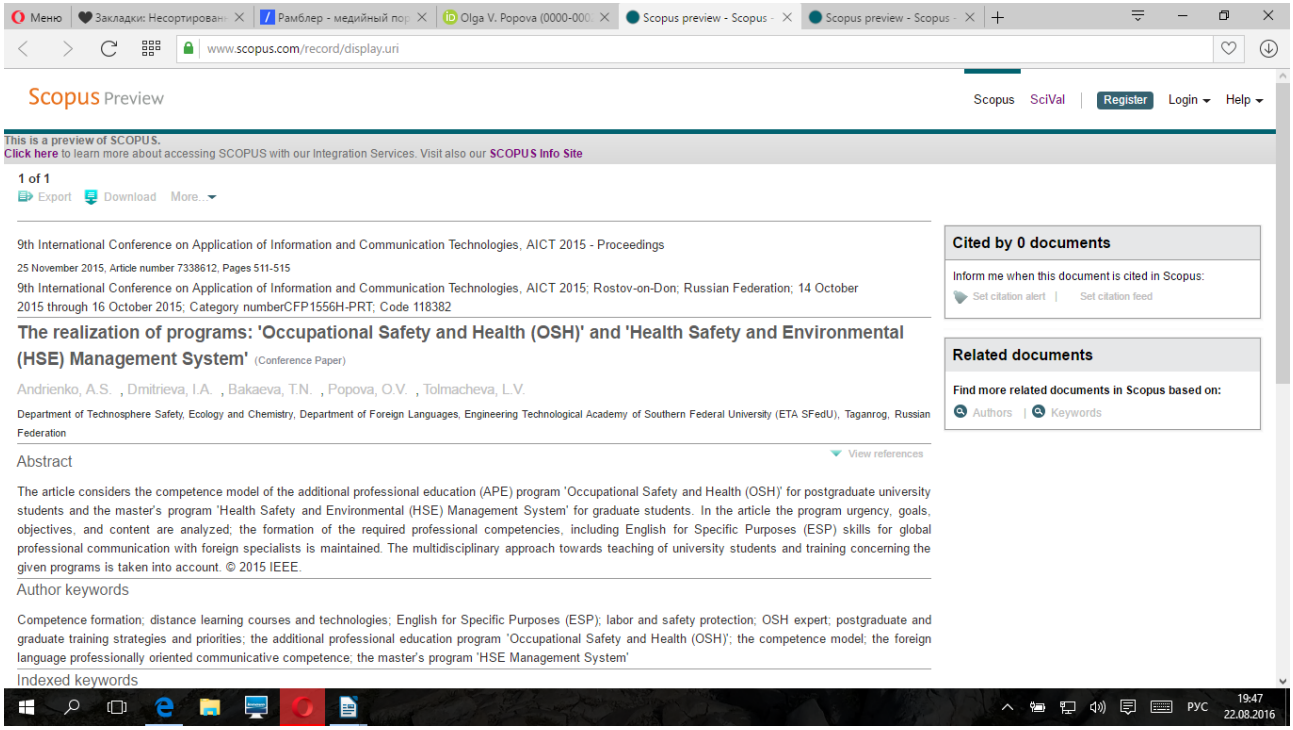
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The realization of programs: 'Occupational Safety and Health (OSH)' and 'Health Safety and Environmental (HSE) Management System' (Conference Paper)
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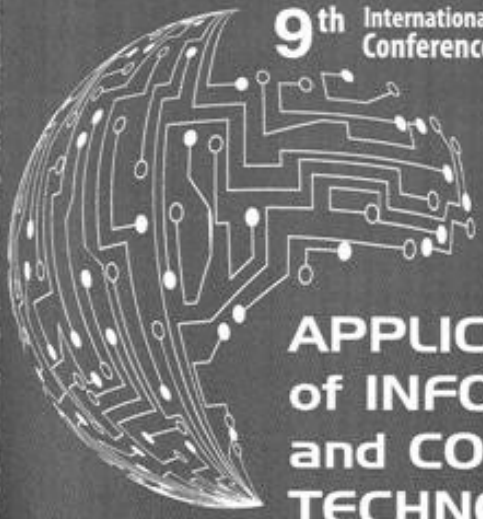

