

Scientific articles



Dual education as an effective form of qualitative human resourcing at oil and gas companies

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The educational system of Ukraine has stopped to be closed long ago, the processes of globalization and internationalization require a substantial adjustment the educational policy of the domestic system of education. So, education should not only be the theory itself, it must be organically combined with the real practical tasks of a particular professional field. State policy main priority in the field of higher education is quality, and one of the important tools for quality assurance is higher education institutions connection with employers.

Permanent communication with employers was and remains our University priority. And exactly on our cooperation experience with leading oil and gas industry employers I want to focus your attention before moving on to highlight dual education as new direction of cooperation.

Active employers' engagement to the educational programs implementation, practical training, and final graduate's certification ensure University integration into modern economic and social space. I always focus on the fact that University graduates quality training final assessment is provided by employers, and therefore the learning process must be inextricably linked with real practice in the manufacturing sector. No wonder in 2017 PolNTU entered the TOP-50 best universities of Ukraine according to employers' estimates.

Our cooperation with leading oil and gas companies is diverse. It is practical training and internship of students, post-graduate students and scientific-pedagogical workers excursions to

production facilities, joint conducting of scientific-theoretical and scientific-practical seminars and conferences. Thus, in 2017, more than ten such conferences, seminars and trainings were held only with the companies DTEK Naftogaz, Geosynthesis Engineering, LLC «Poltava Drilling Company», and Subsidiary enterprise «Scientific-research institute of oil and gas industry».

Particular attention deserves PolNTU experience of conducting advanced training courses for specialists in the oil and gas complex. Thus, together with the LLC «Poltava Drilling Company» and the Union of drillers of Ukraine in 2017 advanced training for specialists in the field of drilling in the areas of "Drilling mud and special fluids" and "Drilling wells with sloping and horizontal trunks" were conducted.

The practical part of the courses "Drilling solutions and special fluids" was conducted in PolNTU laboratory of oil and gas technologies, equipped with a modern set of laboratory and research equipment for determining the parameters of drilling fluids, as well as in the laboratory of drilling and cementing slurry LLC «Poltava Drilling Company» .

During the "Drilling wells with sloping and horizontal trunks" practical training sessions the students visited a drilling rig and a telemetric laboratory at LLC «Poltava Drilling Company» , where explored Canadian manufacturer Drill-Tek MWD telemetric system performance. The specialists of the Ukrnaftagazservice Company shared their experience in servicing and repairing winding motors manufactured by the world-known company

Wenzel Downhole Tools.

In 2017 PoltNTU together with the "Weatherford" Company held further education courses "Fishing operations technologies while conducting major workover". The courses participants were representatives of the following oil and gas companies - PJSC "Ukrgezvydobuvannya", Ohtyrka oil and gas production division "OkhtyrkaNaftogaz", PJSC "Ukrnafta", "Dolynaftogaz", "Weatherford" Company.

As during the advanced training and surely during the educational process, modern laboratory of oil and gas technologies is actively being used by university and college students. Its opening in September 2016 is another example of university-enterprise collaboration. The laboratory was created jointly with DTEK Naftogaz and LLC Geosynthesis Engineering.

The laboratory of oil and gas technology provides the opportunity to acquire practical skills, carry out highly effective scientific researches for students, undergraduate students, graduate students and scientists, and also carry out advanced training of oil and gas workers. By the way, the cycle of preparatory works on certification of this laboratory has already been completed, which will allow research of drilling muds properties and flushing fluids to be carried out at its base on request of enterprises, with a wide involvement of students and scientific and pedagogical workers.

The opening of such modern laboratories is a step towards ensuring a high level of training for specialists in the oil and gas industry and increasing their demand in the labor market. Now, together with PJSC "Ukrgezvydobuvannya" and "Shlumberger" we are cooperating to open a new modern laboratory.

As you can see, we have a considerable multi-vector experience of cooperation with branch enterprises. But taken into account the rapid development of the oil and gas industry in Ukraine in recent years, we understand that time requires the search for new solutions in the training of specialists. And one of such solutions can be dual education implementation.

In the new Law of Ukraine "About Education", which came into force in September 2017, the concept of dual education was first established at the legislative level. Thus, Article 9 "Forms of Education" states: "the dual form of education is a way of obtaining education, which involves combining the training of persons in educational institutions (in other subjects of educational activity) with training at workplaces at enterprises, institutions and organizations for obtaining a certain qualification, as a rule, on the basis of the contract".

At the initiative of the Minister of Education and Science of Ukraine Lilia Grynevych and the Federation of Employers of Ukraine, the development of the Concept of training specialists for the dual form of education in Ukraine was launched. The result of the work was presented recently at the Board of Ministry. Taking into account that the draft Concept has to be adopted in the near future, I briefly want to inform you about the main provisions of this document. The Concept provides for the establishment of equal partnership of educational institutions, employers and education providers with the aim of acquiring the latest experience in practical application of competencies and their adaptation in the real professional activity conditions.

To the opinion of the Concept developers, there are a number of problems that need to be solved now in higher education in Ukraine. Including:

- Unreadiness of higher education institutions graduates part to self-employment in the labor market;
- Insufficient skills development demanded by employers;
- Lack of practical experience teachers;
- Lack of information on current and future employers' needs in the competence of employees;
- Lack of modern equipment and technologies.

