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## THE USE OF ELECTRONIC JOURNALS IN SCORE RATING ACCOUNTING SYSTEM OF EDUCATIONAL ACHIEVEMENTS OF STUDENTS

I.N. Kurinin, V.E. Marfina, V.I. Nardyuzhev, I.V. Nardyuzhev

Chair of computer technologies  
Peoples' Friendship University of Russia  
*Miklukho-Maklaya str., 6, Moscow, Russia, 117198*

The article describes a method of using electronic journals as a tool for efficient organization of teacher's practical work in conditions of computerization of educational process and the widespread implementation of credit-modular system of educational process organization and grade-rating system for basic educational programs proficiency examination. A version of the electronic journal designed by the authors and realized in the program MS Excel is also presented in the article. An example of a completed "Academic Progress" page of the university educational web portal is discussed. It contains a marked electronic student grade book section and the stated conditions and criteria for grades allocation, according to a 100-point scale.

**Key words:** student, grade-rating system, assessment, academic progress, electronic journal, university professor, MS Excel

The relevance of development and use of electronic journals in university is determined by the following factors:

- 1) introducing the grade-rating systems, many universities explicitly require teachers to use the journals (electronic journals) as a tool for quantitative assessment of students' knowledge, skills and abilities;
- 2) the requirements for the students' proficiency level and for assessment procedures must be clear and coherent for students, their parents and their future employers;
- 3) the transition from one-time exam at the end of a course to the assessment of students' academic progress at all the intermediate stages of training course significantly increases the objectivity of progress evaluation and makes any type of cheating virtually impossible;
- 4) university electronic journal logically complements and completes the technologies of high school education (cloud versions of electronic journals and grade-books), the federal Internet exam as a part of professional education (students' personal accounts with "electronic portfolio" containing information on the results of external testing during all the training period) and the technologies of future employers (competency models, certification system and achievements portfolio).

The Ministry of Education and Science of the Russian Federation has elaborated for the general education institutions the "Guidelines and common minimum requirements for the systems of student progress control in electronic format" [1]. This document represents the requirements for information systems ensuring execution of tasks of student academic progress and attendance account. The concrete requirements for provided functions and capabilities, for the interface of these systems, for the level of their technical

reliability and protection of information from unauthorized access are also specified in the document.

Modern electronic journals and grade books systems typically implement private office approach with a set of functions depending on the access rights and the role played by the user (teachers, students and their parents, administration of educational institutions) and apply social network, file transfer and messaging technologies. Usually user can work with such system via a browser on any computer with Internet access. As an example, we can note two systems fairly common among Russian high schools — Dnevnik.ru [2] and EIJur [3]. A comparative analysis of functions of these systems is represented on the website [3].

There are no common recommendations and requirements for the electronic journals in higher education, so the universities use various approaches for monitoring the academic progress of students and information systems that provide students and their parents with similar information regarding their progress, but have different composition and functions.

For example, in the Peoples' Friendship University of Russia the grade-rating system of assessing the quality of mastering the basic educational programs is applied at all stages of education process and in all kinds of assessments [4–6]. Its application (due to the higher level of differentiation of grades) can increase the level of educational process organization, provide objective data on students' academic progress, encourage students to systematic and independent work, etc.

The rating system is based on a scale of 100 grades and is accumulative. Specific student's knowledge and skills, for which the discipline program specifies the minimum mastering level, are subjects of assessment. Usually attendance, laboratory classes and class projects, tests and essays, reports, midsemester assessments, creative projects and final tests are taken into account and assessed. Summing up the midsemester assessment results, the grades accumulated by a student (by the end of semester and for assessment tests) are converted into traditional assessment four-grade scale and the ECTS grade.

The students' academic progress monitoring results — as a quantitative assessment of students' knowledge, skills and abilities — are noted down to the Grade book. This grade book is made and stored by a teacher. An electronic copy of the discipline grade book is posted to the teacher's personal page on the university educational web portal within first two weeks of the semester and is updated at least once a month. The results of student's discipline proficiency are noted down to the grade book no later than one week after the date of the assessed class or ongoing monitoring event. The closing summarizing of grades on the discipline and posting the results to the university educational web portal after the first and the second intermediate assessments, as well as after examination period and midterm assessment are obligatory.

Forms of control, requirements to the student activities, conditions of the grade-rating system application and mark structure are defined by a teacher on his/her own, are included in each discipline course description and are posted at the beginning of academic year to the teacher's personal page on the university educational web portal. Elements of control and assessment, recorded in the electronic grade book, have the following features.

The monitoring is carried out during the semester in accordance with the rules of the grade-rating system. The quality of mastering of educational material on all topics

of the discipline and all types of training classes are assessed. A formal assessment of the effectiveness and efficiency of students' independent work is carried out too. The form of monitoring and the number of activities depend on the content of the discipline and its volume (in academic credits). Usually are taken into account: the results of laboratory works and training projects, the work at class, independent work tasks, essays and course works, etc. Attendance, the results of computer-based testing and student's participation (in person or in working groups) in interactive classes are taken into account too. The discipline program should describe accordance of the accumulated grades to the achieved level of knowledge, skills and abilities of the student for each monitoring type and form.

The results of students' proficiency monitoring must be noted down to the grade book. Students should be able to get information on the results of monitoring at classes and the teacher's personal page on the university educational web portal.

