3. Nacionalna konferencija sa međunarodnim učešćem
Fakultet tehničkih nauka u Čačku, 25-27. Septembar 2015.

3rd National Conference With International Participation
Faculty of Technical Sciences in Čačak, 25-27. September 2015.

UDK: 005.6:378.1 Stručni rad

THE CHALLENGES OF OUR TIME – LOOK FOR HIGHER EDUCATION

IZAZOVI NAŠEG VREMENA – POGLED NA VISOKO OBRAZOVANJE

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Abstract: The publication outlines features of the organization of educational process in higher education today. This process is characterized by increased requirement of adaptive development of advanced knowledge and skills of creative intellectual activity, including - engineering. On the example of Donbas State Engineering Academy, the outcome of the introduction of innovative methods of training engineers is in conjunction with an individual approach, taking into account personal qualities of education specialists.
Key Words: higher education, integrated training, innovation, education, corporate culture, distance learning, quality management.

Apstract: *Ovaj rad ističe karakteristike organizacije obrazovnog procesa u visokom obrazovanju. On se karakteriše povećanim zahtevima za adaptivnim razvojem naprednih znanja i veština kreativne intelektualne aktivnosti, uključujući tehniku. Na primeru Donbas državne tehničke akademije, rezultat uvođenja inovatnih metoda obučavanja inženjera je u skladu sa individualnom pristupom, uzimajući u obzir lične kvalitete obrazovnih stručnjaka.*
Key words: *visoko obrazovanje, integrisano obučavanje, inovacije, obrazovanje, korporativna kultura, učenje na daljinu, menadžment kvalitetom*

1. INTRODUCTION

Status of the modern world is that globalization processes are combined with population growth and the reduction of vital resources. Emerging contradictions tend to lie in the maintenance of normal conditions for the life of both countries and people and every person. This duality leads to a need to examine the processes and phenomena of various spheres of human society in the relationship of physical and spiritual components.

This relationship is due to the vector of human evolution as a representative of society as well as the spokesman of his own "I". In addition, these processes have a decisive influence to human environment. It should be noted that only the process dynamics leads to changes in the properties of both forms an individual and community.

Thus, to ensure the physical and spiritual needs of the person it is necessary to ensure ongoing compliance with its environmental quality. This is the basis of the concept of lifelong education as a factor of economic stability [1, 2, 3, 4].

2. BASIC PART

The globalization of modern civilization is evidence of transients and qualitative changes in society and, at the same time, an indicator of changing social attitudes and values views. If we consider globalization as a set of interrelated processes of planetary scale, each with inherent self-regulation mechanisms, we should expect that globalization will lead also to qualitative changes in the corporate culture of domestic enterprises, which provides guidance to maximize the potential of their employees to achieve the main goal of the subject of the economy - its maximum efficiency. Its basis is a holistic system of values, ideological attitudes, norms and rules of conduct, mental modes, levels of thinking and worldview, and psychological foundations.

In a globalized change as substantial and procedural content of corporate culture, but most importantly, in the period of globalization the principles of corporate culture must be changed significantly. These principles should include:
- Mutual trust and mutual respect;
- The priority of universal values;
- Socio-humanistic solidarity;
- High responsibility;
- Environmental (ecological self-consumer) psychology.

If the corporate culture will be based on the above principles, and will honor national modes of economic behavior, domestic enterprises will be able to adequately take globalization challenges, adopting the best achievements of mankind, and not caught in the pseudo values.

At the same time the current socio-economic situation in Ukraine shows that the distorted value orientations of its citizens: the upper levels of the hierarchy are derived material and practical and utilitarian and pragmatic values. There is a dehumanization of all spheres of public life.

The corporate culture of modern companies, enterprises, organizations often aimed only at achieving profit. But, as the experience of leading Western companies, their success is associated with the orientation to development of society, the needs of consumers and employees. So it is very important that graduates come to work in domestic

organizations which have a system of values, which define universal, absolute, eternal values.