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2015 9th International Conference on Application of Information and Communication Technologies (AICT)

The Realization of Programs: "Occupational Safety and Health (OSH)" and "Health Safety and Environmental (HSE) Management System"

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***Abstract*—The article considers the competence model of the additional professional education (APE) program "Occupational Safety and Health (OSH)" for postgraduate university students and the master's program "Health Safety and Environmental (HSE) Management System" for graduate students. In the article the program urgency, goals, objectives, and content are analyzed; the formation of the required professional competencies, including English for Specific Purposes (ESP) skills for global professional communication with foreign specialists is maintained. The multidisciplinary approach towards teaching of university students and training concerning the given programs is taken into account.**

***Index Terms*—Competence formation, the competence model, the additional professional education program "Occupational Safety and Health (OSH)", OSH expert, the master's program "HSE Management System", labor and safety protection, distance learning courses and technologies, postgraduate and graduate training strategies and priorities, English for Specific Purposes (ESP), the foreign language professionally oriented communicative competence.**

I. Introduction

Nowadays, in the era of academic mobility and globalization, professional compatibility, development of modern technology and the appearance of new requirements for different occupation positions, the quality improvement of management of the enterprises need to respond to insurance claims in order to predict and prevent occupational safety and health risks.

It goes without saying that the education, training and practice to require occupational safety competence is actual and necessary. It is concerned with such failures of materials, machines, processes and structures as may give rise to dangerous situations, including the release of harmful agents. The aim of education in this field is to enable students to foresee the danger, both at the planning stage of projects and in existing situations, to quantify the danger and to design measures to combat it. Training in occupational safety involves students in a substantial study of selected problems from engineering and materials science, particularly those related to mechanical, civil, chemical, electrical and structural engineering.

The additional professional education (APE) program "OSH" for postgraduate university students is aimed at qualified personnel training to require necessary competencies in order to perform the professional activity in the field of health and safety at enterprises and organizations. The purpose of the master's program is to provide graduates with the ability to successfully implement the acquired knowledge and skills in the field of technological processes and production safety (considering the security of technologies for the health and life of the working personnel); and environmental safety of processes and production (concerning the safety of production technologies for the environment and for the population) in the chosen area of activity (in science, manufacturing, business and management); the formation of general cultural, general professional, and specific professional competences in the process of implementation of innovative programs and learning technologies that ensure social mobility and competitiveness of graduates in the labor market and prepare graduates for self-training and continuous professional self-improvement.

The system of additional professional training and education program "OSH" and the master's program "HSE Management System" requires multidisciplinary training in the process of the process of teaching of university students. For example, separate curricular units are to be concerned with the structure and strength of materials in mechanical engineering; with forces in structures in civil and computer engineering; with the handling and transportation of chemicals in chemical engineering; with design standards, protective equipment and the theory of preventive maintenance in electrical engineering; and with the behavior of strata in mining engineering.

II. Problem Statement

Today in Russia we have the process of the replacement of existing inefficient OSH management system to a new system of occupational risk management in accordance

with the recommendations of the standards of the International Labor Organization (ILO). In this connection, this work should be carried out by specialists who possess the appropriate knowledge and are able to develop effective preventive measures to improve working conditions [1, 2].

The necessity and actuality of the carried out programs are maintained by the government document, which has the force from July 1, 2013 based on the order of the Ministry of Labor of Russia from May, 15, 2013, No 205. According to this order from the Qualification schedule of managers, professionals and other employees (approved by the Resolution of the Ministry of Labor of Russia from August, 21, 1998 № 37) (hereinafter - Qualification Handbook) the positions of "Head of Protection Labor", and "Safety Engineer "and their qualifying performance were eliminated [3].