The first intermediate assessment — calculation of grades got by the student (based on monitoring) in a certain period of theoretical training during semester (usually by the 9<sup>th</sup> week) and a decision on the student's proficiency in a specific discipline of curriculum. It can be carried out by a computer test (as an option for assessment of learned material). The student's results and classroom attendance are summarized.

The second intermediate assessment — summing up the monitoring and classroom attendance results at the end of the semester (usually by the 18<sup>th</sup> week). May be carried out in a way adopted by the teacher (for example, it can be a rehearsal computer test). The object is to make a decision on student's admission to the exam period in a specific discipline of curriculum.

During the examination period (usually the 19<sup>th</sup> and the 20<sup>th</sup> weeks / the last two weeks of the semester) students take a qualification test and a midterm assessment. The qualification test completes studying of a discipline for the semester and is specified by the program of this educational discipline (for example, it may be an examination computer test). It includes the evaluation of students' proficiency of all the learned material and identifies the level of competence formed. The midterm assessment is calculation of grades got by students (for the semester monitoring and qualification tests), and a decision on student's "pass" of the discipline (its weight in credits) and assessment of the proficiency quality.

On the first page of the university website (<http://www.rudn.ru/>) there is an open access to the information system for students' academic progress account by means of student ID number. The information is updated after the first intermediate and midterm assessments. The summary assessment list is made in Russian and English. It specifies: the date of formation, the study group list with student ID numbers, disciplines for the current semester, as well as academic progress and classroom attendance data for each student of the group in percentage terms. The academic progress is accounted as a ratio of number of grades got by a student to the maximum possible number of grades coherent to a certain date.

For more detailed information check the university educational web portal, the "Academic Progress" section on the teacher's personal page. This is a service section and is created automatically. In this section a teacher should specify the conditions and criteria

for allocation of grades. A teacher can at any time post and update information on attendance, laboratory works, the intermediate assessment results, allocated grades and the applied rating scale.

Teacher will be able to implement effectively all of the requirements described above, if he/she makes a choice and uses the electronic journal implemented in MS Excel program. Given the fact of the long-term operation of this type of electronic grade book for organizing of teacher's practical work in conditions of credit-modular system of educational process, we can talk about the following benefits of such choice.

Operational simplicity (it concerns its completion, processing, editing, automatic grade-scoring, scheduling and composition of general reports, coherence with computer-based testing results), high reliability (no incident of data loss for many years of operation), efficiency (implementation with minimum expense of all requirements for account process, calculation and publication of students' academic progress data at the university educational web portal), the ability to scale, upgrade and complicate the applied functions. This journal accelerates the data processing due to the objective automation of applied problems concerned with the operational accounting and calculation of the academic achievement of each student. The grade book enables teachers and students to monitor almost continuously (weekly) their personal and group academic progress and classroom attendance.

The grade book: formalizes the implementation of monitoring, mid-term and intermediate assessments; determines the assessment form, frequency and procedure; allows to provide information on student's academic progress and classroom attendance quickly to all interested parties (teachers, tutors, students, parents, employers) due to its upload to the teacher's personal page on the university educational web portal.

Examples of a completed electronic journal pages are shown and described in the article [7]. An example of the practical use of electronic journal in learning activities of specific study groups is presented at the university educational web portal (<http://web-local.rudn.ru/web-local/prep/rj/index.php?id=2630&p=5210>).

**Conclusion.** The variety of university information systems and of the applied variants of grade-rating systems predetermine for the majority of teachers the relevance of the variant choosing problem, journals-keeping and application. Electronic journals elaborated for educational institutions of general education are not widely used in universities due to their characteristic aspects.

The effectiveness of preparation of information on student's academic progress (information quality, timely delivery, and the amount of teacher's work) in conditions of grade-rating system and work with the "Academic Progress" page of the university educational web portal depends to a large extent on the version of the electronic journal used by a teacher.

The version of the electronic journal described in the article is implemented in MS Excel. It has withstood a multi-year time test under the conditions of the credit-modular system of university education. This electronic journal represents a modern tool for efficient organization of teacher's practical work in conditions of computerization of educational process and the widespread implementation of grade-rating system for basic educational programs proficiency examination.

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## ПРИМЕНЕНИЕ ЭЛЕКТРОННЫХ ЖУРНАЛОВ В БАЛЛЬНО-РЕЙТИНГОВОЙ СИСТЕМЕ УЧЕТА УЧЕБНЫХ ДОСТИЖЕНИЙ СТУДЕНТОВ

**И.Н. Куригин, В.Е. Марфина, В.И. Нардюжев, И.В. Нардюжев**

Кафедра компьютерных технологий  
Российский университет дружбы народов  
ул. Миклухо-Маклая, 6, Москва, Россия, 117198

В статье описан метод использования электронного журнала в качестве инструмента эффективной организации практической работы преподавателя в условиях информатизации учебного процесса, широкого внедрения кредитно-модульной системы обучения и балльно-рейтинговой системы оценки качества освоения студентами основных образовательных программ. Предложен разработанный авторами вариант электронного журнала, реализованного в программе MS Excel. Представлен пример оформления преподавателем страницы «Успеваемость» на учебном портале университета. На странице выделен раздел с электронными журналами учебных групп и сформулированы условия и критерии выставления оценок по 100-балльной шкале.

**Ключевые слова:** студент, балльно-рейтинговая система, аттестация, успеваемость, электронный журнал, преподаватель вуза, MS Excel

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