Recently among young people, in many cases, great respect was given to a number of activities that have no basis in his work as such. In addition, there is permissiveness, irresponsibility, unwillingness to work, lack of respect for working people, the desire to get as much money for the lean time, not paying attention to how the money is received, the reluctance to produce anything: creative ideas or material products. A further concern is the lack of graduates' skills for team work, creative approach to solving problems, reduced need for self-improvement. However, they have a desire to achieve at easiest way the special position in the community, and very quickly.

Significant opportunities to solve the aforementioned problems provide a corporate culture of students since it is based upon values, including the value of the individual. Corporate culture is one of the mechanisms of social integration of students, which increases social activity, motivation for learning and socially useful activities, rally on the staff and student formation of its values, creates conditions for the development of creative and active student.

The task of the educational process in higher education should be the formation of students' competence in corporate culture, which is a sign of social and psychological qualities that integrates the individual in the corporate community and includes motives, goals, values, their attitude towards the future professionals, the pursuit of personal improvement, style and behaviors based on emotional and volitional self-regulation and adequate self-esteem.

Thus, the formation of corporate expertise urgently needs socio-cultural and economic processes in the modern life of Ukraine. Formation of corporate competency should meet the needs and transformational processes of evolutionary development in globalization conditions. A significant role in the formation of corporate competence belongs to higher education institutions that must carry out serious practical work in this direction by implementing appropriate mechanisms and technologies.

Requirements for the quality of graduates of the Donbas State Engineering Academy (DSEA) are constantly increasing, evidenced by continuous improvement of curricula and requirements of employers towards graduates. Different kinds of companies and organizations, different vision of each potential job complicate overall preparation of students to meet each prospective employers. Thus the employability of graduates is constantly deteriorating, evidenced by the joint staff reductions for companies and organizations and reduce the admission of new employees. Thus, particularly urgent is the task of increasing the competitiveness of labor market. A promising direction, which requires, however, a great methodological and organizational work of departments of the Donbas State Engineering Academy is the individualization of training and masters to the specific needs of the profession and the future employers.

Deep individual training of students of the 5th year studying under the "specialist" and "master" in order to improve the quality of theoretical and practical training, improve their mastery of new knowledge, abilities and skills should provide:
- Depth study of subjects or learning new disciplines of individual training, including through transfer of experience productive activities;
- Passing the practical training in the company to master the skills of practical problems as engineers alternates;
- Research, including - experimental work in the laboratory of students or research centers;
- Passing individual training program of double diplomas (a prospect).

The schedule of educational process and the curriculum provides for deeper individual training, usually for 2 (or 3) trimesters - for specialists and 3 (or 4) semesters - for masters.

Exclusive educational product "3 - 2 - 1" was first introduced as a joint project Novokramatorsk machine factory and Donbas State Engineering Academy. Its purpose was to prepare students of technical faculties DSEA to full realization of their abilities on a large engineering company after graduation [11, 12].

The system means that three days a week students spend in the academy, two days spend working on machines in shops and businesses and one day learn in classrooms of Development Department staff Novokramatorsk machine factory. Training under this scheme begins in the third year, continues in fourth and fifth.

It precedes the selection of students for special integrated methodology. The training program provided by the third year students obtains theoretical knowledge and practical skills on conventional machines, i.e. machine-skills development. Those whose comprehensive assessments fully meet corporate requirements of NKMZ continue learning system '3 - 2 - 1 " in the fourth year. At this stage, they learn skills to manage modern CNC machines, auxiliary workers working, studying and drawing up of programs that implement the technology on mehobrobky by computing centers and CNC machines. Beginning in the fourth year, these students receive monthly salaries as factory workers, in proportion to waste time and attendance. Those who continue their education after the selection of the fifth year, during the final year of study become proficient system workers on high-tech equipment for the metal-cutting technology, which made the actual processing details.

Mastered with technological capabilities of new tools and programming after graduation, young specialists in the plant and in accordance with the training program must work at least three years as specialists on modern machines. At best Western firms only the specialist can work as technologist or designer who has at least three years worked on the machine.

And then - a quality of career. Someone will work as designer or production engineer, a head of someone, and someone will probably remain a specialist in high-tech operating systems. But by the time each of them is an expert on modern metal-cutting equipment and technology, they probably will be much more likely to become leading specialists and managers of production.

