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MODELS AND SOFTWARE DEVELOPMENT AND RESEARCH FOR SUBSYSTEM OF INFORMATION PROCESSING CONCERNING TO HIGHER EDUCATION QUALITY ESTIMATION

In the modern life conditions education determines life quality of individuals and society in a whole. Scientific and technological progress requires high qualified specialists in all areas of government activity. According to this, problems of education quality gain special relevance.

Accession of Ukraine to the Bologna process has attracted intent interest to questions of education quality management. In many information sources, which are related to the given topic, it's possible to find results of pedagogical, economical and technical researches. But the main problem of the given research direction is absence of one common methodology for education quality management systems development [1].

The following three approaches can be singled out: 1) estimation method, which is based on the statistics about university's activity; 2) method based on the principles of total quality management (TQM); 3) approach based on the requirements of international standards ISO 9001:2000 [2]. All these approaches suppose big volume data processing and storage, expert information usage, semistructured problems analysis and availability of qualitative criteria. Applying the modern information computer technologies for quality management systems can essentially improve the effectiveness of taken decisions.

The goal of the given research is to improve the process effectiveness of higher education quality estimation.

To achieve the defined goal it's necessary to solve a number of the following tasks: 1) to analyze existing approaches of the education quality estimation; 2) to research the possibilities of the theoretical qualimetry concerning to the education quality estimation; 3) to develop models and algorithms of quality estimation at level of higher education; 4) to develop and realize information system; 5) to research available software solutions in terms of criteria of software quality estimation; 6) to realize illustrative example of offered approach application.

After analyzing multiple information sources in the given work it's proposed to perform the process of higher education quality estimation basing on the generalized method of qualimetry [3]. Given method suggests two stages in the process of obtaining the quality estimates: development and realization the estimation methodology [3]. In the first stage the properties tree is developed, the indices and estimation scale are defined. Basing on the expert interviews and using the method

of pairwise comparisons the weighted coefficients of indices are formed. In the second stage the absolute values of indices are defined by experts. After translation the absolute values in the relative ones the comprehensive quality indicator is calculated.

To realize the following approach it's necessary to provide with possibility of expert estimates and indices values storage. In the common case in the process of quality estimation experts of different specialization are involved. Experts can not always be personally at the place of expertise holding (illness, business trip, accommodation in another town etc.). The estimation takes place repeatedly for different objects (e.g. graduate student, education process, resources) and at different levels (department, faculty, university). Information system should also provide the calculation of comprehensive quality indicator, which is used for taking the decisions.

After performing the modern tools review for software development and taking into account the system requirements in the given work it's offered to use the J2EE technology. For this the following reasons can be named: it's cross-platform, has open source libraries, contains large number of technologies for distributed systems development etc. For data storage the DBMS MySQL is chosen. It's an open source code DB, which is simple to use, easy to customize and control.

The developed software performs following functions: providing expert interviews, defining the weight coefficients of indices, calculating relative values and comprehensive quality indicator.

A graduate student, an education process or university in a whole can be used as the quality estimation object. As a test example the realization of methodology of graduate students' estimation will be used.

As far as new requirements constantly appear, the developed software will be researched by the maintenance criterion.

Thus the developed software would allow essentially improve the effectiveness of education quality management at the university level.

List of information sources: 1.

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