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## **TEMPUS EQUASP: summary, conclusions and prospects for VSTU**

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**Abstract:** Since 2014, Volgograd State Technical University has taken an active part in implementation of the international project «TEMPUS EQUASP» aimed at the development and further effective use of the system for online quality assurance of study programmes. This article presents a summary of the project, briefly describes the experience of VSTU participation, deals with the main outcomes of the project implementation, as well as prospects for further use of these results in the activity of Flagship technical university in Volgograd region.

**Keywords:** quality, engineering educational programmes, study programmes, TEMPUS EQUASP project, VSTU, outcomes, results, prospects of the project, inter-university cooperation.

### ***Introduction***

Quality assurance of study programmes implemented by higher educational institutions is stepping forward; it has the increasing importance in the context of the Bologna process, as well as competence approach to education and the integration of national educational area into international educational area.

The implementation of the initiatives under this direction requires coordinated action of all subjects of Russian system of higher education: the state primarily represented by the Ministry of Education and Science of the Russian Federation, the Federal Service for Supervision in the Sphere of Education and Science; universities and their associations; employers, the professional community, etc.

In this respect, the «quality of study programmes» refers to the level/degree of mastery/development of the stated objectives agreed with the demands and expectations of all stakeholders in educational services. Such «stakeholders» include not only students enrolled in educational programs, but graduates and their employers (residents and non-residents of the RF), and other contact audiences.

In this case, technical universities are no exception as their activity is primarily focused on the creation and the development of multi-level system of training highly skilled engineering staff.

This argument is particularly relevant in the framework of orientation of the national and

world economies towards technical and technological innovations, which, of course, requires the graduates of technical universities to acquire and possess internationally recognized competences (at the macro level of national education environment); while universities should focus on the development of student-oriented technical educational/study programmes (at the micro level of the national educational environment).

Activities of a technical university on the formation/training of qualified engineers can only be effective in ensuring strong coordination among all the stakeholders of the process. However, it is clear that the problem of professional formation of the modern engineer while mastering and developing study programmes becomes comprehensive and requires the coordinated efforts of several universities, including the implementation of joint regional, federal and / or international projects.

One of the main aims of the Bologna process is to harmonize higher education systems in the European area. However, this goal cannot be achieved only by «copying» of a multilevel education system; it requires the exchange of experiences in the formulation of educational goals/objectives, the ways to achieve them, and points out the necessity for cooperation between Russian and European universities.

Alongside the ongoing integration of national technical universities in the international educational environment and the desire to improve the quality of engineering educational programmes, it is important to center on the development of mechanisms for monitoring the quality of the study programmes by the stakeholders within the framework of implementation of joint projects.

Thus, to promote the quality improvement policies and to optimize the internal system for quality assessment of study programmes in engineering, with the focus on the definition of learning outcomes, first of all, it is necessary to define and implement interactive forms of documenting and monitoring of quality of study programmes, which have been developed within the framework of joint international projects and consistent with the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG).

One of such projects was the international project TEMPUS EQUASP, which Volgograd State Technical University (VSTU) participated in, since January 2014 [1].

### ***Summary of the TEMPUS EQUASP***

Interuniversity European TEMPUS project № 543727-TEMPUS-1-2013-1-IT-TEMPUS-SMGR «On-line quality assurance of study programmes» (TEMPUS EQUASP), started in January 2014, it was designed for 3 years of implementation. At the end of 2016 the project was successfully completed. [2]

Besides VSTU, the Project Participants were nine Russian universities: Tambov State Technical University, Astrakhan State University, Don State Technical University, Moscow State University of Geodesy and Cartography, Moscow Automobile and Road State Technical University, Peter the Great St. Petersburg Polytechnic University, the National Research Tomsk Polytechnic University, Ural Federal University n.a. first President of Russia B.N. Yeltsin and Vyatka State University; and four European: University of Genoa (Italy), the Polytechnic University of Catalonia (Barcelona, Spain), Kaunas University of Technology (Kaunas, Lithuania), Slovak University of Technology in Bratislava (Bratislava, Slovakia). Comprehensive support was provided by such participants as the Ministry of Education and Science of Russian Federation, Conference of Italian Universities Rectors in Rome (Italy) and Association for Engineering Education of Russia (Moscow, Russia).

Within the Project, six Workshops, four Training Seminars, a Kick-off meeting, two Coordination meetings and the Final Dissemination Conference were held.

