the Electronic Methodological – Educationally Complex (EMEC) complete form.

Certainly, the electronic MEC is being existed on the basis of the paper version. The Institute of the Higher Education, the College, and the University teachers and the lecturers, at the same time, are creating the Methodological – Educationally Complex (MEC) backbone, having developed and having, annually, renovated the executable codes and having refreshed the working programs. For all this, the executable codes and the working programs modernization is being taken into the consideration such general processes, as the human activity all types informatization, the education and the vocation specialization at the industrial needs and under the region vital activity and the vital functions conditions. At the present day, the teachers, the lecturers and the tutors EMEC is being included into itself the executable codes, the working programs, the lectures, the operating instructions, the user's guides, the laboratory and test works and the necessary directions and the instructions on their carrying out, the literary sources lists, the test material, and also the testing standards and their models on all the given and the teaching academic disciplines. Optimally curricular and the teaching material is being presented in the structured form, that it simultaneously gives the possibility to the pupil to be received the systematized knowledge on each subject and the theme, and to the teacher and to the lecturer – pedagogically to work it out and to systematize his academic discipline description and also the testing material acquisition and the completing. The "Skype" type programs application is being assumed the academic disciplines study process to be individualized and also to be concretized.

So, the transition on the remote code and the form has also been demanded the virtual laboratory works development. At the evident substitution, such developments application is being permitted to be received the background knowledge in the unequipped branches, in the offices, or in the representations, or even not having gone outside the house for the students. And, it goes without saying, the laboratory works, even in such approximate form, are being permitted to be received more full and the versatile and the many – sided presentation on the studied academic discipline, to be deepened the notions and the definitions, to be improved and to be perfected the laws and the regulations perception for the user.

The education remote receiving form is, ideally, being opened the necessary access to the non – traditional informational sources, to be increased the independent type of the work efficiency, to be given perfectly the new possibilities for the creative work and the activity, the quite various and the different occupational skills and the vocational habits acquisition and the consolidation for the students, and, it, moreover, is being permitted to be quite realized the new modes and the forms and the teaching methods for the teachers and the lecturers.

The work was submitted to the international scientific conference «The Prospects for the University Science Development», (Sochi), 22–25 September 2010. Came to the editorial office on 14.07.2010.

THE SYSTEM ANALYSIS AND THE MATHEMATICAL MODELLING IN EDUCATION

Kucheryuk V.I., Krivchun N.A., Umanskaya O.L.
The Tyumen State Oil and Gas University, Tyumen

The teaching long – term and the many years' experience such academic disciplines, as «The Theoretical Mechanics», «The Strength of Materials», «The Applied Mechanics», and also «The Experimental Mechanics» for the full – time tuition or the resident instruction and the non – resident instruction or the distant education students has been given in this paper.

So, we have stopped at the full – time tuition or the resident instruction in the Technological Institute of the Higher Education, the College and the University, as there is the considerable difference between the full – time tuition or the resident instruction and the non – resident instruction or the distant education. The system approach, the multi – parametric optimization, and the mathematical modeling have been assumed as the research basis. Moreover, the hierarchical structure charts for the different and the various levels have already been built.

So, the Institute of the Higher Education, the College and the University – this is the opened system. That is why, the schoolchildren are the quite initial «material» for them. The already – made «production» is coming at the enterprises, into the offices, into the scientifically – planning – research Institutions. Thus, we have the first level system: the preschool Institution – the school – the Institute of the Higher Education, the College and the University – the enterprise.

Then, let us single out «the Institute of the Higher Education, the College and the University»

subsystem, and we shall consider it, as the second level system, the constituent elements of which are the following: the Chancellor – the University Administration – the Departments – the Institute (e.g. the Dean's Office) – the Chair – the Teacher or the Lecturer – the Student. «The teacher or the lecturer – the student» link is the main participant in the Institute of the Higher Education, the College and the University. So, the education quality, on the whole, is being depended just on him. Further, the knowledge transfer is being carried out by «the teacher or the lecturer – the academic curriculum – the student» system.

So, in its turn, «the teacher or the lecturer» subsystem is being consisted in the following elements: the instructional work, the methodological work, the scientific efforts and the study, the family, the health, and also the leisure – time. Analogically, it is also quite possible to be presented the «student» subsystem.

The «academic curriculum» subsystem is being included in itself: the lectures, the practical trainings, the laboratory session, the textbooks (e.g. the printed and the electronic ones), the normative and the standard materials, the operating instructions and the user's guides, the testing, the final test, and the examination.

At present, the quite different information and the various control technologies and the testing facilities are being entered in the training and the educational process. But it should be noted, «the teacher or the lecturer – the student» reciprocal relationship necessity, and it is hardly be possible the thinking engineer or the scientific worker to be prepared by «the professor – the student» non – personal contact.

Further, it is quite be possible to be continued the necessary detailing and the specification, with due regard for the studies schedule, the studies type, the teacher's qualification level, and also the methods study influence.

So, the quality global function, having accepted the maximum value, has been taken for the system optimization:

$$F(x) = \sum \alpha_i f_i(x_i),$$

$x_i \le$ xmax – the restrictions, where $f_i(xi)$ – the local (e.g. the system's separate elements) optimization functions; α_i – the weight coefficients; x, x_i – the variable parameters vectors; i = 1, 2, 3.. – the system blocks. The system programming is being used for the final results receiving.

Thus, it is quite advisably to be made up some mathematical models variants: just from the enlarged flowcharts up to the detailed charts, having singled out, as the main, well as the secondary cogs. The xi vectors are quite able to be presented by the functions, in particular the subsystem separate elements quality numerical scoring system.

Thus, the given analysis has already been shown, that more detailed quite different and the various factors recording is weighted with some other primary factors. On the other hand, the parameters, having entered just in the optimization formulae, are, to a large extent, the subjective ones, and it should be carried out the statistical analysis for the αi weight coefficients definition. On the whole, the task is the stochastic one. Moreover, it should be taken into the consideration, that the Institute of the Higher Education, the College, and the University public image has the great influence upon the final result. Nevertheless, the up – to – date mathematical apparatus and the computer engineering are being permitted to be optimized the whole educational process and the teaching training just in the specific Institute of the Higher Education, the College, and the University. Thus, the mathematical model research and the study are being carried out by the simulation method, having permitted to be considered the quite different options and the various variants, and also the separate structures and the system elements influence.

The work was submitted to the international scientific conference «The Prospects for the University Science Development», (Sochi), 22 – 25 September, 2010. Came to the editorial office on 14.07.2010.

LOSS MINIMIZATION IN THYRISTOR CONVERTER WITH DOSING CAPACITORS

Magazinnik L.T.
Ulyanovsk State Technical University, Ulyanovsk

Thyristor converters of direct current with dosing capacitors in power train are widely used in different electro-technologic devices of medium and high (more than 100kW) capacity in which realization of a converter at transistors is difficult.

However, regulation of load current of such a converter is possible only with the help of pulse-frequency method in quite limited range, and in light load it is unworkable at all. Thyristor- con-