Instead of the eliminated positions, by the order the Health Ministry of Russia from May, 17, 2012, No 559n, which entered into force on the 1st of July, 2013 the following positions were added:

- «Head of labor protection" (for a qualification – additional professional education (APE) in the field of occupational safety and health with work experience in the field of occupational safety at least five years);
- «Specialist in Occupational Safety" (qualification requirements – retaining in the field of occupational safety and health) [4].

These changes caused anxiety among OSH engineers and employers who have the position of an engineer for a labor protection in their staff.

In this situation, employers become interested in the program, developed by the experts of the Department of Technospheric Safety Chemistry and Environment of Engineering.

III. Methodology

Engineering Technological Academy of Southern Federal University (ETA SFedU) retraining program has *the duration* of 1.5 years of study, 1410 hours of *the total workload*, including 512 hours of classroom work. *Form of study* is part time distant and correspondence work. *Admission*: it is necessary for applicants to have higher and incomplete higher technical education. *The final document of education*: a Diploma of Vocational Retraining, giving the right to conduct a new activity.

The goal of the program: training of qualified personnel to require necessary competences to carry out professional activities in the field of health and safety at enterprises and organizations.

The content of the program includes the curriculum which concerns the following disciplines:

- Industrial Sanitation and Occupation Health;
- Industrial Safety;
- Industrial Ecology;
- Safety in Emergency Situations;
- Occupational Safety Management;
- Economics of Occupation Safety;
- A Special Assessment of Job's Conditions Certification;
- The Basics of Psychology of Occupational Safety and Man-machine Systems Safety;
- Expertise of Security in the Development of Projects;
- Information Technology and Occupation Safety Management;
- Safety of Technology and Equipment of Industrial Branches.

The competence-based learning model is fully implemented and reflected in the programs of these courses.

Laboratory and practical training is 132 hours of classwork.

APE program "OSH" for postgraduate university students is opened for the purpose of preparing skilled workers, specialists in the sphere of occupational safety and health to ensure the safety of employees of enterprises and organizations. It involves training and personal and professional development of specialists, enables graduates to implement a new type of professional activity successfully, to realize their potential, ensure social stability and mobility in the labor market. Professional activity of graduates is aimed at ensuring the safety of employees and the consistent improvement of working conditions and safety in a business or organization. OSH specialists solve the problems of the analysis of dangerous and harmful factors of the working environment, technical expertise, monitoring of working conditions for compliance with the regulations and safety standards, identifying and addressing violations that endanger the life and health of employees to carry out preventive work aimed at forming safe behavior.

The content of the program is built up on the base of the competence model and qualification requirements for labor safety specialists. As a result of the development of the program, *students will know*:

1) the methods and principles of the analysis of human interaction with the environment;

2) the harmful and dangerous factors of the production environment, the mechanism of their effects on a human and methods for determining the regulatory levels of permissible negative impacts on human rights;

3) the methods of safety management; principles and methods of examination of industrial safety;

4) devices, equipmenrt and principles of the system of monitoring the environment;

5) legislative, regulatory and technical acts regulating labour safety;

6) modern information technologies and systems in the field of safety; *students will be able to*:

1) analyze and evaluate the hazards of the manufacturing process and equipment;

2) use legal and regulatory technical documentation on safety;

3) take the necessary measures to prevent accidents and occupational diseases;

4) use the means of individual and collective protection of employees;

5) determine the cost-effectiveness of measures aimed at reducing workplace injuries, illness, accidents, pollution.

The Curriculum APE "OSH' for postgraduate university students include the worked out materials that are available and are at the disposal of the university members at the Department of Technospheric Safety Chemistry and Environment of Engineering in electronic form: lecture notes, guidelines for practical work and supervised independent work, and presentations of the lectures [5].

