

Summary

PRACTICE OF INTERNATIONAL TRAINING OF PETROLEUM ENGINEERS IN FEDERAL STATE EDUCATIONAL INSTITUTION OF HIGHER PROFESSIONAL EDUCATION "KNRTU"

M.V. Zhuravleva
Kazan National Research Technological University

The urgency of the implementation of international training of engineers for the petrochemical complex is justified. Conditions and experience of training of engineers were considered in field of chemical technology, conducted jointly with the universities - members of the European Chemistry Thematic Network Association.

QUALITY MANAGEMENT OF EDUCATIONAL PROCESS AT TECHNICAL UNIVERSITY

N.Y. Bugakova
Kaliningrad State Technical University

In the article the criterion base of efficiency of technical higher education institution is analyzed in accordance with inward and outward university criteria and their indexes.

EDUCATIONAL AND PROFESSIONAL POTENTIAL OF SAINT PETERSBURG YOUTH AND PROBLEMS OF ITS IMPLEMENTATION

M.B. Terina, K.V. Shvetsov
Saint Petersburg State Polytechnic University

The article considers educational and professional trends among the youth of Saint Petersburg, factors affecting them, as well as challenges of understanding their own potential in the field of professional activity.

INTELLECTUAL AND PERSONAL RESOURCES OF GRADUATES AS AN INDICATOR OF THE ENGINEERING EDUCATION QUALITY

G.E. Veselov, N.A. Lyz'
Southern Federal University

In the article the concept of "quality of education" is analyzed. Four components of engineering education quality are highlighted. They reflect conformity between results and procedural education characteristics on the one hand, regulations and requirements, consumers' needs and interests and the subjects of the pedagogical process on the other hand. It is shown that the intellectual and personal resources, as graduates' willingness and ability to effectively manage its activities can be seen as a necessary indicator to evaluate the quality of engineering education in its efficiently-regulatory, efficiently-consumer and consumer-procedural components. The problem of the development of students' intellectual and personal resources is raised.

ON-SITE ENGINEERING TRAINING IN EDUCATIONAL PROGRAMS OF BACHELORS AND MASTERS

O.A. Ageev, V.V. Ivantsov
Southern Federal University

The unified competence model of Bachelor's and Master's general engineering education, which forms integrated requirements for general engineering training, irrespective of its direction, was proposed. The model is intended for use in developing of own higher education standards in various engineering fields.

PROFESSIONAL STANDARD AS AN INSTRUMENT FOR FORMATION AND EVALUATION OF PROFESSIONAL COMPETENCIES OF SPECIALISTS IN THE DESIGN AND MAINTENANCE OF THE CLEANROOM FOR MICRO- AND NANOELECTRONICS INDUSTRIES

Y.V. Sakharov, P.E. Troyan, E.V. Shesterikov, L.E. Velikovskiy, G.I. Gumerova
Tomsk State University of Control Systems and Radioelectronics, Research and Production Firm «Micran», Fund of Infrastructure and Educational Programs RUSNANO Corporation (Moscow)

The article describes the layout of the professional standard "Specialist Cleanroom design for micro- and nanoelectronics industries", the stages of its creation, and its correlation with the formation of the national education standards for college.

TRAINING OF SPECIALISTS FOR PARAMETERS MEASUREMENT AND MODIFICATION OF PROPERTIES OF NANOMATERIALS AND NANOSTRUCTURES BASED ON THE PROFESSIONAL STANDARD

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The article discusses relevance of training of specialists on measurement parameters and the modification of properties of nanomaterials and nanostructures based on the professional standard in the industry.

ON IMPLEMENTATION OF DISTANCE TECHNOLOGIES IN ENGINEERING PERSONNEL EDUCATION

V.V. Mayer, S.M. Moor
Tyumen State Oil and Gas University

Work is devoted to the most actual problems of preparation of engineering personnel in Russia, represents synthesis of the practical experience received from

realization of distance education on the example of one of the leading higher education institutions of the Tyumen region. In modern conditions the need of the solution of problems which stop the development of education and realization of integration processes, as well as the creation of uniform electronic educational environment in Russia and abroad is very high.

