

TECHNICAL UNIVERSITY GRADUATE EMPLOYMENT RATE

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Higher institution efficiency is determined by employability and education quality of the institution itself, whereas efficiency criteria are based on the compliance of graduate competencies to employers' requirements, as well as their labour market competitiveness. Development strategy of this or that institution, as well as its policy, target and objectives in education, research and innovation significantly depends on future graduate employability and his or her professional competitiveness. This fact highlights the definition of graduate employability as education quality assessment criterion and as an indicator of labour market demand. Besides, graduate employability is also an indicator of employer satisfaction and continuous improvement of graduate competences which, in its turn witnesses the attractiveness of this or that institution.

Key words: *employability, competitiveness ability, competences, professional competence certification, quality man.*



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The issue today is the fact that there is no unified comprehensive professional assessment system and distinct assessment criteria in evaluating the graduates' professional and overall cultural competencies within the framework of the existing professional education quality assessment. This involves the assessment of not only the formation of these competencies, but also the further professional life performance of the graduate. An overview of the traditional approaches in the assessment system and evaluation of graduate's competencies has been forwarded and highlighted in the Federal Standards (Federal Education Standards) and include the following items: incorporation of employment requirements, in-depth integration of professional standards, introduction into professional associations, expansion of international co-operation and

breakthrough into the International Education Space under the Bologna process.

Development and implementation of quality management system and the independent public-professional accreditation of education programs established the groundwork for the updating of the independent education quality system and the furthering of graduate competencies throughout all the stages of his/ her professional life.

The most effective solution in the provision and independent evaluation of the combined graduate and business (enterprise) specialist competencies respective to employer's requirements involves the development and promotion of an independent evaluation system and accreditation of professional engineering qualifications. Another important problem is the evaluation of such factors as the employability of

technical university graduates, their labor market competitiveness, as well as, the relevance of this or that priority qualification area, profile or specialist training field. This, in its turn, would enable the university, faculty or even profile department to reorganize its development strategy, policy, targets and objectives in preference to the implementation of on-demand education programs and graduation training in competitiveness profiles. This problem can be successfully solved through an independent evaluation system and accreditation of professional engineering qualifications, including the establishment of an expert-methodology center network, embracing integrated concepts, rules and procedures, and complex regulatory-procedural documents. The activities of this independent reliable evaluation system for specialist competencies require the solution of a set of problems, including concept and principle development, organizational system structure, regulatory-methodical provision, infrastructure development, expert- methodology center network, training expert-specialists and the activity system organization itself with the involvement of enterprise- employers and professional associations [1,2]. The key area of activity – efficiency evaluation of all the activity system profiles, and the result of this integrated activity- evaluation of the employability and competitiveness of graduates and enterprise specialists, as well as, skills profile and available university professional training, which, in its turn, are the significant education quality indexes of any university, faculty or department activity.

Due to labour market competitiveness and employer requirements the graduates and enterprise specialists should possess a set of competencies, including knowledge, learning skills and abilities and definite personal social competencies (Fig.1).

Every participant in the education process and interested parties in developing the graduate competencies is different. At the elementary and

secondary education levels personal and social qualities are introduced and developed, and eventually shape into competencies. Education institution (EI), i.e. university, develops and shapes combined cultural and professional competencies, social and personal qualities of the graduates. Under conditions of production activities the professional competencies are not only introduced, but also developed and enforced to further such abilities as team commitment, succeed corporate culture, social and personal responsibility [3].

Graduate's employability should be evaluated according to four index categories:

- objective indexes, determined by the specific requirements to the profession, employer requirements, labour market;
- personal (subjective) indexes, related to on specific graduate;
- external and internal social-economic factors;
- political conditions.

Basic qualities and competencies shaping during the education- instructional process including enterprise- employer requirements:

- skills in sophisticated world-practice technology;
- knowledge of sophisticated domestic and foreign equipment – technological, monitoring and experimental;
- knowledge of domestic and foreign reference documents (RD), standardization principles and management methods;
- skills in modern management methods, including management qualities, management resources, innovative and production management and personnel management;
- knowledge of corporate culture principles, responsibility and team commitment;
- personal and social responsibility;
- high moral standards;

- creativity, leadership and learning abilities;
- foreign language skills;
- skills in modern IT;
- open-mindedness, high cultural level;
- adaptability and tolerance;
- motivation.

Integrated index evaluates the overall employability indexes [4].

Higher graduate employability K_c , in comparison to those of graduates and specialists of the same profession (qualification, profile, specialization field) is a ratio of specialist competency level relevant to labour market requirements/ employer requirements (P_c), salary (Z_c) and education expenses (R_c):

$$K_c = \frac{P_c \times Z_c}{R_c} \quad (1)$$

Specialist competency level relevant to requirements is the value ratio of graduate employability \ enterprise specialist index sum to corresponding index values, required by the employers:

$$P_c = \frac{\sum_{i=1}^n k_{ci}}{\sum_{m=1}^m k_{rm}} \quad (2)$$

where, k_{ci} – value of one of the n indexes, describing the specialist –graduate competency, which is normalized to its highest possible value-meaning;

k_{rm} – value of one m specialist competency index as employer or labour market requirements, normalized to its maximum possible value-meaning.

Graduate employability within the labour market K_{pc} is determined by objective indexes– profession competitiveness, qualification (area, training profile), socio-economic factors and political conditions, within a profession area– all professional competencies, social and subjective, personal qualities of the specialist:

$$K_{pc} = K_n \frac{P_n \times Z_n}{R_c} \quad (3)$$

Higher profession competitiveness in comparison to other professions is the ratio of the specialist competitiveness of one given profession relevant to the labour market or profession rating (P_n), averaged salary of this profession (Z_c) and education expenses (R_c):

$$K_n = \frac{P_n \times Z_n}{R_c} \quad (4)$$

Fig. 1 Function and role of participants in the development process of graduate competencies



* Specialized Secondary Educational Establishment

** Federal State Education Standards

- Objective indexes of specialist competitiveness:
- employability and occupation prestige;
 - training (education) quality, professionalism;
 - competitiveness (prestige) of the educational institution;

- Subjective indexes of specialist competitiveness:
- professionalism (education quality, training);
 - personal qualities;
 - social qualities.

Analytical evaluation of employability through ratios (1)-(4) in scaling (rating) and qualimetric approaches for competitiveness evaluation indexes provides an effective process in shaping graduate competencies of educational institutions and enterprise specialists at different stages of their professional activity..

REFERENCES (ALL TITLES IN RUSSIAN)

1. Chuchalin A.I. Provision and evaluation of higher education/ Chuchalin A.I., Pokholkov U.P., Boev O.V., Migilnizhki S.B. // Higher Education in Russia – 2004 – № 2. – pp. 12–27. (in Russian)
2. Chuchalin A.I. Higher Education: Procedures in quality success. // Standards and Quality. – 2006. – № 5. – pp.94–96. (in Russian)
3. Siodorin A.V. Specialist competitiveness evaluation to his\her qualification characteristics // Higher Education – 2007. – № 9. – pp. 92–94. (in Russian)
4. Berzin A.A. Benchmarking method in evaluating specialist competitiveness / Berzin A.A., Guskov O.V., Siodorin A.V. // Achievements of Natural Sciences – 2009. – № 5 – pp. 137–146. (in Russian)