Engineering Technological Academy of Southern Federal University (ETA SFedU) Master Program "Health Safety and Environmental Management System" has *the duration* of 2 years of study, 4320 hours of *the total workload,* including 677 hours of classroom work. *Credit hours:* 120. *Form of study* is full time. *Admission*: it is necessary to have bachelor education. *The final document of education*: a Master Diploma of "HSE Management System" of the Department of Technospheric Safety, Chemistry and Environment of Engineering [6].

The general purpose of the program is to provide graduates with knowledge and skills in the field of technological processes and production safety, security technologies for the health and life of the working personnel, and environmental safety of processes and production; to form professional competences in the implementation of innovative programs and learning technologies that ensure social mobility and competitiveness of graduates in the labor market.

The Master Program is designed in accordance with the Federal-State Standard of Higher education. Implementation of the program will occur as a result of the joint activity of the departments of the Institute of Management in Economic, Ecological and Social systems of SFedU and representatives of the professional community [7].

Basic Courses: IT in the Safety sphere; Economics and Management of the Safety; Risk Management; System analysis and modeling; Examination of the safety; Security monitoring; Methodology of the Science Research; Technology and Security of the Main Production; International Scientific and Technical Communication; Environmental safety; Theory and Assessment Methods of the Influence on the Environment; The principles of Creating Resource-Action Plants.

Elective courses: Technological Electrical / Physical Environment, Advanced Energy Technologies / Materials for Technological and Environmental Safety, Business / Professional English, Evaluating the Effectiveness of Environmental Activities / Economic-Organizational Basis of Ecological Safety, Intellectual Property Law / Contract Law.

To achieve the intended learning outcomes, the following methods of educational technology have been used: the methods of IT: the use of Internet resources to expand the information field, processing, transmitting and receiving information; the interdisciplinary training: a kind of training with using knowledge from various fields (disciplines), implemented in the study of a particular discipline; the learning from experience: activating the cognitive activity of the student association at the expense of their own experience with the subject of the study; the research methods: the cognitive activity aimed at the acquisition of new theoretical and factual knowledge through research, independently or under the guidance of a teacher.

When teaching people with disabilities distance learning will be implemented with the provision: electronic lecture notes; control tasks; test questions. Consultations of teachers and knowledge control are carried out by e-mail or via Skype.

The research and practical training is held at the end of the second semester for 6 weeks and is aimed at deepening and broadening of professional competencies (practical knowledge and skills), obtained in the study of subjects during the Bachelor level; strengthening them in practical training; maintaining the theoretical skills and practical experience during the semester; the formation of practical skills to acquire the ability to carry out an independent research. The practical research is carried out in the fourth semester for 12 weeks and is preceded by a pre-diploma practice.

The Master Research Practice is aimed at

- expanding and deepening the practical skills of conducting independent research activities;
- developing the professional competencies (knowledge, skills), which were obtained in the previous stages of studying on the base of graduate programs;
- providing targeted accumulation of material for writing the final qualifying work – Master's Thesis.

Pre-diploma practice is carried out in the fourth semester for 6 weeks before the State Final Examination. Pre-diploma practice complete the formation of general competence and research skills and is aimed at the development of the final qualifying work as a Master's Thesis on a high professional and scientific level.

All kinds of practices are carried out in the enterprises and organizations which are the partners of the SFedU, which have signed an agreement on cooperation, as well as in the laboratories of the issuing department. The process of multidisciplinary collaboration between university departments guarantees the possibility of the program fulfillment in the field of the scientific and practical training and guiding the students during practice.

As a result of the development of graduate programs at the graduate level common cultural, general professional and specific professional competence in accordance with the direction of preparation 20.04.01 "HSE Management

System" must be formed. The graduates who completed the program successfully are given the qualification "Master".

The types of professional activity of graduates can be used in the following fields: design and engineering; service and research; organization management; expert and supervisory spheres, and inspection and auditing activities.

As far as the employment of graduates are concerned they will be able to carry out their professional activities:

- in the industrial and service companies in various fields;
- in the design and scientific organizations and institutions that are developing technology and documentation to ensure technological and environmental safety departments;
- in the services and supervisory bodies of local, regional and federal levels;
- in the field of occupational safety and health, environmental and industrial safety.

