

Summaries

Modernization practice

ALEXANDROV A.A., FEDOROV I.B., MEDVEDEV V.E. ENGINEERING EDUCATION TODAY: PROBLEMS AND SOLUTIONS

The quality of engineering education is the main problem under discussion in the article. Russian method of training engineers, well known in our country and abroad, provides the highest authority of Russian engineering school in the world. Its basic principles (education based on science and interaction with industry) and characteristics are described. We analyze some negative aspects affecting the quality of engineering education and propose solutions to overcome them. Bauman MSTU offers one of the effective solutions – an organization of pre-university education as a successive system “school – university” including access courses, specialized lyceums and schools, youth scientific programs and Olympiads. Moreover, Bauman University applies the system of additional professional education than enables an engineer to acquire competences in management, intellectual property, communication in foreign languages.

Keywords: engineering education, quality of education, pre-university training, professionalism of lecturers, postgraduate education

ZHURAKOVSKY V.M. SOME RESULTS AND PROSPECTS OF NATIONAL RESEARCH UNIVERSITIES' ACTIVITIES

The article sums up the results of the activities of national research universities, gives an assessment of their effectiveness according to the main evaluation indexes: improvement of education process, development of research and innovation activities, development of human resources, research and pedagogical personnel, infrastructure changes, modernization of management systems, intensification of international communication. The analysis has been made on a basis of reports on universities' development programs realization in 2012. The paper explores contribution of national research universities in development of industry areas, regions and territories, and the system of vocational education. There are revealed some problems in universities' development and given the main guidelines on raising the effectiveness of universities' development programs realization.

Keywords: national research university, university development program, priority areas of development, university innovation activities

MUDROVA E.B., VINOGRADOVA E.B. STATE AS AN INVESTOR AND CUSTOMER IN POSTGRADUATE EDUCATION: NATIONAL RESEARCH UNIVERSITIES NETWORK

The article provides an analysis of the state policy as an investor in the course of reforming higher education system. Here the authors contemplate the problem of underutilization of resources of the network of national research universities by the state as a customer that decides on admission quotas for postgraduate education. The article provides an analysis of interaction between the state as an investor and customer and one specific national research university in the course of reforming higher education system. The article presents an organizational solution for optimization of university resources exploitation throughout the process of postgraduate education.

Keywords: national research university, admission quotas, state as an investor, state as a customer, postgraduate education, science and education centre

International scientific forum International forum in Kazan

DYAKONOV G.S. THE GLOBAL TASKS OF ENGINEERING EDUCATION AND ENGINEERS' TRAINING AT NATIONAL RESEARCH UNIVERSITY

The paper explores the topical tasks of engineering education and considers the ways to solve them both on national basis and on the level of a research university. Engineers' training

requires applying of new approaches such as interdisciplinary and transdisciplinary. The technical university of XXI century must be a transdisciplinary university, and engineers' education should include training of specialists at enterprises and companies. The other measures include realization of the universities' own education programs and standards, creating of a network of lycees, and introducing of obligatory unified state examination in physics, chemistry, and biology.

Keywords: engineering education, national research university, interdisciplinary approach, transdisciplinary approach, transdisciplinary university, basic chair at enterprise, network of lycees

BUCHANAN W.W. ROLE OF THE AMERICAN SOCIETY FOR ENGINEERING EDUCATION IN ENCOURAGING DISTANCE EDUCATION AND OTHER METHODS TO REDUCE COSTS OF ENGINEERING EDUCATION

During this past year as President of ASEE, I worked to lead our society in playing a role in encouraging distance education and other methods to reduce the cost of engineering education. In the United States and other countries as well, the cost of higher education has been increasing. This past year student debt surpassed the total of credit card debt in the United States to the tune of over one trillion dollars. This milestone has generated a lot of attention and forced many people to see what can be done to decrease the cost of higher education. Engineering education tends to be higher than education in many other disciplines due to the cost of running and equipping laboratories, which are very important in good hands-on engineering education. Distance education can play a role here. "Flipped" classrooms where lectures can be done by distance education followed by live discussions and laboratories is one example of what can be done to reduce costs. Other methods will be discussed.

Keywords: ASEE, engineering education, cost of engineering education, college transfer, community colleges

PRIKHODKO V.M. "SUSTAINABLE DEVELOPMENT" AS THE MODERN OBJECTIVE OF ENGINEERING EDUCATION

In this paper we propose to consider the purpose of engineering education as opportunities to improve the quality of humankind's life (in the framework of «sustainable development»). It is proposed coordination of teacher training at the Centers for Engineering Education IGIP for this purpose, as well as the need to address this preparation to the problems of engineering education in Russia.

