

ABOUT THE COMPUTERIZATION OF TRAINING TO DISCIPLINE OF " BASIS OF POWER ELECTRONICS "

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The summary. Alarm for a situation has put in the field of the highest electrotechnical education in general and in the field of power electronics in particular moves us to necessity of change of a paradigm of training of transfer of the greater volume of the information through "lips" of the computer, instead of the mentor. The review of publications on a computerization of training to the power electronics, describing level of situation of a problem in Russia is made. Our results consist in development of the three-level electronic textbook (on depth of a level of representation of a material), independent and the Internet of versions of the computer testing, full of a cycle of computer models of laboratory works, direct analytical - computer methods of calculation of devices of power electronics on practical employment, an electronic database under circuits of converters.,

Key words: e-learning, 3-levels power electronics, computer laboratory works, tests

The today's condition of higher education in the field of electrical engineering in West is characterized, on the one hand, by increase of demand on the qualified young experts, and on the other hand, some decrease of interest of the students to these specialities, that results in reduction of a set of the students on them. With reference to a speciality " power electronics " this decrease of interest is connected to difficulties of training because of its integrated electrical character, requiring knowledge of semiconductor devices, circuitry of analog and digital control systems, circuitry and power of converters of electrical energy, computer facilities, electrical machines, theory of the electric drive, theory of automatic control ... Besides all these subject domains intensively develop and there is a lot of new material, and the number of educational hours on them at the best remains constant.

By one of effective methods of increase of interest of western and Russian students to training on a speciality " power electronics " and activization of training for increase of its efficiency is application of computer technologies in training together with approximation of educational tasks to tasks produced by practice. . The computers in themselves carry a charge of appeal for youth, and the entering into their use in the educational purposes of game elements, competitiveness, creativity on multimedia basis transforms training from process "motivated" from the outside and consequently having usually elements of compulsion, having into elements caused by own interest of the trainee. That circumstance testifies also to a urgency of reorganization of paradigm of training, that in last 5-10 years at universities of USA and Western Europe will be carried out with increasing intensity of work on e-learning, to what the occurrence even independent sections on a technique of training at scientific- technical conferences on power electronics and electric drives (EPE, PEMC-EPE) testifies. In the European Union within the framework of the program Leonardo da Vinci 11 the international educational project directed on development to the concept and methodology of designing interactive multimedia courses in various areas of electrical education has appeared [1].

The subject heading on a technique of training has appeared and in the programs of the Russian and Ukrainian scientific- technical conferences (AED01, APE02). But as a whole in Russia of work in this direction have no while due speed of development. From known results in a part of introduction of new information technologies in process of training it is possible to note the first books on automation of designing of devices of power electronics [2-7], the computer aided textbook [8] on the beginnings of electronics, the two books on construction of laboratory works on modeling of power converters and electrical machines [9,10] in program Simulink (Matlab) and line of articles on perfection of engineering education in proceedings of a scientific- technical conference in MEI [11]. To same purpose there correspond the created automatic testing stands for

the students on bases of power electronics on industrial electronics department of TUSCR (Tomsk), and our works [12-22].

With reference to study of a discipline "Bases of power electronics" on industrial electronics department of NGTU the paradigm of a computerization of training is supported by the edition of a firm copy [12] and electronic variant [13] (with elements multimedia) manual (edu.nstu.ru) at the same lecture rate [14-16], of a complete cycle of laboratory works on the basis of computer models of devices of power electronics with the help of our software package "Parus-Pargraph" [17-19], of independent computer test system allowing the student "without the witnesses" to check the current level of preparation [20]. Same paradigm includes also development of an educational database executed on an example of base on the three-phase power factor correctors [21], and approach of settlement tasks on practical occupations to tasks of designing of real devices of power electronics [22], carried out on the contracts on department.

In the whole work is on the initial stage of the development and its support, coordination and planning at a level of scientific - methodical Council on industrial electronics of the science and education Ministry of Russian Federation, and also attention to it is required on the part of Association of the engineers of power electronics of Russian Federation (Moscow).

In widely known in West and copies, available at us, of the textbooks on power electronics [23-28] use of computers is limited while to the decision of simulation tasks. On the other hand, announced program of creation of an free approach to 2000 electronic textbooks on a site Massachussets technological university actually does not contain while the textbook on power electronics.

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