The key positions of graduates after graduation are an environmental engineer, and a specialist in labor protection.

The languages in which the programs are to be implemented are the Russian language and LSP. It will give the graduates the ability to communicate with foreign specialists on the professional level [8].

The Process of modernization of the system of Higher Education in the conditions of the modern world tendencies, which include information, communication, integration and globalization, maintain the consideration of competence-based approach in the system of professionally focused training of future specialists of Higher Education institutions. In this regard requirements to the quality of modern standards to national education have to be brought into accord with the international standards for ensuring the competitiveness of specialists in the international labor market.

Graduate "OSH" and the master's program "HSE Management System" students must have the following professional competences: the ability to optimize methods and techniques to ensure human security from the effects of various negative factors in technosphere; the ability to implement new methods of improving the reliability and stability of the technical facilities to maintain their functionality; the ability to navigate the full range of the scientific problems in the professional field; the ability to address issues of the sustainable and safe use of technical equipment; the ability to analyze and evaluate the potential danger of economic facilities for humans and the environment [9, 10].

The competence-based approach is important for improving the quality of teaching and practical training of students in the sphere of Higher Education to enable them to be ready to work as individuals and to meet the demands of international mobility and integration. "The competence model", in contrast to the "knowledge model" means not only the process of receiving a certain amount of academic knowledge, but also the practical application of the gained knowledge during academic training and professional activities.

In this context, the purpose of the competence-oriented approach in education is to bridge the gap between education and the demands of life. Therefore, educational priorities should be shifted from the need to achieve a certain level of formation of a student's competence in his future professional activity to the readiness of a future graduate to implement the acquired set of core and basic competences in reality and to interact in a team, cooperating their efforts to compete in the labor market. Therefore, the competence approach is a valuable in the professionally oriented training of university students due to the entry of national education into the international educational space.

The concept of " the foreign-language professional communicative competence" is considered as the ability of future specialistswith the university Diploma:

1) *to carry out* the cross-cultural professionally focused communication as a personality with English as the second language skills;

2) *to interact* with carriers of another culture, taking into account national values, norms and representations;

3) *to create* a spirit, positive for communicants in cross-cultural communication;

4) *to choose* communicatively expedient ways of verbal and nonverbal behavior on the basis of knowledge of science and culture of other people within a polylogue of cultures;

5) *to keep national self-identification* in the conditions of the international integration and mobility.

In this connection a specific attention also has to be paid to the formation of the structural and substantial model of the foreign-language professional communicative competence, especially taking into account the intense development of international collaboration in the educational sphere.

A Safety and Health professional education requires multidisciplinary training of students. The "OSH" and "HSE Management System" professions need a broad-based educational background on the foundation of specialized competencies in physical sciences (medicine, physics, chemistry and engineering) and social sciences (behavior, motivation and communication) alongside with the principles and concepts of management.

In our opinion, the term "competence" is seen as a general ability of university students to exercise professional activities based on the knowledge, experience, values, and aptitudes.

Characterizing the term of "professional competence", we should mention the following important components:

- the professional qualification: knowledge and skills in the professional sphere, the ability to gain knowledge, using modern information technologies, necessary for the implementation of professionally-oriented activities;
- the professional readiness: the ability to develop the level knowledge to deal with tools, advanced

information and computer technologies, the ability to find, develop and use the necessary scientific information successfully, the ability to learn and teach the others;

