test they had to solve, as well as the list of their presentations, with links to their full material. In the end of the second part, the teachers had to answer a questionnarie, how were they satisfied with the course. This questionnarie is also shown here.

We organized a training course for teachers as a satellite meeting to the MPTL-11 conference, held in Szeged in 2006.

Title: Multimedia in Education of Natural Sciences

- Training course for secondary school teachers
- Accredited by the Hungarian Ministry of Culture and Education
- Organized by the University of Szeged, and the Eötvös Physical Society of Hungary.
- It was supported also by EPS and the National Office for Research and Technology

The program consisted of two parts:

PART 1: LECTURES

September 22-23, 2006

Day 1: The last session of MPTL-11 was the first session for the training course with partly international lecturers. The teachers have obtained the abstarcts in Hungarian as handouts, while part of the lectures were interpreted parallelly.

SPEAKER	TITLE
Bruce Mason **U.** Oklahoma, USA	Evaluation of Multimedia Learning Materials in Electricity and Magnetism
Stefano Oss **U.** Trento, Italy	Physics and music: bringing together science and art
Jozefina Turlo U. Torun, Poland	Multimedia applications discussed by network of science teachers
Visit of the exhibition of physics demonstration devices used in schools in the 19-20 centuries	
Hans Jörg Jodl U. Kaiserlautern, Germany	Tutorial videos of physics experiments

Zoltán Gingl U. Szeged, Hungary	Real experiments using virtual measurement techniques
Miklós Molnár U. Szeged, Hungary	Computer aided physics experiments
István Győri secondary school teacher Szeged, Hungary	Measure, do not simulate!! (Evaluation of measurement data with computers)

Day 2:

SPEAKER	TITLE
Béla Viskolcz U. Szeged, Hungary	Simulations in chemistry
Péter Maróti U. Szeged, Hungary	Simulations in biology
András Ringler U. Szeged, Hungary	Simulation for solving quadratic equations
Zsuzsa Varga U. Szeged, Hungary	The Bologna process and higher education of science
Volker Albrecht U. Frankfurt, Germany	Interactive simulations in geography
Beáta Jarosievitz secondary school teacher Budapest, Hungary	National and international activities by the help of the internet
Károly Piláth secondary school teacher Budapest, Hungary	Physical measurements with parts of informatic devices
Tamás Serényi secondary school teacher Szeged, Hungary	Application of digital materials in physics teaching
Anett Nagy **Katalin Papp** U. Szeged, Hungary	Digital material for physics of toys

PART 2, EXAM: *Talks & Test*

March 17, 2007,

Talk: The teacers had to prepare an oral presentation about an arbitrary topic in science or education using MS Power Point

This was expected not to be a simple presentation, we expected interchange of ideas and practice among the participants with the aims:

- How to use ppt in different school types;
- Help the „beginners” in the teacher’s group

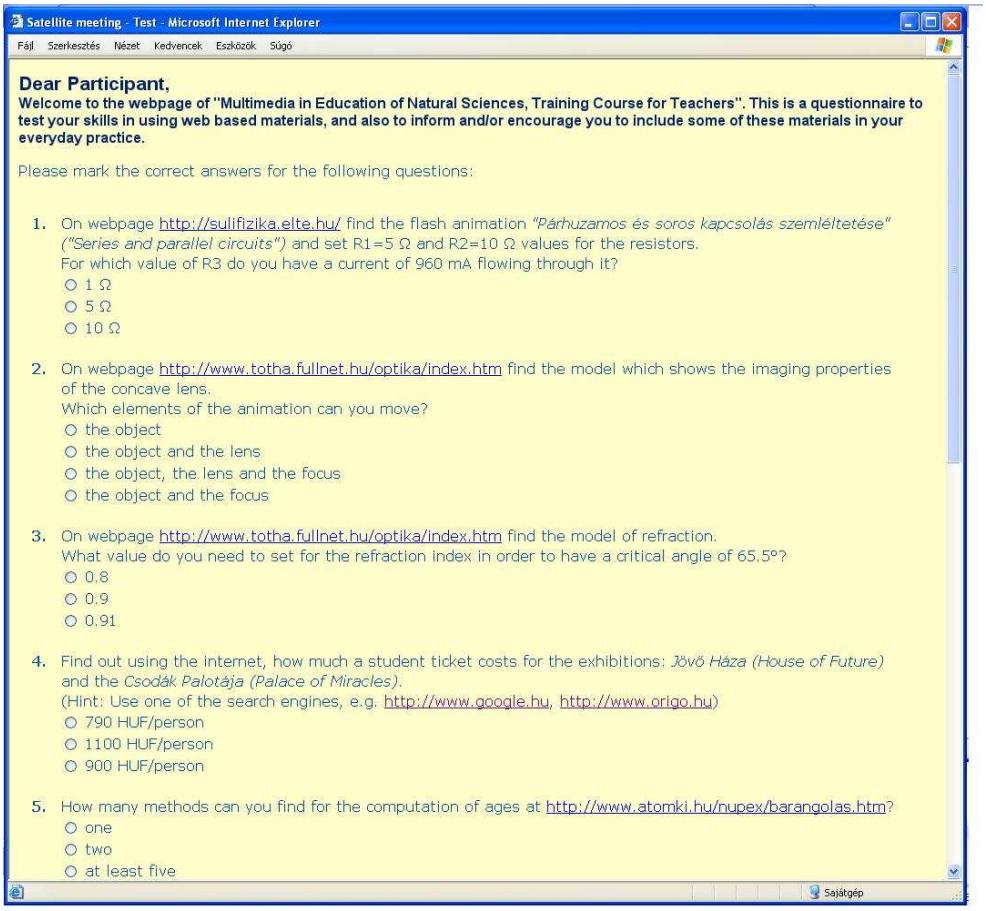
Teachers chose various topics for their presentations:

