E-LEARNING – INNOVATIVE PEDAGOGICAL PROJECT IN THE HIGHER EDUCATION TO PROMOTE AND SUPPORT SPACE SCIENCES AND TECHNOLOGY. S. Hegyi1, Sz. Bérczi2,3, A. Kereszturí123, H. Hargitai1... 1Pécs University, Dept. Informatics and G. Technology, H-7624 Pécs, Ifjúság u. 6, Hungary, 2Eotvos Lorand University of Sciences, 3Collegium Budapest Institute for Avanced Study (hegyis@ttk.pte.hu)

Introduction: The pedagogical innovation pilot program in the higher-education of Hungary is aimed at popularizing of natural sciences, mathematics, focusing on space sciences and technology, overlapping the aims of the NASA supported STEM project. This e-learning course put emphasis on the building an programming of the Hunveyor an Husar educational space probes, as this project synthesizes the space related knowledge and gives analogies the get familiar with space sciences and technology. The method of presentation and learning is happening in a new online system up-to date to the new web oriented student generation.

The digital environment for the information communication technology is provided by the open source code Moodle eLearning management sytem. In this system the educational and organizational mode helps to prepare the realization of an international online (virtual) course in planetary science and geonomy. Our educational system is searching for international partner institutes and programs, for universities, scientific and nonprofit organizations too, as well as space technology related companies.

The topic of the course was exciting, synthesizing and inspired the students to receive the scientific and technological information and arise their interest toward the future in these developing fields.

The Moodle eLearning course can be accessed at: http://netuniv.pte.hu

Functions:

- educational material publication by eLearning: images with captions, audio files, video files, animations, tests, excercises, various links, dictionarries, encyclopedias, personalization.
- organization of education: possibility to follow the development and changes on online materials in the system, project organize work realization, community building, publications, remote lectures etc.
- communication by eLearning: Forums, online consultation blog writing, second life, sending messages, chat, talk, wiki an portfolio making etc.

Example statistics by eLearning Moodle:

Example modul: Planetology, space science (static website, presentations, video files, printable materias, images etc.)

Screenshot of the planetary science module with an inset at the lower right of the lunar sample collection from NASA [1]

Example map:
Various topographic and thematic maps were also used in the course, partly to demonstrate and visualize different surface features, and also to give ideas for the students to plan-situ measurement there.
The building of the Hunveyor-Husar [2,3] university student model spacecraft systems:

Two kind of space probe model concepts were used during the planning and design, and also at the field works. One is a static model without moving ability (called Hunveyor after Hungarian university Surveyor), and a rover like one with maneuvering possibility (called Husar after Hungarian university surface analyser rover).

The design and building of such educational model spacecrafts point toward modern educational methods and helps in the integration of the different subjects. We think those students who are able to design a model spacecraft including its onboard computer, command and control system with electronic devices using up-to-date technology will be able to find its position in the society and industry in real life.