- the communicative readiness: the knowledge of native and foreign languages, including the ability to apply the conceptual apparatus and basic professional vocabulary and related sciences and industry;
- the knowledge of communicative and information technology: basic knowledge of patents, legal sphere of labor relations, business ethics, professional writing and professional communication, management, the ability to debate, to motivate and advocate the decisions based on communicative and articulation skills - verbal and non-verbal, adequately perceive the expression of professionally oriented content, necessary for the implementation of cross-cultural communication in the field of professional activity;
- the possession of methods of feasibility, environmentally-oriented analysis of production with a concern to rationalization and humanization;
- the creative readiness: the ability to think critically, search for fundamentally new approaches to solve the problems and to deal with the challenges of innovation, both in the professional field as well as in the related areas of science, technology and the humanities;
- the understanding of the main trends and directions of development of the professional field and the technosphere as a whole alongside with the spiritual, political, social and economic processes;
- the ability to develop professionally through continuous education, the maintaining of significant personal qualities such as responsibility, commitment, determination, tolerance, empathy, self-criticism and demands at a sufficiently high self-esteem.

CONCLUSION

It should be emphasized that the professional competence is a necessary component of professionalism. The notion "professionalism" reflects the degree of man's mastery in the structure of the professional activity, which corresponds to the existing social standards and the objective requirements to a certain specialty and the sphere of occupation.

The worked out programs are the best value for students to acquire the best safety training experience. The gained competencies will give the opportunity to reach high-career goals, be competent in the sphere of the Occupational Safety and Health field, and to develop the skills, needed to manage effectively safety in a workplace.

The rapid pace of technological change, combined with the persistence of unsafe or environmentally threatening working conditions, focuses the attention on the need to create a safe, healthy working environment and to promote a new safety culture in the workplace. Organizations increasingly seek OSH professionals with the right competences who can manage these processes.

That is why the programs "OSH", and "HSE Management System", based on the competence approach of additional professional education, are urgent ones to prepare qualified specialists of this type.

REFERENCES

[1] Bakaeva T.N, Dmitrieva I.A. "Some issues of professional selection". Inzhenernyi Vestnik Dona, 2014. Online version ISSN 2073-8633. Retrieved from: http://www.ivdon.ru.

[2] American Safety Council Online OSHA Training, June, 26, 2015. Retrieved from: http://www.americansafetycouncil.com/osha-hazard-training/index.aspx.

[3] Order of the Ministry of Labour of Russia, No 205, May 15, 2013. Retrieved from: http//www.rosmintrud.ru/docs/mintrud/orders/60.

[4] The decree of the Ministry of Labour of Russia Federation, No 37, August 21, 1998 (current version from Febeuary 12, 2014) Qualification handbook for managers, professionals and other employees" Retrieved from http://www.consultant.ru/popular/spravochnik-dolzhnostej/

[5] Bakaeva T.N, Dmitrieva I.A, Tolmachyova L.V. Program Organization DPO "Occupational Safety" in the modern educational environment: challenges and prospects". Materials of of the International Forum Adult Continuing Education, St. Petersburg, 2015, pp. 129-132.

[6] Popova O.V. The Master program "Technology and environmental safety processes and production" in the direction of 20.04.01 Technosphere safety. Retrieved from http://sfedu.ru/pls/rsu/edu2015.obr_prog_doc?p_sell5_id=331

[7] Southern Federal University. Elective Courses, June, 24, 2015. Retrieved from: http://sfedu.ru/www/stat_pages22.show?p=EDU/OUM/B.

[8] Andrienko A.S. "The problem of ESP teaching peculiarities in the process of students' professional competence development at technological Higher School". Collection of the materials of the International scientific and practical conference "Prospects of development of language education in non humanitarian High school", Taganrog, Publishing house of the TTI SFU, May, 20-21, 2010, pp. 45-50.

[9] Andrienko A.S. "Improving foreign language component of professional competence of students in the study of the discipline "Foreign language" in a technical college." Formation of the professional culture of the 21st century experts at the Technical University / Collection of scientific papers of 11th International scientific-practical conference, St. Peterburg: Publishing House of the Polytechnic. Univ., 2011, pp. 209-212.

[10] Occupational Safety and Health Training. OHS Academy, June, 28, 2015. Retrieved from: http://www.oshatrain.org/pages/programs/132-hour-professional.html.