Virtual Laboratory Practical Work on Discipline "A Solid-state Electronics"

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The lack of means on laboratory practical work reequipment with the up-to-date equipment, improving of independent student activity at learning educational disciplines, increasing of training capabilities through Internet has been stipulated creation of the virtual laboratory practical work on a discipline "Solid-state electronics".

The laboratory practical work consists of 9 laboratory activities. It is intended for analysis of crystal diode properties, bipolar and field-effect transistors, thyristors, photoradiators and photodetectors, optrons and integrated circuits.

For creations of virtual laboratory activities: as a core of controlling program the master switch control scheme with a tabulared task of activity regulation of a virtual bench is used; for implementation of simulation environment and introducing of nonstandard functions the software package Excel with a built-in high-level language Windows is selected.

The laboratory practical work is represented as the schemes, tables with data entry, graphic objects made with usage of a vast color graphic pallet, the text information, design formula both variants, video of the maps followed with explanation of features of this or pattern, the new quality and the powerful tool as a result of which is obtained.

This will allow not only to save means, but also to make a learning process more visual, interesting and convenient for independent analysis on this discipline.

The virtual laboratory practical work will allow to solve complex of tasks, bound with learning process:

- control educational process;
- realize the remote varied control of trainee knowledge;
- organize interactive interplay on different disciplines of a faculty with trainees through Internet;
- implant the different forms of individual training; widely to use and extend basic teaching materials in electron form;
- exchange the cost intensive labware for virtual resources and training aids.

The program of the virtual laboratory bench also includes designed teaching method modules permitting to depart from a path of compulsory education and training with a teacher, that has allowed to organize educational process with usage of network technologies, namely to realize:

training and remote control of knowledge through Internet;

interactive communication of a teacher with trainees; testing and distributed in time control of trainee knowledge.