

Optimization of an educational organization management based on the assignment management system implementation

*Andrey Krechetov, Dmitry Shatko**, and *Pavel Strelnikov*

T.F. Gorbachev Kuzbass State Technical University, Vesennyaya,28, 650000 Kemerovo, Russian Federation

Abstract. At present, there is an acute problem of the low efficiency of handling assignments in the management processes of educational organizations. This is due to a number of factors, including: incorrect formulation of tasks by managers, failure to comply with the established deadlines, inconsistency of the results with the tasks set, unsatisfactory staff compliance with assignment fulfillment regulations, etc. The introduction and further use of the assignment management system based on information analysis technologies with the inclusion of an analytical module into the structure of the information management system of an educational organization can serve to efficiently solve the indicated problems. Considering the current global trends in the development of information technology, this approach is very relevant and in demand, since the use of information technology in the form of an assignments management system allows for efficient communication between managers and subordinate employees. The article discusses the issues of improving the management activities of an organization through the use of an information and analytical system. The role of information technologies in the processes of educational organizations has been investigated. The existing software products used to work with assignments have been analyzed. The procedure for working with the assignment management system is presented. The statistical data on the use of the information-analytical system in practice are presented.

1 Introduction

At present, increased attention is paid to the importance of information technologies in higher education in the context of its digitalization [1]. Information technologies allow students and academic staff to flexibly adapt to changing external conditions and provide a number of opportunities, including: free access to information in scientific centers around the world, increasing the efficiency of academic activities, a wider range of teaching forms and methods, etc.

*Corresponding author: shdb.tm@kuzstu.ru

The processes associated with the digitalization of higher education ensure the scientific and technological advance and contribute to the sustainable development of the industry as a whole [2-8].

At the same time, information analysis technologies play an increasingly prominent role not only in academic activities of an educational institution, but also in the processes of its management [9, 10]. Taking into account the global trends in the positive use of such technologies, KuzSTU made a decision to implement the project “Improving the efficiency of the assignment management system”.

The following issues were the prerequisites for this project:

- lack of internal regulations defining the procedure for formation, communication and subsequent control of the fulfillment of assignments;
- delays in assignment fulfillment;
- non-transparency of the assignment management process;
- the difficulty in collecting and subsequent analyzing statistical data produced in manual mode.

Particular attention in the presented work was paid to the monitoring of the compliance of the employees with assignment fulfillment regulations as one of the most important indicators ensuring the efficient work of the University.

It is quite obvious that not only the activities of an individual structural unit, but also the performance indicators of the entire educational organization depend on the conscientiousness of employees performing their employment duties. The structure of KuzSTU is represented by a large number of academic institutes and departments, as well as administrative and management divisions that have their own functions and tasks. A high rate of staff compliance with assignment fulfillment regulations at each level of the hierarchy should ensure high-performance task execution within the entire University.

One of the key points in the assignment management process is the fulfillment deadline. As the established practice shows, the manager who receives the assignment passes it along to another subordinate employee for fulfillment, spending additional time on the task communication and specification. As a rule, the manager deliberately reduces the assignment fulfillment deadline for the employee responsible for fulfillment in order to check and refine the result. As a result, situations regularly arise in which the employee responsible for fulfillment is forced to fulfill assignments under tight deadlines and in purely formal way, ignoring the quality indicators of the process.

Such negative effects can be mitigated by reorienting the traditional way of managing assignments to an approach based on information analysis technologies. The introduction and systematic use of the assignment management system with the aid of modern software products on an ongoing basis will make the process of creating assignments and subsequent monitoring of their fulfillment more efficient and transparent.

2 Materials and methods

To improve the efficiency of the University management, the KuzSTU task management system was introduced, the part of the system related to work with assignments being of particular interest.

At the first stage of the work, a comparative analysis of existing software products related to task management was carried out. Among the most popular are the following: Bitrix24, Trello, Megaplan, Asana, Manager. Given that each system has advantages and disadvantages, the Manager task management system is the most appropriate and preferable program for the University according to a number of characteristics.

The task management system provides an opportunity not only to create assignments, but also to follow up the work on the fulfillment of these assignments. You can also attach

files to specific tasks and add comments in the Manager program. Thanks to this system, labor efficiency is increased and the exchange of information between management and employees is improved.

In addition, the system provides the following:

- awareness of delays in assignment fulfillment and possible reasons for this (for example, when the employee is overloaded with tasks);
- awareness of the current workload of the employee responsible for fulfillment (which assignments are in progress, and which are in standby mode);
- the ability to influence the progress of work on assignments, involving new employees as needed.

The second stage of the work was devoted to documenting. The functioning of the task management system is based upon the KuzSTU bylaws:

— Project charter. The document contains the rationale for the project, its goals and objectives, describes the timing and the performance stages, indicates the participants and concerned parties, their functions.

— Procedure instruction of KuzSTU ИМ 48-13 “Procedure for working with assignments in the KuzSTU task management system”. The document regulates the responsibility and sequence of actions when working with assignments.

— Procedure “The procedure for communicating assignments to the employees responsible for fulfillment” of KuzSTU P 01/5-01. The procedure determined the algorithm for the work performance related to the timing of communicating assignments to the employees responsible for fulfillment.

— Memo on working with the KuzSTU task management system.

Figure 1 shows the appearance of the window, in which the information about the assignment and the required result are indicated; the employee responsible for fulfillment and the deadlines are appointed.