In the context of the target individual students' practical training at the enterprises is of the great relevance for the self-employment of graduates. Relevance of distance learning program of theoretical courses increases significantly. In the current context of educational activities, the need to ensure relevance of distance learning technologies is growing. It is becoming increasingly important to ensure the continuous management of independent work of students, teachers monitoring students' work performance which contributes to students' readiness to undergo final and residual control of knowledge - it is an effective way to maintain the number of students and the formation of the DSEA. Therefore, in order to ensure quality standards of public education it is required constant development of remote forms of current and final control of students' knowledge of the DSEA [4, 5].

Currently, the introduction of distance learning technologies is carried out in accordance with the Regulations on the DSEA in distance learning, on the basis of internal documents and provisions of the DSEA, which prospective development activities until 2020, an action plan for the implementation of distance learning).

The question on the status and prospects of distance learning has repeatedly discussed at the academic and methodological councils. It is worth noting the work of organizing training courses for academic staff as "Fundamentals of distance learning", the contest of electronic textbooks, advising teachers on the development of the Academy distance learning courses in various academic disciplines (in the framework of the Agreement between the DSEA and Ukrainian Institute for Information Technologies in Education Ukraine).

However, the guidelines for the development of remote forms of current and final control of students' knowledge, embodied in the widespread educational process, is insufficient, and we have the experiences with this remote control (with the exception of the use of the designer tests to perform only control elements and I think that is not always objectively).

For the implementation of distance learning technologies:
- The structure of information and methodical Disk specialty;
- Distance learning course has its designed template;
- At the Academy held training courses for teachers;
- Forum-created distance learning;
- Teachers Academy is working on the creation of electronic textbooks;
- Create a folder of teaching materials for students, including distance learning

- Use the opportunity to e-mail for consultations with the course and diploma projects, the organization of control activities (examinations, tests) in the disciplines.

An example is the holding diploma course bachelors and specialists in synchronized remotely using Skype partially parallel audio and video fixation in certification process. The draft decision contains data about it.

The experience can be the basis for further development and implementation in practice of total control of knowledge of students on distance learning.

The introduction of elements of distance learning in the educational process was repeatedly discussed at the meeting of the Scientific and Methodological Council, which pointed to the lack of use of established Academy consultation forum for consultation and assistance in the training of students. A total of 346 registered forum visitors, It somehow does not fit with the scope of students for at least some satisfactory use of remote means. A number of departments have never used the advisory forum.

The most important, in our opinion, is the continuous monitoring and verification of the progress of independent student work and the results of the assimilation of teaching materials.

An important step, the ongoing work is a workshop teacher training with the general orientation on the use of "cloud computing" in distance learning, which aims to familiarize students with the nature and advantages in the learning process.

The use of "cloud computing" in distance learning allows you to:
- To improve existing methods of providing materials to students;
- Obtaining information from the students is more organized;
- The teacher is able to monitor the students' independent work.

Adopted in 2014, the Verkhovna Rada of Ukraine Law "On education" has created a legal basis for state policy in higher education, aimed at reforming its system and, above all, to improve the system of training, which should be based on "knowledge triangle" (education-science-innovation), and to be able to dynamically respond adequately to the challenges and needs of the economy, provide quality knowledge and practical skills of learners, according to the international quality and standards of higher education in Ukraine.

As defined by this Law, the formation and implementation of state policy in the field of higher education provided, in particular by:
- The development of university autonomy and academic freedom participants in the educational process;
- The preservation and development of higher education and improve the quality of higher education;

- Harmonious interaction of national systems of education, science, business and the state;
- The development of scientific, technical and innovation activities of universities and their integration with production;
- Expanding opportunities for higher education and lifelong learning.

The Academy has a certain system of ensuring quality indicators of activity in all directions, which is due to the plans of the Academy, faculties, departments, divisions and services, regulations and orders on the organization of educational process and scientific activities and curricula, work programs, organization of semester schedules educational process [6, 7, 8, 9, 10]. Some system monitoring of the quality of training at the academy include:
- Monitoring the input level of knowledge at the beginning of the study of basic disciplines;
- Monitoring the current success of students;
- Independent monitoring of residual knowledge of students by conducting rector tests of basic, professional and professional disciplines;
- Quality control projects and diploma works of graduates;
- Assess the quality of graduate employers;
- Sociological research students by questionnaire.