Keywords: engineering education, sustainable development, Centers for Engineering Education IGIP

IVANOV V.G., ABZALILOVA L.R. STATE POLICY IN ENGINEERING EDUCATION: THE REGIONAL VIEW

The article deals with topical issues of modern engineering education development which require, due to the Russian specific character, the state participation and employer's attention. During the last years, state support of higher technical education has been reshaping. The accent has been done on a public-private partnership. KNRTU has created its own innovation model of this type of partnership.

Keywords: engineering education, gas and petrochemical complex, project based learning, public-private partnership

OVSSENKO L.V., ZIMINA I.V., KLINTSOVA N.N., MÜLLER FR. RESEARCH AND ACADEMIC CLUSTER AS A MODEL OF NETWORK COOPERATION

Network cooperation in education between different kinds of educational organizations, enterprises and business partners now becomes the mainstream in educational system of the Russian Federation as an optimizing form of educational process. Research and academic cluster, as a model of network cooperation, enables combining all educational resources, and all members of a cluster can use and develop them.

Keywords: network cooperation, social partnership, educational resources, professional education, professional standards, professional capacity, dual system

GERASIMOV S.I., SVETLAKOV A.P. TRAINING OF EXPERTS OF AEER ACCREDITATION CENTER

The article analyzes the materials of a training seminar for the experts in professional and public accreditation of engineering education programs. The seminar was held within the framework of the International scientific school "Engineering education for a new industrialization". The paper adduces the qualification requirements for the candidates of AEER (Association for Engineering Education of Russia) experts and describes the competence model of AC AEER experts.

Keywords: engineering education, accreditation of engineering education programs, Accreditation center of Association for Engineering Education of Russia, training of candidates for AC AEER experts, training seminar, qualification requirements for experts

IVANOV V.G., KONDRATYEV V.V., KAYBIYAINEN A.A. MODERN PROBLEMS OF ENGINEERING EDUCATION: THE RESULTS OF INTERNATIONAL CONFERENCES AND SCIENTIFIC SCHOOL

The paper analyzes the proceedings of the 42nd IGIP International Conference on Engineering Pedagogy "Global Challenges in Engineering Education", 16th ICL conference and International scientific school "Engineering education for a new industrialization (plenary sessions reports, learning seminars, subject specific seminars, and experts' seminars). Conclusive recommendations of the International scientific school formulated by the conference participants for the authorities and expert community, for the Ministry of education and Science of the Russian Federation, for the representatives of scientific organizations, business structures, engineering companies, and industrial enterprises, for university administration are adduced in the article.

Keywords: engineering education, 42nd IGIP International Conference, 16th ICL conference, International scientific school, globalization of engineering education, e-learning, advanced engineering education, conference recommendations

Crossroad of opinions

BEDNYI B.I. THE ROLE AND STRUCTURE OF EDUCATIONAL COMPONENT IN PHD PROGRAMS OF A NEW TYPE

The article presents an analysis of the main trends in the development of doctoral education in the framework of the Bologna process. Practical experience of modernizing the system for academic staff training in the postgraduate school of Lobachevsky State University of Nizhni Novgorod is summarized.

Keywords: PhD programs, structured programs, transferable competencies, research schools

LYSIKAU B.G. ON THE 10-LEVEL MARK-SYSTEM FOR ESTIMATION OF KNOWLEDGE

The paper substantiates the necessity for transition from the 5-level mark-system for estimation of knowledge of pupils and students to a 10-level one in Russia. The techniques for construction the logical, clear, harmonious and common 10-level mark-system are developed.

Keywords: estimation of knowledge, 5-level mark-system, 10-level mark-system, techniques for construction multilevel mark-system

Doctoral training

SANGER P.H.A., ZIYATDINOVA J.N. WRITING IN ENGLISH FOR INTERNATIONAL CONFERENCES

This article is the result of a two-hour workshop given to new faculty attending the International Scientific School on Engineering Education for New Industrialization held in

Kazan, Tatarstan from September 23–28, 2013. The goal of the workshop was to help faculty who are interested in publishing in English at conferences. The workshop had three parts: selecting the best venue, creating an interesting title and writing a good abstract.

Keywords: Writing English, Russian writers, abstracts, conference papers

YAKIMOVICH B.A., SELETKOV S.G. “METHODOLOGY OF THE DISSERTATION RESEARCH” AS AN ACADEMIC DISCIPLINE

In the article the authors examine ways of improving the quality and effectiveness of scientific qualification works of undergraduates and postgraduates. Develop training of undergraduates and graduate students in the methodology and presentation of thesis proposed by the introduction of appropriate discipline in the educational programs of graduate and postgraduate studies.

Keywords: methodology of dissertation research, educational discipline and program, thesis

TATYANUSHKIN D.V. THE TECHNOLOGY OF INFORMATION PROCESSING BY HIGHER EDUCATIONAL INSTITUTION STUDENTS: STAGES, METHODS, TECHNIQUES

The article presents the classification of information types on different criteria. The requirements for the quality of scientific information are characterized. The author considers the nature of modern students' interaction with the digital information environment and demonstrates the need for development of students' information processing skills. The technology of information processing by students is introduced. The paper describes the basic methods and techniques of working with the texts contents when fulfilling creative tasks and writing scientific research papers. The results of this research have practical application in educational process of higher educational institution.