The consequences of these problems are:

- Unpreparedness of graduates to work in a specialty;
- The need for additional training in the workplace;
- Low motivation of higher education graduates to study;
- The inconsistency of graduates with the requirements of employers regarding the experience of independent professional activity;
- Excess academic education programs.

The main task of introducing the dual form of education is to formulate a model for preparing a future specialist on the basis of mutually beneficial relations between the educational institution and employers, aimed at the practical training of applicants for education to independent professional activities and their social adaptation in the production environment.

To accomplish the task it is necessary:

- take measures to eliminate the main disadvantages of traditional educational forms and methods of training future specialists;
- overcome the gap between theory and practice, education and production;
- improve the quality of training qualified personnel in accordance with the requirements of employers in the framework of new forms of educational process.

Particularly active in world practice, dual education is used to train specialists in engineering specialties. Therefore, the idea of introducing dual education in the educational institutions of the oil and gas industry is particularly relevant and has good prospects in the realities of today.

The main participants in dual education are a student, a higher education institution and an employer. Ways to achieve this goal are the conclusion of a tripartite agreement, the development of integrated training programs and the formation of professional competencies. The educational program for the dual form of training involves holding 25-50% of the total amount of classroom hours in the workplace. In this case, the programs should be oriented towards the needs of the employer and ensure the formation of professional competencies.

The model of the implementation of dual education is an organic combination of appropriate structural elements aimed at achieving the goal of improving the quality of training oil and gas industry specialists on the basis of interaction between college and university with employers.

The proposed goal is realized by applying the appropriate didactic approaches:

- Competency, which provides formation of professional competence for applicants of higher education;
- Activity, consisting of the orientation of the educational process on the application of theoretical knowledge in practice, the formation of abilities for self-education and team work;
- Integrated, providing an organic combination of knowledge,

skills and skills of future professionals.

The training of highly skilled specialists should be carried out in accordance to the communication theory principles with practice, autonomy and activity, purposefulness and motivation.

- Components of dual education are:
- educational environment, organized on the basis of professionally oriented technology of education, which is provided both by the educational institution and employer;
- Competency-oriented didactic support (training programs, instructional materials, multimedia content, etc.), created jointly with employers;
- Sustained positive motivation of the applicants for education in order to gain professional competence for further successful professional activity target.

The organization of vocational training is carried out by combining theoretical studies in a higher education institution, practical training at an enterprise and student self-development.

The result of the dual education implementation should improve the quality of training specialists and adapt the professional knowledge, and graduates skills to the market situation.

The cooperation model of higher educational establishments with the enterprise will enable improving the vocational and practical component of the educational process while maintaining a sufficient level of theoretical training; to modernize the content of the educational process in accordance with the requirements of professional activity, which will ensure the improvement of the quality of education and the introduction of advanced educational technologies into the system of higher education.

The peculiarity of dual education is also not being the equivalent of practice, which as well is a compulsory element of the educational process. At enterprises in the process of dual education it is precisely carrying out classes - laboratory, practical, while the theoretical material is mastered by students in college or university lectures. Each participant in the dual education system has its own functions. You can see them on the slide.

Educational establishment (college, university):

- Provides theoretical training, the integrity of the educational curriculum and compliance with educational standards, is responsible for the quality of education of applicants;
- Develop and approve the curriculum of the relevant educational program with the participation of employers;
- Ensure coordination of theoretical and practical training content;
- Provides support for the training of the education provider at the enterprise, together with the representative of the enterprise accepts the reporting and evaluates the results.

Employer:

- Takes part in the development of educational programs and curriculum;
- Participates in the selection of education applicants for dual education;
- Participates in the evaluation of educational outcomes in accordance with the educational program;
- Establishes a qualified specialist (mentor) for a competitor of education.

Educational Consumer:

- must timely and qualitatively carry out the tasks assigned to him while studying in the workplace, and individual tasks according to the curriculum;
- must observe the corporate policy of the enterprise, in particular regarding the confidentiality of information;
- maintain contact with the person responsible for the implementation of the educational program of the dual form of education, inform the employer and the representative of the educational institution in a timely manner if problems arise.

The introduction of dual education has a number of benefits for both the employer and the learner.

Enterprises:

- Receive specialists - highly skilled, academically educated, motivated to succeed, with specific practical skills.
- No need for costly and long-term training programs for staff.
- Establish close contact with the university in the transfer of technology and knowledge.

Educational Consumers:

- Acquire useful practical and professional experience - professional competence.
- Have high professional and career prospects for further employment.
- They begin their professional development and adapt to production earlier.

The dual system of training specialists in the oil and gas industry is not a tribute to fashion, but a requirement of time. Oil and gas companies need skilled personnel, and graduates of educational institutions need the workplace. Both sides will only benefit from the fact that these problems are solved in advance. Dual education has proven its worth in many countries around the world - Germany, Switzerland, Canada, and the USA. Of course, the system of legislation of Ukraine needs to be changed, and the Ministry of Science and Education is optimistic and believes that during 2018 the main work on legal provision of this process will be implemented. But we are already taking steps towards introducing the dual system of training in the educational process. Thus, proposals for conducting an experiment on dual education in the college of oil and gas, which are sent for consideration to PJSC "Ukrgezvydobuvannya", were prepared. We hope that they will be considered and a joint work will be launched on the implementation of this project.

We are deeply convinced that the dual education system implementation for specialists in the oil and gas industry can bring quality training to the requirements of the labor market and allow students to obtain the most up-to-date knowledge and skills, while effective support is provided by the representatives of production and business as potential employers.