The focal point of the project was primarily on identifying educational goals, which ultimately required the educational organizations, participating in the project, to focus on what a university graduate should know, what competencies he/she should acquire and possess to be in demand in the labor market (both national and abroad). And this is the "student-oriented" approach, which is the basis of the European education system.

The main objective of the project was to improve the quality of technological study programs through the adoption of internal systems of quality assurance (iQA), aimed at identifying the learning outcomes, introduction of system of online documentation and quality assurance of study programs in accordance with the Standards and Guidelines for quality assurance in the European higher education area (ESG).

The objectives of the project were:

- encouraging the development of student-oriented technological study programs, aimed at identifying learning outcomes in accordance with the needs of stakeholders;
- bringing internal standards of quality assurance of study programs, adopted at the national level, in line with European standards and guidelines (ESG);
- improving the quality of implemented study programs (mainly engineering) in the Russian Federation;
- increasing transparency and comparability of technological study programmes in order to enable a sound assessment of the quality of educational process by all stakeholders;
- strengthening mutual trust in the quality of study programs;
- modernization of higher education through the online documentation and monitoring the quality system of engineering study programs;

- receiving recognition by the competent national authorities that the system of internal quality assurance of study programs (iQA), electronic documentation and monitoring system meet the quality standards for study programs, in order to ensure their reliability and dissemination among all the universities of the Russian Federation.

At the end of the Final Dissemination Conference held in Moscow in October 2016, consortium members made a positive decision on the full implementation of the stated objectives and achieving the full range of the project goals [2].

The project resulted in the following documents and tools:

1. «EQUASP Standards and Guidelines for the Quality Assurance of Study Programmes» (EQUASP Model);
2. Methodology, procedures and sample documentation for quality assessment and quality assurance of study programmes;
3. Software for online monitoring of the study programme's quality and achievement of the study program objectives;
4. Software for online documentation of monitoring results;
5. Questionnaires for the monitoring of the perceived quality of study programmes by the stakeholders: students, graduates and employers;
6. Project website with all the information available.

In addition to the overall results obtained by all participants of the project consortium, it is necessary to reflect the changes and transformations that TEMPUS EQUASP contributed to VSTU activities and its Quality Management System (QMS).

### ***The results and prospects for implementation of the project outcomes in VSTU***

Effective participation of VSTU, which is the first Flagship university of Volgograd region, in TEMPUS EQUASP project was a priority from the very beginning of its implementation, since the university management understood the urgent need to develop online system for monitoring the quality of implementation of engineering study programs in accordance with the guidelines for quality assurance in the European higher education area.

Meanwhile, the participation in this project, more in-depth insight into the philosophy of the Bologna Process, as well as other modern requirements (e.g. accreditation of educational programs by professional community, etc.), already formed an updated structure of factors affecting the activity of the university, overriding priorities of responding to them. Thus, implementation of TEMPUS EQUASP Model through Inter-university cooperation in the framework of the project, EQUASP Model standards, guidelines and procedures, as well as the best practices of universities in Europe, have become the key factors significantly influencing the

University activity. European system of education as a whole has become one of the major landmarks, and participation in the project acted as the driver for development and optimization of personnel activities and educational technologies in VSTU.

In general, participation in the project has modified infrastructure and regulations for the educational process, policies on quality, strategy of educational activities in VSTU, without violating the existing legislation in the field of education. «The internal environment» of the study programs, involved in the project, has ceased to be inert, increasing its flexibility and adaptability, which affected the competitiveness of the university as a whole.

Naturally, the integration of the intermediate results of the project in activities of VSTU was not immediate; it took place gradually as the implementation of cooperation in the framework of the Project. At the same time, from the perspective of improving the quality of engineering education in VSTU on the basis of the project TEMPUS EQUASP, it is advisable to consider the nature of integration of obtained and promising TEMPUS EQUASP results in VSTU QMS (Figure 1). All the potential and achieved results of the Project in the context of VSTU QMS (indicated in Figure 1) are common with the main objective of the project and meet the requirements of the new ISO 9001: 2015.

At the end of the project it should be noted that most of the planned results within the QMS of VSTU has already been achieved: currently, more university staff members are involved in improving the quality of educational services provided; the quality of the self-study (self-examination) of the University has increased due to the survey conducted on the basis of the project Questionnaire for monitoring of the perceived quality of SPs; University partnerships are deepened and expanded; system of corrective and preventive actions (based on the questionnaire and surveys of stakeholders) has been improved, etc.

