Summary

ENGINEERING SPECIAL ENGINEERING FORCE OF ECONOMY FORCE OF ECONOMY. WHAT SKILLS DOES THE EXPERT HAVE TO BE IN DEMAND TODAY AND TOMORROW?

V.V. Novoselov, V.M. Spasibov
Tyumen State Oil and Gas University

The staff shortage and also insufficient qualification of university graduates became a limiting factor of economy today. The Russian science and education lagged behind world development for a period of 15-20 years, got stuck at the level of the fifth technological way while abroad, in the developed countries, the sixth one is already actively formed. Attempt to come up is of little promise. Breakthrough steps aresteps is needed. Today, to break forward, Russia has to master convergent technologies, interdisciplinary approach in development of science and education. In article problems of the higher school, tasks of training of specialists of a new type are analyzed.

USING A PROCESS APPROACH TO PRODUCTION AND EDUCATIONAL ACTIVITIES

V.P. Solovjev, T.A. Pereskokova
National Research Technological University "MISIS"

The article focuses on the use of the process approach , declared the ISO series 9000 any professional activity .The article notes the importance of assessing the characteristics of the process: the efficiency, effectiveness and adaptability. It presents the feasibility of the process approach in educational activities for the preparation of competent engineers to make this principle the basis of their professional activities.

TRENDS IN ENGINEERING EDUCATION DEVELOPMENT FOR INNOVATION – DRIVEN ECONOMY

I.L. Gonik, E.V. Stegachev,
O.V. Yurova, A.V. Tekin
Volgograd State Technical University

The article proves the urgency of engineering education development for innovation-driven market economy, both at regional and national levels. It also describes the actions that should be taken to develop complex engineering education environment based on the experience of Volgograd State Technical University.

THE LEVEL STRUCTURE OF CREATIVE CLASS

A.V. Kozlov, O.V. Sidorkina,
T.V. Pogrebnaya
Siberian Federal University, School № 82 of Krasnoyarsk, School № 10 of Krasnoyarsk named after academician Yu. A. Ovchinnikov

The article deals with the description of essential characteristics of creative class developed within technological creativity based on the modern engineering creativity methods – applied dialectics, or the theory of invention problem solution (TIPS). Evaluation criteria of creativity levels are suggested. The ways of increasing students' creativity level in the engineering education are studied.

ON NECESSETY OF BALANCE BETWEEN PROFESSIONAL DEVELOPMENT AND RANK PROMOTION OF UNIVERSITY FACULTY MEMBERS

I.N. Kim
Far Eastern State Technical Fisheries University

To ensure successful professional development, a faculty member should plan his/her de-velopment trajectory that would be perfectly coupled with the career growth. Promotion of a faculty member is an effective way to encourage his/her professional activity, which, in its turn, would speed up the competence acquisition and allow a faculty member to pass through "the zone of incompetence". The career growth of a faculty member should be slow but steady in its progression.

DEVELOPMENT OF ENGINEERING GRADUATES' COMPETENCES

V.P. Solov'ev, T.A. Pereskokova,
Yu.A. Krupin
National Research Technological University «MISIS»

The article proposes the use of competence-based approach in Higher Engineering Education. The proposed graduate's competence model developed in accordance with the Federal State Educational Standards, and employers' requirements makes it possible to unite all participants of education process in order to achieve a primary goal, i.e. high quality of engineering education. This would certainly raise the prestige of engineering education.

ON MEASURES CONTRIBUTING TO PUBLISHING ACTIVITY OF FACULTY MEMBERS

I.N. Kim
Far Eastern State Technical Fisheries University

Today, publishing activity is one of the priority indicators in department faculty activity. In all international ratings the significant share of the integral indicator (from 30 to 50 %) ranking universities in their positions accounts for the evaluation of research activity performance. It is worth noting that most of department members of Russian universities face a number of challenges in developing their publication career due to insufficient level of foreign language and information technologies knowledge. The article presents the actions that should be taken in order to stimulate publishing activity of faculty members and increase their citation index.

INTRODUCTION OF MODERN TEACHING TECHNOLOGIES INTO "METROLOGY, STANDARDIZATION, AND CERTIFICATION" CURRICULUM

A.A. Gluhanov
Northern (Arctic) Federal University named after M.V. Lomonosov

The main trend of Higher Engineering Education is the use of interactive teaching technologies. Precisely, introduction of such educational games as business games, case-studies, etc. into the curriculum of "Metrology, Standardization, and Certification" which is basically regarded as practice-oriented course allows educators to make teaching more interactive. The article examines the ways to use various interactive teaching technologies within the above course, the examples being provided.