QUALITY OF ENGINEERING EDUCATION AS THE RESULT OF SYSTEM APPROACH TO THE ORGANIZATION AND CONDUCTION OF THE EDUCATIONAL PROCESS

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Togliatti State University, Institute Of Mechanical Engineering

To improve the quality of engineering education it is necessary, along with the audit of educational institutions for compliance with Standards and Directives ENQA to review the PLO by professional-public accreditation. This educational program should not only meet the international quality criteria, but also pass the internal audit with the aim of building an innovative structure and content of each of its sections meet current and future requirements. The design and implementation in the educational process of the University system, including innovation in its structure, the content of the educational program with its complex criteria-based assessment gives a guarantee of obtaining high-quality educational outcomes.

GROWING QUALITY OF TRANSPORT ENGINEERING EDUCATION

B.A. Lievin
Moscow State University of Railway Engineering

The article deals with problems of enhancement of the quality of engineering education of transport staff. The analysis of genesis of transport universities in Russia along with a brief review of innovation objectives of national transport system result in a conclusion that the main component of the mission of transport education and training is focused on the quality of training of the students, that ensures actual and future development

of transport system. The author explains the role of engineering education within the system of staff training for transport. The article defines approaches towards assessment of quality of education taking into account features of transportation sector, as well as priority requirements, fundamentals and objectives' outlook for staff training. The mechanisms of quality enhancement as well as transport features there-of are suggested. Science, research and education interaction are among main subjects of the study along with innovative vector of development of relevant universities, and promising forms of cooperation with other higher schools and partners from within transport business. System approach is deemed to be optimal for quality enhancement if adapted instruments common for engineering education are used together with specific mechanisms of transport education.

THE INTERACTIVE TEACHING METHODS APPLICATION DURING THE STUDY PROCESS OF ENGINEERING DISCIPLINES OF BACHELOR DEGREE "FOOD OF ANIMAL ORIGIN"

O.N. Musina
Altai State Technical University

The article considers the relevance of the extensive application of interactive teaching methods in the context of the universities transition to the competence approach in the educational process. The topic is considered through the prism of study engineer disciplines in the field of "Food of Animal Origin" at the Department of technology of food of Altai State Technical University.

UNIVERSITY OF APPLIED SCIENCES: FROM IDEA TO REALIZATION

S.A. Mikhaylichenko, S.V. Savchenko,
E.I. Nazarenko
Belgorod State Technological University
named after V.G. Shukhov

The article describes the implementation of an innovative educational project - University of Applied Sciences. The purpose of this project is the formation of a new model of training, which will increase staff of highly qualified personnel for the needs of the Bel-

gorod region and Russia. This will contribute to the intensive development of industrial potential, the discovery of new modern enterprises, elimination of staff shortage enterprises solve the issue of employment, and as a result, provide a reduction in unemployment.

ENVIRONMENTAL APPROACH AS A FACTOR OF EFFECTIVE COMPETENCES FORMATION FOR STUDENTS – FUTURE ENGINEERS

Y.O. Zubkova, E. R. Khayrullina,
L.L. Nikitina
Kazan National Research Technological
University

In the article understanding of environmental approach in a modern situation of domestic professional education system development is considered. The discussed approach allows considering influence of the happening changes in society to change the requirements for qualities of the future engineer identity at the organization of the educational environment and to provide creation of procedural and substantial components of educational process relevant to modern requirements and operating conditions of an education system and the industry. Unseeing methodology of environmental approach is possible to solve the problem of effective competences formation for students - future engineers.

ON THE FORMATION OF PROFESSIONAL THINKING OF ENGINEERING SPECIALISTS

I.G. Kartushina, E.S. Minkova
Immanuel Kant Baltic Federal University

The authors address the issue of formation of professional thinking engineering specialists. The article reflects the need to create professional thinking and consider a system of professional thinking of the future engineering specialists.

FORESIGHT OF ENGINEERING COMPETENCIES FOR HIGH-TECH INDUSTRIES

N.A. Shmatko
National Research University "Higher
School of Economics"

The paper considers issues of vocational education and training for highly qualified personnel which knowledge and skills allow them working for high-tech industries. Focus is put on the analysis of human relation policy of organizations aimed at preventing a shortage of highly skilled engineers who should implement technological innovations. The paper highlights the potential of Foresight methodology, through which the needs of organizations in new competencies, the future skills shortage and the "white spots" in professional training can be identified.