Keywords: information, scientific research information, information processing, information processing technology, data retrieval, sources of information, critical analysis, characteristics of information, logical structuring

Discussing a problem

KARPOVA M.R., KARAS S.I. PROJECT-BASED TRAINING IN HIGHER MEDICAL EDUCATION

Federal state educational standards aim at formation of the students' competences, which are treated as an objective of learning. Development of students' competencies takes place, in particular, in project-based training, which has been approved in a course of microbiology and in an interdisciplinary educational program for specialty “Medical cybernetics”. An interdisciplinary approach reveals the additional advantages of project-based education.

Keywords: competence-based educational standards, project-based training, students' competences, interdisciplinary approach

APEVALOVA Z.V. ORGANIZATION OF ACTIVITY OF PEDAGOGICAL UNIVERSITIES' CONSORTIUM: MAIN METHODOLOGICAL APPROACHES

The article is devoted to the description of consecutive stages of activity on the organization of Consortium of pedagogical universities. This work grows out of the researches within the research work «Development of Scientific and Methodical Providing Network Consortium of Pedagogical Higher Education Institutions» – a target task of the Ministry of Education and Science. The research work was carried out by the scientists of Herzen State Pedagogical University of Russia in 2012.

Keywords: network interaction, consortium, network technologies in management, organization of activity of network associations in education

KIRYAKOVA A.V., MOSIENKO L.V., OLKHOVAYA T.A. DEVELOPMENT OF SUBJECTNESS IN THE AXIOSPHERE OF UNIVERSITY YOUTH SUBCULTURE

The authors consider an axiosphere of university youth subculture as a factor of university student's subjectness formation, which determines his successful educational and professional

activities. Axiosphere is formed by constant and variable values of university youth subculture and includes academic, professional, civil, virtual, hedonistic, social, personal, valueological, and corporate values. Personal development of a student as a subject is a continual and phasic process including adaptation, orientation and personalization stages. Some pedagogical conditions ensure successfulness of this process.

Keywords: axiosphere, subjectness, university youth subculture, values of university youth subculture

BARABANOVA S.V., KRAISMAN N.V. STUDENT HOUSING RIGHTS AND ADMINISTRATIVE AND LEGAL ENSURING OF STUDENT RESIDENCE

The article examines students' rights to housing in Russia and in the United Kingdom. The authors compare English and Russian systems of using a hostel, adduce conditions and rules of accommodation in hostels of York University as sample for modifying domestic housing regulatory enactments taking into account Russian mentality.

Keywords: rules of accommodation in hostels, housing law, financial provision, regulatory enactments, disciplinary sanction

Horizons

LOGUNOVA L.B., PETRUNIN YU.YU. ALEXEY LOSEV: LIFE AND DESTINY OF A PHILOSOPHER

This article is an attempt to create a portrait of Alexey Losev in the interior of the domestic history of the twentieth century. In this aspect, the fate of the philosopher appears as a personification of a contemporary historical era that allows us to understand history not as an objective impersonal process, but as a drama of lives and ideas. Research method is the interpretation of philosophical and literary texts (prose and poetry), diaries, and memoirs of people who knew A.F. Losev.

Keywords: A.F. Losev, myth, philosophy, religion, life, destiny, history, knowledge, love

Facts, comments, notes

GAFUROVA N.V., OSIPOVA S.I. METALLURGICAL EDUCATION IN CDIO IDEOLOGY

The article discusses modernization of vocational education course "Metallurgy", which aims at improving the competitiveness of a graduate in case of innovative variants of the Russian economy development.

The authors define the factors that determine modernization of vocational education on a basis of the normative documents, national experience and international initiatives in the CDIO (Conceive – Design – Implement – Operate). The authors substantiate the system changes of vocational education that allow to implement competence-based approach and to create an innovative program, which deals with the crucial human and scientific problems through the integration of education, research and production activities in a public and private partnership.

Keywords: modernization, higher vocational education, factors and terms of improving education quality, public-private partnership, integration

SHAMINA O.B., KOTOVA I.V. E-LIBRARY OF A TECHNICAL UNIVERSITY: PROBLEMS AND PROSPECTS

The paper presents an analysis of the scientific and educational resources of Tomsk Polytechnic University, first of all, there are discussing the different types of training materials developed by the staff of the University. In conditions of open education the information is rapidly changing. Thus, the educational content should not only be available to students in accordance with the requirements of the Federal Service for education and science, but also become the most convenient when working in remote access.

Keywords: scientific and educational resources, open education, e-library, educational content