

Section IX

Quality Management Control

VIRTUAL LABORATORY IN NEW EDUCATIONAL TECHNOLOGIES

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The last achievements in informational technologies sphere are widely adopted in all the forms of educational process organization and raise the effectiveness of active methods teaching considerably. The forms of usage of informational technologies can coincide in certain details for every subject sphere of educational process elements or differ essentially. Considerable raise of quality of education of the students undoubtedly is based on utility of modern active methods of teaching, based on actual involvement of the students in the process itself. Electronic form of educational information presentation used alongside traditional teaching materials, gives additional important opportunities for the students. Among them it is necessary to mention a vast significant gamut of information presentation (color, video, sound, animation etc.), interaction. All these is conducive to creation and active usage of different educational resources used in individual subject courses and laboratory practical works, as for traditional methods of teaching as for the variant of getting education in a distance.

The suggested programme product is a virtual laboratory aimed to investigate process in "Electric measurement" course. The base of the virtual laboratory is a powerful imitation model with re-organizing structure which reproduces not only informational structure of the process, but also their spatial temporal peculiarities (1).

The peculiarity of the suggested complex consists in a practically full emulation of real physical means of measurement. All the devices represented in the virtual laboratory have their prototypes, all the process of tuning and taking data evidence are maximally close to reality, even the errors of the devices which are set before the beginning of work by the teacher conducting a lesson, and what is more important to our minds, the usage of

the automatic system with re-organizing structure enables to change the fragments and conditions during the work itself without drawing additional resources. Such a formulation of question enables to use all the advantages of computer technologies and at the same time to reduce to a certain the extent the drawbacks that usually accompany computer variants of laboratory practical works, such as excessive abstractness of devices, extreme idealistic results, etc.

Imitational component of instrumental means used in the process of investigation is directed to a widely known batch Lab View of the firm National Instruments (USA). The used batch enables to create not only virtual models of the devices carrying out the same functions as their physical analogues, but also the systems of data collection which are necessary for managing process organization, measurement, control, testing and monitoring (2).

Thus the student has an opportunity to see on the display the front panels of the devices in a usual for engineers form and to carry out work with their managing systems during the investigation.

In this particular case the suggested product can be used in different modes of operation: training, work, self-training and learning in a distance.

Materials in each part of work include aim of work, short description, instructions for self-preparation of theoretical material, mode of operation, content of the report and questions for control, description of the used apparatus and methods of measurement.

Practical use of this program enables to widen the professional scope of the students, consolidate theoretical knowledge, and get skills as in experimental as in theoretical research.

The experience of use confirmed the high efficiency of the given technology, which helps students to understand the studied process quicker and deeper. It turned out to be essential that a teacher reduces time for presentation of the material and has more time for explanation. The mutual use of the same hyperspace by the teacher and the student produces creative collaboration during the process of training and getting practical skills, and what is more important by real involvement of the student in the process.

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AUTOMATED SYSTEM OF ACADEMIC ACTIVITIES MONITORING

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The management of the quality of education deals with all the spheres of studying process at any Higher Education Establishment and nowadays it has a specific meaning, which is not only managing academic activities but also comparing them with the achieved result, i.e. the quality of education obtained by students (in other words the quality of knowledge and skills).

The goal of the education quality control is nothing but "studying philosophy of continuous quality improvement oriented towards students...", "the process, which is focused on satisfying and acceding student expectations, excluding failures and alterations" [1].

Let's talk about the factors, which influence the quality of education. They are:

- teacher – the key of the process because he gives knowledge, develops skills, shares experience and life philosophy;
- environment, including vital activities, information and studying;
- motivation for studying which must be based on creating the conditions to achieve a great result equal to a great success on the labour market.

Thus, it is important not only assess the quality of knowledge but be able to apply the method of total education quality control as the interaction of time, subject, a student, a group of students and a teacher; in other words, the method of analytical analysis of quality monitoring outcomes [2].

Assessing student knowledge and skills,

the teachers of TPU use rating system as the most effective method of monitoring and control. Firstly, rating system is a numerical indicator, which is calculated by processing a certain number of points (or scores). Secondly, according to the rating, the place in the qualification list is defined, which means that rating is the due aspect and essential monitoring result [3].

In order to fully investigate the effectiveness of teaching, Institute for International Education has worked out the automated system of monitoring the academic activities, counting on current and final knowledge assessment for the subjects listed in the curriculum.

Monitoring in terms of "teacher-student" system means the combination of controlling and diagnosing actions necessary for the goal oriented education process and prediction of gradual but dynamic obtaining the material for studying and its correction. In other words, monitoring is a constant control over student development form unknown to learnt. Moreover, it gives the opportunity to watch and correct the education process when necessary. Monitoring is the regular observation of the quality of knowledge and skills accumulation.

Showing no doubts in the importance of driving to the conclusions of knowledge monitoring, we are apt to hesitate whether it's valuable for the serious analysis and the true reason to make effective managerial decisions.

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