Each semester overall results of current progress and monitoring residual knowledge of each student are transferred to the appropriate department for analysis and implementation of measures.

In 2014:
- 11 licensed professions at the Academy and licensing procedures for 2 more specializations;
- The Center of postgraduate education and training;
- Applications submitted for licensing of training in 7 areas of training persons with higher education;
- Included in the action plan and departments deaneries measures to improve the training of bachelors in the short term training;
- Developed a matrix of control measures and system impacts on the quality of training in the learning process;
- Conducted training for teaching staff methodological work with cloud resources, and using the platform Moodle;
- Is working on processing specialties Academy curricula for all educational levels of training.

Quality of training depends on the quality of educational programs, scientific and methodological support of educational process. Among the factors influencing this process are:
- Availability of teaching development,
- Introduction of new learning technologies,

- Introduction of independent monitoring and assessment of knowledge and skills of students (including employers) and state certification of all levels.

To ensure this the Academy transferred to electronic media teaching materials for all specialties and courses. Annually it issued 16 manuals stamped MES to 38 manuals stamped ISBN, 19 monographs, but very few books in the fields of Academy, behind the needs of manufacturing electronic books by the teaching staff.

Diploma projects held in 2014 at a sufficient level, as evidenced by the results of competitions diploma and degree but need further improvement work with students at the stage of graduation projects, including improvement of chairs on the observations and recommendations of the State Examination Commission.

The Academy is trying to defend its position in the education market, working with companies and organizations. As in previous years, one of the main advantages of the academy is a high level of practical training graduates. As an example of practical training, work began with the introduction of individual target practical training of students. For the purpose of the Cabinet of Ministers of Ukraine of 27.08.2010 № 1726 "On improvement of employment graduates" department of practical training, employment promotion and training graduates Academy undertook comprehensive measures to expand relations with employers, in particular, with "Employers Forum" and "Fair of professions" that have become traditional. In 2014 the Academy received an assignment to work under contracts of employment with 96% of graduates, but received official confirmation that coming graduates at this time is more than 27%. According to employers in 2013 and in 2014 the overall training academy graduates as "high" estimate 30.0% of respondents, 69.6% - as able to work independently and only 0.4% as low.

An essential component of innovative technology teaching is research work of students. The Academy has some success in this area (working on a program of work with gifted students, awards, to take place in contests, etc.). However, this work must be more efficient, accompanied by comprehensive measures to attract students to work in the departments, scientific schools and research laboratories. This is another component of effective work of the academy's image.

The Academy, a university IV level of accreditation, preferably has a trained specialists of Master, PhD and PhD, so you need to develop a training system based on Masters triangle "Education-Science-Innovation" with the definition of the relevant requirements of departments, supervisors and students, as well as on the basis of recognized training system "master" - "PhD" and implement them in the field of the academy.

An integral part of the quality of education is the quality of the staff of the faculty, so necessary:

- Intensify the work of the teaching staff with constant training and internships for promising scientific and industrial areas;
- Strengthen the responsibility of teaching staff for the results of its training and research activities in accordance with criteria rating universities.

You must continue to use the rating system of evaluation of teaching staff in accordance with the approved Terms and rating evaluation of the results by encouraging the best teachers and leaders of the teaching schools for high quality work, competitive results into account when electing teachers and contracts [8, 9, 10].

An important factor in improving the quality and "modernization" of higher education is to further develop the system of professional development and training of teaching staff (at least once every 5 years). In 2013, 130 teachers had training, internships in enterprises and research institutions. At the end of 2013 all teachers had training under licensing requirements. But we need to ensure teachers' training course in Business English, development of Web-page, computer testing, development of distance learning courses. The main tasks of faculties and departments are to organize and coordinate the teaching work in all areas of postgraduate education; curriculum development and the educational process of retraining and advanced training of specialists; search and ensuring effective interaction with corporate customers educational services (enterprises, institutions and organizations); creating information resources training programs and access to training students from different regions of Ukraine and other countries through distance learning [11, 12].

