

DESIGNING VIRTUAL LEARNING LABORATORY FOR STUDENTS OF TECHNICAL AND TECHNOLOGICAL PROFESSIONS

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The advantages of creating and using virtual learning labs. The developed model of such a laboratory using algorithms of technological equipment. The model of using a virtual educational laboratory that provides full volume gain some skills with the equipment.

Virtual laboratory stand, technology, model, laboratory practice.

In order to prepare the students practical skills in modern education formed such training areas to perform experimental studies: traditional local labs, virtual labs (Virtual Laboratories), Laboratory of remote access (Remote Laboratories).

The aims and objectives of the study. Traditionally laboratories are equipped with a certain set of technical tools to conduct simple experiments. Therefore, for greater clarity, the curriculum, the following means: videos, computer models of processes, experimental models of technological devices, mathematical models of processes, experiments on real technological objects. Were taken to demonstrate the work of film production equipment, production lines. To demonstrate the process, difficult to understand and theoretical analysis, simulation uses basic tasks using computer models that require significant investments in overseas licensing program. In developing virtual laboratories Dial-based simulation models and real equipment is a problem remote laboratory stand and display on-screen remote control student. Environment programming with LabVIEW provides opportunities to create software to manage real objects, including the possibility of remote access via the Internet.

Materials and methods of research. Analysis of the advantages and disadvantages of different types of laboratory studies showed the feasibility of using

virtual labs to perform experiments. When creating a virtual laboratory complex for technical and technological professions follow a number of basic principles:

- Ensure mass dissemination workshop in Intranet-Internet network that involves the experiments each student individually, with different pace and depth of study processes;
- To provide a comprehensive, modular structure of the workshop, which will use available materials in the practical laboratory and lectures;
- The possibility to use virtual laboratory classes for different forms of education: full-time, part-time, distance.

Thus, the development of virtual learning stand is quite significant and fundamental contribution during educational programs.

Results. Laboratory work in virtual learning lab is based: "the rules of technological equipment" and "safety rules" that allows the assimilation of additional knowledge about the production. To create a model of the equipment used indicators of real equipment. To consolidate the knowledge of the discipline feature tests; educational material; literature and additional literature. In "Creating and verifying the model of" development components performed theoretical information, development of knowledge control components, and the development of mathematical models of equipment and its implementation. Providing real indices stand: Formation laboratory stand; Forming the base of normative parameters of the process, making real indicators of functioning equipment. Especially important detail function works in the virtual learning laboratory. All work performed at this stage the student directly. The virtual educational laboratory is made of a thick client technology and Web-based technologies. VNL has three functional modules: administrative and client. The client side interface consisting of students and teachers.

Conclusions

Thus, the use of virtual laboratories following tasks in training technical and technological direction: providing independent preparation of students; increase the motivation for the development of new material; study of the characteristics of technological processes in equipment; gain some skills in production using workstation engineer. The advantage of the structure of virtual laboratory - is the

ability to effectively use separate virtual booths for different forms of education and provide the following components of the learning process as the activation of knowledge to perform the study and control of knowledge after.