

# Issues and Future Engineering Education

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**Development of modern engineering education is the fundamental cornerstone in the technological modernization of Russia. Reorganization of the engineering personnel training system is a global challenge due to the increasing complication of the socio-technological system itself and associated risks within this system.**

**Key words:** *engineering education, conference, training requirements for technical personnel.*

The Conference «Issues and Future Engineering Education» was held in the National Research Nuclear University (NRNU), Moscow Engineering-Physics Institute (MEPI) on November 10, 2011. Representatives of leading engineering universities and corporate training centers discussed the following issues within the framework of this Conference: pilot projects in training engineering personnel, engineering training problems and further development of future engineering education.

Keynote speaker P.G. Schedrovitshki, Head of Strategy Planning & Management Methodology Department, NRNU MEPI, in his opening speech stated: «Our request to all speakers is to outline only those changes occurring within their education institutions, express their opinion on existing moments in engineering education and, of course, underline today-tomorrow solutions to the key challenges in engineering education.» In fact, the conference included a highly topical and informative program.

The first speaker was M.N. Strikhanov, Rector of National Research Nuclear University (NRNU) Moscow Engineering-Physics Institute (MEPI). In his speech, «Engineering Personnel Training for the Nuclear Sector», he emphasized the major development trends in the collaboration between universities and hi-tech industry sectors. «It is very essential that today academic research is supported by the Federal State. This support involves the participation of different universities in State Program of Accelerated Industrial & Innovative Development, including State Atomic Energy Corporation «Rosatom». A sophisticated technology platform integrates communications network to discuss future breakthrough projects in global and Russian economy».

In his speech D.V. Livanov, Rector of National Research Technological University (NRTU), Moscow State Institute of Steel & Alloys (MSIS&A) discussed the problems of engineering education and modern engineering curriculum design. Dmitri Viktorovich highlighted the fact that under existing



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university conditions there is a dramatic shortage in qualified personnel who would implement technological modernization projects. Such factors as technical merit gap, insufficient language competencies and management competency, low engineering education prestige and negative image of engineering professions hinder the further enhancement of engineering education.

V.S. Sheinbaum, Rector Advisor of Gubkin Russian State University of Oil & Gas, discussed the development of engineering competencies in e-learning environment.

A.I. Chuchalin, Vice-Rector for Academic & International Affairs, National Research TPU, in his presentation «Academic Standards of Professional Training in Priority Areas of TPU» discussed innovative educational standards, international accreditation and certification.

D.A. Kozorez, Vice-Dean of National Research University, Moscow Aviation Institute, in his speech gave a

detailed summary description of their experience in the development of problem-solving research labs.

V. Yu. Stolbov, Director of Education Quality Management Center, National Research Perm Polytechnic University, discussed the partnership strategies between universities and different companies. L. V. Zabezhinski, Executive Vice-President of IBS Co. L.V. Zabezhinski described their experience in the development of IBS Master programs.

V.N. Knyagin, Director, Center of Strategical Developments «North-West» presented his speech «What Determines the Demand in Engineering Education», where he gave an in-depth analysis of today's issues in engineer training.

Within the framework of the Conference a panel, involving top managers of technology companies, was organized to discuss the requirements and qualifications of today's engineer.



The moderator of this panel was A.E. Volkov, Rector of Moscow Management School «Skolkovo». Participants of the panel included the following representatives of different companies: N. N. Karnaukhov, General Director, Lukol-Engineering Ltd., D.Yu. Kolodyazhni, Managing Director, JSC Incorporated Engine Holding Co., E.Yu. Smelov Senior Executive of General Director, JSC Rosenergoatom Inc., Yu. N. Barmakov, Senior Executive of Research Supervisor, Federal State Unitary Enterprise, Russian Research Institute of Automatics, S.B. Egorov, Director of Scientific & Production Commercial Firm, JSC Rosenergoatom Inc., S. A. Frolov, Advisor of General Director in Economy, JSC Roszheldorproject, G. A. Tikhonova, Director of Management Broad, Euras-Holding Ltd. and others.

Representatives from different hi-tech sectors of economy discussed the

following issues: the image of the future engineer, approaches and methods in training future engineers, problems in two-tier education system, international accreditation and certification. Top managers also discussed the problems of engineering which they encounter during their work as well as they expressed their opinion on the current development project in engineering education.

The Conference «Complex Technological Systems: Development of Modern Engineering Training Education», held within the framework of National Research Technological University (NRTU), Moscow State Institute of Steel & Alloys (MSIS&A) on April 27, 2011, marked the beginning towards new conferences, the second of which was the above-stated one. The next Conference is in April, 2012.