Despite the lack of centralized funding, changes in teaching and laboratory facilities are necessary. Certain steps in this direction are:
- Takes further development of scientific-educational center «Haidenhain»;
- Supported computers at the needs of modern programs;
- Introducing new research laboratory of nature;
- Provided support to sports complex in the required state;
- Partially updated measuring instruments;
- Develop information resources departments and faculties for the learning process and research.

Continuing implementation of information technologies in educational process and in the management of the DSEA is important. It is necessary to ensure the functioning of websites of departments and faculties of the mandatory creation and accompanying personal sites of teachers, the organization of teachers training programs for this technology in the educational process. It is important to maintain and upgrade the bank's courses, electronic textbooks, virtual laboratories should be developed more [13, 14, 15].

Overall, for the quality of education must provide:
- Implementation of methodological support for monitoring the quality of education based on the introduction of diagnostic quality education;

- Examination and determination of monitoring and quality assurance factors in the academy;
- Development and implementation of schemes of expert analysis of curricula, variant parts and characteristics of educational programs for their compliance with state standards;
- Organizing and conducting a survey of students and teachers for quality education;
- Further improvement and implementation of a comprehensive ranking of teaching staff (diagnostics of program scientific methods of teaching, methods of diagnosis of scientific and educational activities of teachers, tentative rules and criteria for monitoring the quality of teaching, the approximate circuit analysis visited lesson (lecture), method of diagnosis "Teacher eyes student", "teacher rating" (Opinion colleagues), the scheme of teacher self-reflection;
- Development and implementation of self-diagnostic methods of student achievement (based testing, certification, the individual plan of studies of a discipline, independent work etc.).
- Further implementation of the estimated schedule scheme (matrix) permanent university control;
- Management decisions based on analysis of the quality of education at all levels of government in the Academy;
- Formation plans editions of scientific, educational and methodological literature based on an independent analysis of scientific methods of quality of education and teaching methods of disciplines;
- Preparation and participation in certification procedures well and integrated evaluation of the Academy, participation in contests ranking universities;
- Participation in the implementation of research projects on the same themes, particularly in research grants;
- Study and summarize the experience of other universities on the activities of expert services and monitoring studies;
- Sociological surveys, questionnaires, surveys, sociometry, social and psychological research on constructive, humane relations team;
- Comprehensive self-analysis of scientific, educational, educational work in the context of the Academy of Education Development Concept for 2015-2025 years.

Thus, the Academy should intensify work administration, teaching staff, departments and employees of the Academy to achieve quality performance and increase the ranking according to the Law Academy of Ukraine "On Higher Education".

3. CONCLUSIONS

Thus, the "cloud computing" can cover all the major components of distance learning. And now we need to make departments' massive attack on the creation, use and further improve the use of cloud resources. We must prepare for both lecturers and teachers of the department, as well as students for the practical application of these virtual classrooms for students studying disciplines. And you should start right now using the current term for testing the interaction between teachers and students. And from next

trimester - it makes the primary guide independent work and preparation for the control of students' knowledge of all forms of learning.

REFERENCES

[1] Kovalevsky, S.V., Zavgorodnyaya, E.A., (2009). Corporative culture and quality of educational services in the higher school, *Zbornik radova Proceedings. SED 2009. «Science and higher education in function of sustainable development»*, 14-15 September 2009 Uzice, Serbia. Str. 571-572.

[2] Fedorinov, V., Kovalevskyy, S., Medvedeva, O., (2010). Uloga korporative kulture u cilju unapredjenja kvaliteta obuke studenta u visokom obrazovanju, *Zbornik Radova Proceedings. Energetsko rudarstvo, nove technologije, odrzivi razvoj. Energy mining, new technologies, systainable development*. 3 International Symposium Energy Mining 2010. - Apatin, 2010. str. 510-515.