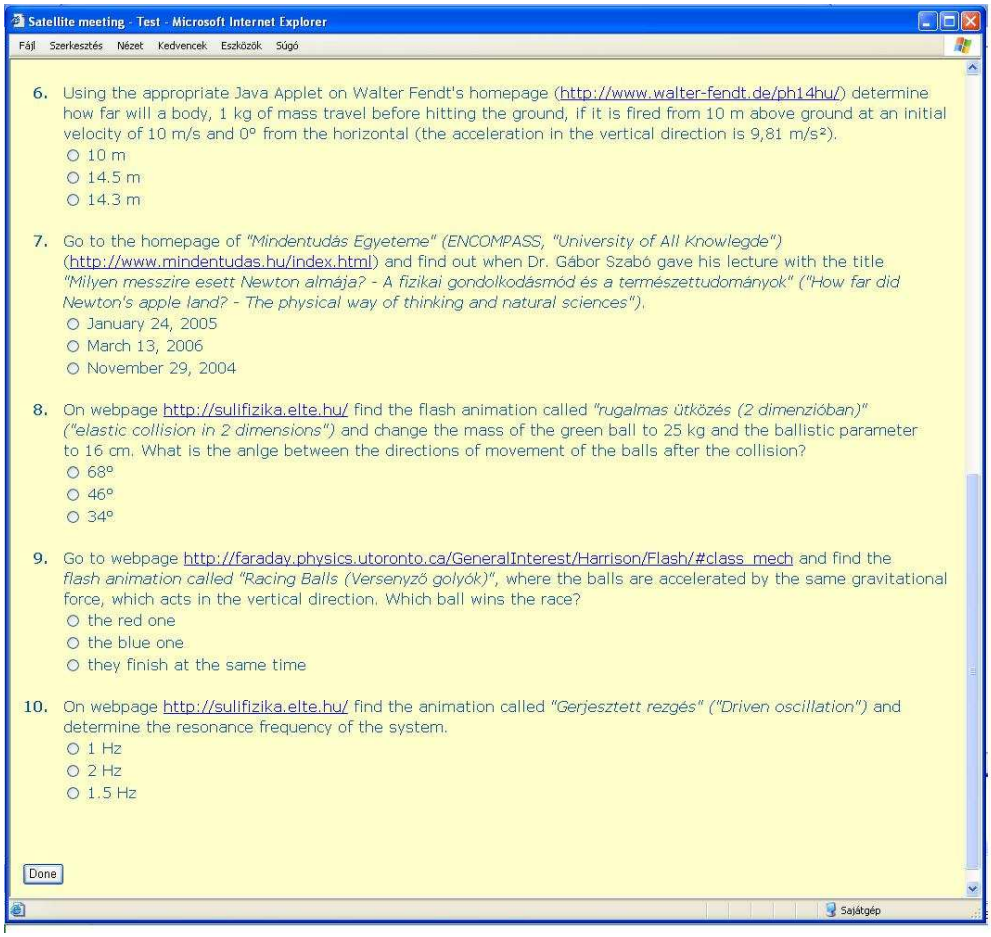
- Water in atmosphere
- Radioactivicty in our life
- Using the LOGO
- Nuclear fission
- The history of nuclear fission
- Acoustics
- Optics, Optics exercises
- Who has enough energy?
- The planet Mars
- The Sun – Energy of the future?
- Measuring huge distances
- Using Excel in physical model demonstrarions

After they delivered they talk they had to fill an interactive test, with 10 questions, 1 hour for the solution, in a terminal room.
This task involved the necessity of

- Navigation among physics related pages
- Information searching
- *Use* of Java applets and Flash animations

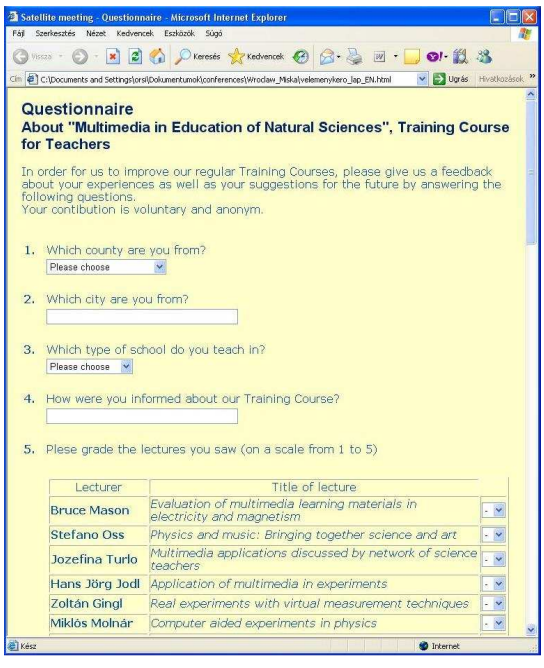
We focused preferentially on Hungarian pages to avoid language problems.





After the course patricipants filled out an online, anonymous questionnarie:

- Rating the talks (on a 1-5 scale)
- Rate the organization and technical background
- How useful it was?



Summary: Out of 19 participants 15 obtained the certificate
(those who either made a ppt presentation or filled out the interactive test)

Conclusions:

- The course was globally rated good by the participants
- More practical information about the use of hardware for evaluating measurements would have been useful