METHODOLOGICAL ISSUES IN THE FORMATION OF CADETS SYSTEM KNOWLEDGE AT ENGINEERING SCHOOLS

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Institute

The article discusses the possibility of the formation of system knowledge to the students of various engineering schools didactic means, charts, tables, posters, workbooks with a printed base, manuals. Stages of formation of the system of knowledge shown by specific examples of higher mathematics course. Takes into account features of mathematics teaching cadets military engineering universities.

DISTANCE EDUCATION OF ENGINEERS: NOOSPHERE IMPERATIVE

G.E. Veselov, A.N.Samoylov
Southern Federal University

In this article is considered the reforming of the Russian system of distance education; conditions of formation of model of distance education of engineers come to light; activity of the subject as new identity of adaptive type is lit.

EXPERIENCE OF PRACTICE-ORIENTED TRAINING APPLICATION IN ENGINEERING COURSES AT SOUTHERN FEDERAL UNIVERSITY

S.G. Grishchenko, N.N. Kisel
Southern Federal University

The paper describes the experience of application of practice-oriented training in engineering courses at Southern Federal University. When implementing innovative educational programs the directions for practice-oriented training have been determined. Students' research activities aimed at solving urgent applications is the main focus of engineering training.

ENGINEERING DESIGN FOR TRAINING: NEW APPROACHES

R.M. Petruneva, V.D. Vasilyeva
Volgograd State Technical University

The article deals with the problems of project training of a bachelor degree in engineering and technologies and the ways of its improvement in accordance with international standards.

PROJECT-ORIENTED COURSE IMPLEMENTATION EXPERIENCE IN MECHANICAL DEGREE AT TECHNICAL UNIVERSITY

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Production methods, the study of properties, and new materials applications are the strongest focus areas at one of Russia's largest and leading technical universities, the National University of Science and Technology "MISiS." Changes in the field of engineering, materials science, and metallurgy education have prompted MISiS to adjust its curriculum to meet these new demands. Accordingly, for the 2013-14 academic year the fourth-year course, "Physical and Chemical Properties of Nanoparticles and Nanomaterials," adopted a project-based learning (PBL) approach. The course instructors facilitated the acquisition

of required competencies and skills through practically-oriented group projects.

ORGANIZATION OF QUICKLY PROTOTYPING ELECTRONIC CIRCUITS EDUCATION FOR SYSTEM AND TECHNOLOGY ENGINEERS

V.T. Lobach, V.W. Shebolkhov
Southern Federal University

The article describes an organization and principles of education for the system-engineers to electronic devices designing automation. It is based on quickly prototyping technologies used in scientific and educational system design technologies center of radio and telecommunication systems department of Southern Federal University.

ENVIRONMENT TECHNOLOGY LEARNING AS A BASIS FOR THE FORMATION OF ENVIRONMENTAL SAFETY OF EDUCATION ENVIRONMENT

V.A. Danilenkova
Kaliningrad State Technical University

The article analyzes the technology of teaching Ecology in a technical college on the basis of integration, intensification, diagnostic knowledge and its influence on the formation of environmental safe educational environment.

ORGANIZATION OF ADAPTIVE SYSTEM OF EDUCATION OF FOREIGN MILITARY MEN

E.A. Kalt
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The article is devoted to the problems of adaptive system of education organization in the military higher educational institution. The author suggests some ways of solving the problem of foreign students' adaptation to the process of education. The article reviews experience of educators-innovators in their movement to an adaptive system of education.

ANALYSIS OF STUDENTS' PROGRESS AS A TEACHER'S TOOL FOR IMPROVEMENT OF THE EDUCATION QUALITY

E.A. Erokhina, D.V. Khruslova, E.S. Klyshinsky, Y.V. Zhurin
MIEM National Research University "Higher School of Economics"

The article discusses the issue of improvement of the quality of education using the feedback in form of regularly conducted control work during the lectures. The article contains numerical evaluation of academic progress of students learned at Faculty of Information Technologies and Computational Technics of MIEM NRU HSE.