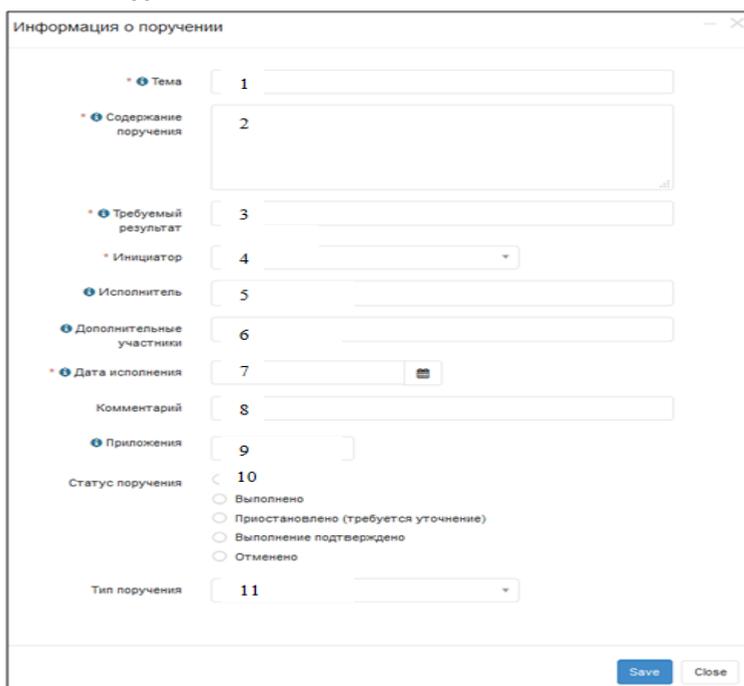


Fig.1. Assignment Information Window (screenshot).

Assignment Information Window contains the following fields:

- Topic of the assignment (position 1);
- Information about the assignment (position 2);
- Required result (position 3);
- Initiator (position 4);
- Employee responsible (position 5);
- Co-executors (position 6);
- Deadlines are appointed (position 7);
- Comment (position 8);
- Applications (position 9);
- Assignment status (In progress, Fulfilled, Suspended, Fulfillment confirmed, Canceled) (position 10);
- Assignment type (position 11).

Work in the “Assignments” section of the task management system provides for the sequence:

— Creation of the assignment. The initiator formulates the topic of the assignment and places it in the appropriate bar, after which he indicates in what form the result of the work should be presented. Then he selects the employee to be assigned with a task. Co-executors are added if necessary. The required date of assignment fulfillment is indicated.

— Fulfillment of the assignment. The employee responsible for fulfillment, having received a notification with information about the assignment on the corporate e-mail, fulfils it in accordance with the specified requirements for the result and the indicated deadlines.

— Discussion of the results. The initiator checks the fulfillment of the assignment and, if the required result is actually achieved, makes a mark “Fulfillment confirmed”.

— Correction. If it is necessary to refine the results, the initiator of the assignment notes it in the “Comments” bar and sets the status “In progress”. The employee responsible for fulfillment is finalizing the assignment in accordance with the specified comments.

— Fulfillment control. The required result having been received; the initiator sets the status “Fulfilled”.

The system’s capabilities allow generating a report online. The report may contain specific data on employees responsible for fulfillment, fulfilled/unfulfilled assignments, etc.

At certain intervals, a summary report is drawn up based on the results of the fulfilled assignments, an analysis is carried out, and the results are reported at meetings of the University administration with visual information on the process dynamics.

3 Results and discussion

For example, a diagram characterizing the dynamics of the use of the task management resource for a separate period of the project implementation is shown in Figure 2.

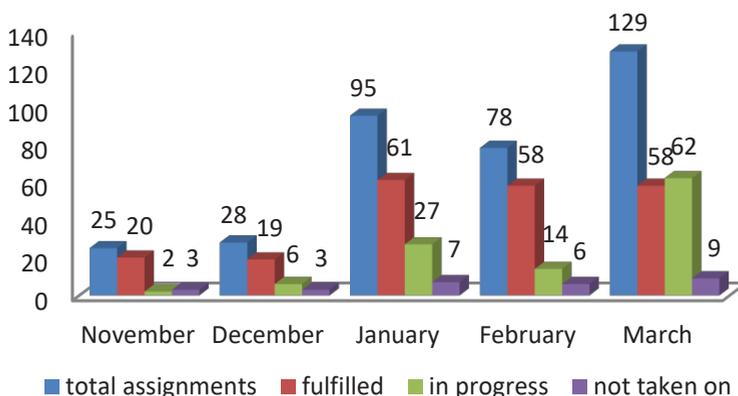


Fig. 2. Dynamics of the use of the task management system.

As a result of the analysis of statistical data on the activity of employees in the task management system, it was possible to reveal a positive trend in the use of the system in the analyzed period of time, namely:

- in general, the number of assignments transmitted through the system is increasing;
- the number of fulfilled assignments is increasing;
- the number of not taken on assignments in relation to the total number is reduced.

In addition, the functioning of the KuzSTU task management system provides the following positive results:

1. Assignment fulfillment quality improvement.
2. Increased transparency of the assignment management process.
3. Improvement of the efficiency of using working time.

Among other positive results of the project implementation, the following should be mentioned:

- work using a task management system is already perceived by employees as a completely natural and integral process of the University management;
- employees who previously received assignments through the task management systems more quickly respond to notifications and start fulfilling a new assignment.

4 Conclusions

Thus, the use of information analysis technologies have optimized management processes by ensuring efficient communication between managers and employees through the assignment management system, which made it possible to make the University management process more efficient in general.

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