ON-LINE QUALITY ASSURANCE OF STUDY PROGRAMMES: EQUASP APPROACH

A. Squarzoni
University of Genoa
J.J. Perez
Universitat Politecnica de Catalunya
V.E. Mager
Peter the Great St. Petersburg Polytechnic University

The description of the EQUASP model for quality assurance of study programmes, developed in framework of a TEMPUS project, is introduced.
The introduction section contains brief information on the concept of quality and quality assurance of study programmes along with the Tuning approach to the design of study programmes and the standards and guidelines for quality assurance in the European Higher Education Area.
The fourth section describes the EQUASP approach to quality assurance and pinpoints the necessary documentation for the quality assurance of study programmes. More specifically, the EQUASP standards for the quality assurance of study programmes are defined, followed with the identification of the

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fundamental processes for a quality management of study programmes together with the associated quality requirements and expected activities for their accomplishment.
The information and data which study programmes need to document in order to provide evidence of the quality of the educational service offered and therefore, to assure their quality, are established.
The standards and guidelines constitute the 'EQUASP Model' for the quality assurance of study programmes.
The fifth section introduces the EQUASP approach for monitoring of quality of study programmes perceived by interested parties (students, graduates, employed graduates and employers).
Finally, the sixth section summarizes the objectives already achieved and introduces the activities in progress for the completion of the project according to the established work plan, while the conclusions summarize the benefits of the EQUASP system.

ON MODELLING MANAGEMENT PROCESS IN ENGINEERING SCHOOLS

Ju. V. Podpovetnaya
South Ural State University,
Financial University under the Government of the Russian Federation (Chelyabinsk branch)
N.A. Kalmakova
Financial University under the Government of the Russian Federation

The article considers an education process in an engineering school. Economic and mathematical approaches to education management modeling are suggested to build a new architecture of education process. The authors describe the application of Production Function Model to education process in a technical university. Special attention is paid to research management model and quality model for graduate training.

YAKUTSK STATE ACADEMIC OLYMPIAD IN TECHNICAL DRAWING – 50 YEARS

R.R. Kopirin
North-Eastern Federal University

The article is devoted to the current teaching problems in technical drawing in the schools of Sakha Republic (Yakutia), involving the 50-year background experience in organizing and conducting olympiads in technical drawing. The pedagogical achievements of the technical drawing teachers and olympiad winners have been described.

ENGINEERING STAFF TRAINING – ISSUE OF NATIONAL CONCERN

E.P. Aprosimova, N.I. Andeev
North-Eastern Federal University

The article examines the quality of engineering education. It underlines the urgency of:
- implementing system policies regarding engineering education;
- introducing preferential treatment and incentives to the enterprises which are planning to contribute to engineering staff training through the cooperation with universities.

DEVELOPMENT TRENDS OF MILITARY – INDUSTRIAL COMPLEX AND ITS INTERACTION WITH EDUCATION AND SCIENCE

D.Yu. Muromtsev, T.Yu. Dorohova
Tambov State Technical University

The article describes the major issues, such as shortage of qualified personnel, integration of educational and innovative processes, renovation and development of domestic military – industrial enterprises, as well as the development trends in the military – industrial complex itself.

STRATEGY TO REINFORCE EMPLOYER ENGAGEMENT IN ENGINEERING EDUCATION

L.V. Motaylenko
Pskov State University

The article discusses the basic issues facing higher education, unveils the forms employer engagement can take, examines the stages of competence development within Basic Engineering Program. It proposes the algorithm of Basic Education Program design on the basis of the developed strategy to reinforce employer engagement into the engineering training process.

COLLABORATION BETWEEN COAL MINING COMPANY AND HIGHER EDUCATION INSTITUTE FOR PRODUCTION PROCESS IMPROVEMENT

Yu.S. Doroshev
Far Eastern Federal University
A.V. D'yakonov, E.E. Soboleva
JSC "Primorskugol"
V.A. Khazhiev
Ltd. "Research Institute of Mining Safety and Efficiency"

The paper presents the experience of collaboration in engineers training between three organizations: the surface mine office "Novoshakhtinskoye", Primorskugol, Research Institute of Mining Safety and Efficiency (NIIOGR), and Far Eastern Federal University (FEFU). Students are involved in searching for ways of production improvement through scientific and practical seminars which are held at FEFU with the participation of NIIOGR, and through work experience internship, where students are supposed to overcome particular production challenges. Engineering education, science, and production overlap at the annual scientific and practical forum "Mining School" held by Siberian Coal Energy Company (SUEK).

INFORMATION AND COMMUNICATIONS TECHNOLOGIES AS A FACTOR IN RAILWAY ENGINEERING EDUCATION IMPROVEMENT AND PROMOTION

N. A. Nastashchuk
Omsk State Transport University

The article considers the role of information and communications technologies (ICT) in railway engineering education enhancement and promotion. The author has suggested a number of ways to improve the education of railway engineers.

WAYS TO IMPROVE ENGINEERING STUDENTS' ECONOMIC AND MANAGEMENT COMPETENCIES

I.V. Krasnopevtseva,
A.Yu. Krasnopevtsev
Togliatti State University

The paper analyzes the requirements to present-day engineering graduates. The authors have proved that the profound knowledge in economics is necessary for engineering students. The ways to develop economic and management competencies of engineering students have been suggested.

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