PRACTICAL APPLICATION OF MAJOR FORMS OF ACTIVE STUDING

J.B. Kostyrina
Tyumen State Oil and Gas University

Competencies bachelor in the transition to a new generation of educational standard of higher vocational education, integrated application of innovative methodologies, organization of mutual control and independent work.

FORMATION OF KEY COMPETENCIES OF ENGINEERING GRADUATES

T.A. Ekimova, N.Y. Ershova, L.V. Murashkina, K.G. Tarasov
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Significant universal competencies of graduates of directions of engineering preparation are noted. An attempt to formulate universal competence in the activity approach was made. The algorithm of drawing up the curriculum of competency matrix was proposed. The article shows a fragment of a matrix of competencies as an example of the competence to "manage engineering projects" and proposed criteria for its evaluation.

FORMING OF ENGINEERING THINKING DURING THE SPECIALISTS TRAINING PROCESS: TRADITIONAL APPROACH AND MODERN CHALLENGES

V.I. Lysak, I.L. Gonik, A.V. Fetisov, O.V. Yurova, A.V. Tekin
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The article defines the essence of the concept «modern engineering thinking» and also attempts the factors, influencing on its formation in the framework of the traditional and modern higher education. The article fleshes out the main reasons for the lack of effective interaction between universities and industrial enterprises in the context of preparation experts with modern type of engineering thinking. The article also describes possible ways of organizing effective educational process of the future highly innovation-oriented technical personnel.

STUDY OF THE FORMATION SYSTEM OF ARTIFICIAL INTELLIGENCE

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The Bonch-Bruевич Saint - Petersburg State University of Telecommunications

The aim of the article is to study the formation system of artificial intelligence for modern educational process. A key factor in determining the development of today's artificial intelligence technology, the growth rate is considered to computing power, as the principles of the human psyche still remain unclear (at an affordable level of detail for the simulation). Therefore, the artificial intelligence technology in Education theme looks quite standard and the composition has been almost unchanged for a long time.

FORMATION OF ENGINEERING THINKING – MAIN PURPOSE OF THE "RELAY EDUCATION" AT THE UNIVERSITY

V.I. Butenko, D.S. Durov, R.G. Shapovalov
Southern Federal University

The article describes the essence and

purpose of the "relay education" at University, the principals involved in the organization of this type educational process, the importance of formation the complex theme research, which should combine the problematic issues of most disciplines of the educational block, which exercise a group of students, the basic didactic principles used when organizing the "relay education" at the University.

FEATURES OF THE ENGINEERING THINKING FORMATION OF RADIO ENGINEERS IN MODERN CONDITIONS

N.I. Merejin, V.P. Ryijov
Southern Federal University

The article based on the features of engineering thinking makes recommendations about the direction and the specifics of the forms of training of Radio Engineers.

EXPERIENCE THE FORMATION OF GRADUATES' ENGINEERING THINKING AT THE INSTITUTE OF MECHANICAL ENGINEERING AT TSU

V.V. El'tsov, E.N. Pochekuev, A.V. Skripachev
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It is difficult to imagine a creative engineer in the modern machine-building enterprise without the ability to use computer-aided design. CAD tools are not used only for engineers, but also define the paradigm of modern engineering thinking, the fundamental basis of which is to visualize the geometry of the objects created by the inventor and simulation of functioning in which they are involved. CAD Education Technology application in practice, as the experience of high school shows, requires a new approach to the process of education of highly qualified engineering personnel. One solution to this problem is demonstrated by the Institute of Engineering of Togliatti State University.

TRIZ AND PROSPECTS OF ENGINEERING EDUCATION

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The article discusses the problem of training future engineers' creativity, analyzes the discrepancy of professional and educational standards, a role of TRIZ tools in overcoming these problems.

THE CONTENT OF THE COGNITIVE COMPONENT AND THE DOMINANT VALUES IN THE STRUCTURE OF THE ENVIRONMENTAL CONSCIOUSNESS OF CADETS OF THE MILITARY ENGINEERING INSTITUTE

O.V. Selezneva, N.A. Mamaeva
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The psychological content of the cognitive and affective components of ecological consciousness of cadets of the military engineering institutes is revealed in the article. The results of the research are presented; the problem of environmental awareness in society of military engineering institutes is indicated.