For example, by the results of the questionnaire for different categories of students, graduates and teachers within the framework of the project activities, the university management has at its disposal the following information:

- motives for the «follow-up» or second choice of the university, i.e. reasons to continue education in the same university;
- to improve the planning and organization of educational process (at faculty level);
- students' satisfaction with the quality of practical training;
- satisfaction with the content of training;
- the effectiveness of educational process;
- students' assessment of the possibilities of their further employment;
- graduates' proposals and suggestions to improve of the quality of students' training at the university (for each SP and for the whole university), etc.

## VSTU Quality Management

### **Integration of the project results into the VSTU QMS tactics:**

- the involvement of a larger number of University staff in the process of improving the quality of educational services;
- improving the quality of the University self-examination process;
- deep integration into the Bologna process;
- bringing internal quality standards for study programs in line with European standards;
- improving the quality, transparency and comparability of educational programs in VSTU;
- increasing cooperation in order to ensure the quality of educational services.

### **Integration of the project results into the Methodological Tools of VSTU QMS:**

- improving the system of gathering, sorting, processing and analysis of information on the quality of educational services provided, consistent with EQUASP Model;
- improving the quality of planning for further development of VSTU QMS;
- integration of the system of monitoring, assessment and quality assurance of study programs with a system of indicators to assess the effectiveness of implementation of QMS in the VSTU.

### **Integration of the project results into the components of QMS in VSTU:**

- increasing the degree of consumers' satisfaction with educational services by bringing these services in line with European standards (improvement of quality of knowledge, skills, opportunities for academic and professional mobility, exchange of knowledge and experience, etc.);
- focus on training engineers for the international market;
- improving the system of corrective and preventive actions, by improving the quality and speed of obtaining analytical information.

Figure 1 - The character of integration the results of TEMPUS EQUASP to QMS of VSTU [3]

The implementation of TEMPUS EQUASP in VSTU has provided the opportunity to modify and improve the apparatus for monitoring the quality of educational services provided and the quality of training students. There are opportunities to strengthen partnerships with employers based on their active involvement in the design of study programs to better meet their needs and requirements for engineers.

Meanwhile, in the framework of the future prospects of the use of TEMPUS EQUASP tools and project results, the University has yet to deepen integration in the Bologna process, to expand inter-university cooperation, to guide engineering education under the international requirements, to optimize the process of designing study programs (modular approach, networking, and end-to-end design), etc.

These promising usages of the project results are particularly relevant for VSTU being the regional flagship university. According to the Programme for Strategic Development of Flagship

University by 2020, activities on the quality assurance of educational services (using the online toolkit developed by the project) are one of the priority values [3].

### ***Conclusions***

Methodological and practical significance of the implementation of international projects on quality assurance of study programmes cannot be overemphasized, as it is impossible to reflect in one article all the "methodological power" of the apparatus for monitoring the quality of study programs by the stakeholders, developed in the framework of TEMPUS EQUASP.

Established as a result of the project, the methodology for quality assurance of study programs is universal in nature and may be recommended for implementation in national universities (mainly technical) as best practices.

Moreover, the online documentation on the results of monitoring the quality of study programs will provide access to all relevant information on study programs for stakeholders; it can also be treated as best practices and meets the current requirements imposed by regulatory bodies in the sphere of education in the Russian Federation.

At the national level, much of what is discussed and proposed on the quality of engineering education in the various congresses, conferences and seminars can now be developed and implemented on the basis of higher education institutions involved in projects such as TEMPUS EQUASP.

These include the creation of regional monitoring centers for independent assessment of education quality with the participation of leading universities; the creation of regional platforms for exchange of best practices between universities, in particular on the issues as innovative learning technologies; funds of assessment tools of learning outcomes; effective experience in management of educational institutions, etc.; development of a comprehensive program for certification of employees based on the data of monitoring of the perceived quality by stakeholders, etc.

Thus, today we can say with confidence that all the universities participating in the project have received not only some positive experience, but also an opportunity to significantly improve their competitiveness on the basis of a more complete identification of the stakeholders' needs and possessing advanced tools for monitoring and improving the quality assurance of study programmes.

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