[3] Kovalevskyy, S., Kosheva, L., (2012). Nature and structure of corporative culture, *2nd International conference "Economics and Management – Based on New Technologies" EMoNT 2012*, 14–17 September 2012. Vrnjacka Banja, Serbia, str. 233–246.

[4] Kovalevskyy, S., Kosheva, L., (2011). An analysis of results of experimental researches of influence of facilities of physical education is on corporate culture of students, *6th International conference "ISQME2011" (Quality, Management, Environment, Engineering),* 20-22 September 2011. Hotel Palma, Tivat-Montenegro. str. 141-148.

[5] Kovalevskyy, S., Kosheva, L., (2011). System model of personality is in context of corporate culture and physical education, *6th International conference "ISQME2011" (Quality, Management, Environment, Engineering),* 20-22 September 2011. Hotel Palma, Tivat-Montenegro, str. 157-164.

[6] Fedorinov, V., Fesenko, A., Kovalevskyy, S., Pavlov, V., (2010). About Control System By Quality Of Processes At Higher School, *International conference "ISQME2010"(Quality, Management, Environment, Engineering),* 15-17 September 2010. Hotel Palma, Tivat-Montenegro, str. 377-385.

[7] Fedorinov, V.A., Fesenko, A.N., Kovalevskyy, S.V., Korotenko, Y.D., (2011). Technological materialization of knowledge, *Качество образования – управление, сертификация, признание: сборник научных работ международной научно-методической конференции,* 31 октября – 2 ноября 2011 г. – Краматорск : ДГМА, str. 3-7.

[8] Kovalevskyy, S., Kosheva, L., (2012). Conceptual model of quality of education in the technical university of example Donbas state engineering academy, *International conference "ICQME2012"(Quality, Management, Environment, Engineering),* 19-21 September 2012. Hotel Palma, Tivat-Montenegro, str. 317–326.

[9] Fedorinov, V.A., Fesenko, A.N., Kovalevskyy, S.V., (2011). Tekhnologicheskaya materializaciya znanij, *Oborudovanie i instrument dlya professionalov. Metalloobrabotka. – CHF "Centr Inform*", str. 100–102.

[10] Fedorinov, V., Fesenko, A., Kovalevskyy, S., (2011). Innovative regional going near training of personnels for machine-building enterprises, *6th International conference "ISQME2011" (Quality, Management, Environment, Engineering),* 20-22 September 2011. Hotel Palma, Tivat-Montenegro, str.251-254.

[11] Fedorinov, V., Fesenko, A., Kovalevskyy, S., (2011). Staffing technology transfer as a basis for the production of innovation, *11th International conference "Research and Development in Mechanical Industry" RaDMI 2011*, 15-18 September. – Sokobanja, Serbia, Vol. 2., str. 706-708.

[12] Kovalevs'kij, S.V., (2013). Dosvid praktichnoï pidgotovki studentiv Donbas'koï derzhavnoï mashinobudivnoï akademiï, *Zb. nauk. prac' Mizhn. nauk.-prakt. konf. «Efektivni tekhnologiï navchannya ta vihovannya v konteksti Bolons'kogo procesu»* 18–19 kvitnya 2013 r. – Makiïvka, str. 212–216.

[13] Fedorinov, V., Fesenko, A., Kovalevskyy, S., (2010). About ways of realization of conception "teaching during life", *International conference "ISQME2010"(Quality, Management, Environment, Engineering*), 15-17 September 2010. Hotel Palma, Tivat-Montenegro, str. 367-377.

[14] Kovalevs'kyy, S.V. (2008). Naukovo-tekhnichna inteligenciya u rozvitku gumanitarnogo prostoru Donechchini, *Rozvitok gumanitarnogo prostoru Donechchini. Sekciya z pitan' osviti i nauki : materiali oblasnih gromads'kih sluhan' u ramkah Vseukr. forumu inteligenciï* 14 bereznya 2008 roku. Doneck, str. 37-44.

[15] Kovalevskyy, S.V., (2014). EHffektivnost' distancionnogo obucheniya kak rezul'tat nadezhnostit informacionnyh i chelovecheskih resursov, *Sovremennoe obrazovanie i integracionnye processy*. – Kramatorsk : DGMA, str. 44-46