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SECTION 4. Computer science, computer engineering and automation.

AUTOMATION OF THE DISCIPLINE'S PROGRAM TRAINING'S EXAMINATION

Abstract: The article deals with the automation of the examination curriculum subjects. The proposed assessment is based on the comparison base of keywords created for each subject individually.
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The learning efficiency in system of the higher education in many respects depends on higher level of educational process's organization, introduction of effective forms and training methods, broad application in educational process of modern manuals and innovative technologies.

Not the unimportant role in improvement of education quality is occupied by educational and methodical base of both department, and higher education institution generally, the one of components of which is the training program of discipline.

During creation of the discipline's training program (DTP) teachers adhere to requirements of state standard of education imposed to drawing up the discipline's training program. Registration of the discipline's training program is carried out on the sample approved in higher education institution. Therefore, the problems according to compliance of registration to the approved requirement don't arise. The problem arises at the time of carrying out of compliance maintenance's examination of the training program's theoretical part to requirements of the standard.

Expertise of the discipline's training program is carried out manually. There is a need to automate the process of the program's examination. The main idea of process of automation of the discipline's program training's examination is creation of keywords' base for each discipline. Comparison of keywords on each discipline will allow to calculate the percent of keywords' coincidence. At excess of a percentage ratio of 40%, the discipline passing the examination is considered duplicating the previous discipline, that

is admits not conforming to requirements of the standard therefore this discipline's training program goes to reprocessing.

On discipline accepted and approved by educational institution are strictly considered. All ready unitary enterprise on the disciplines taught at department are made out according to requirements of The provision and discussed on department. In many higher education institutions examination of the training program at it comes to an end.

After then the formation of the discipline's training program has come to an end, it is necessary to carry out at department collective expertise of keywords with the teachers reading this discipline for specialty.

At the time of carrying out examination of keywords are guided by the main terms and definitions from the standard of terms of the Republic of Kazakhstan (ST of PK 34005-2002). The present standard establishes the main terms and definitions in the field of information technologies.

The terms established by the present standard are obligatory for application in all types of documentation and literature on information technologies. The terms established in the standard are located in the systematized order reflecting system of concepts in information technologies area. For each concept one standardized term is established.

If necessary, it is allowed to specify the given definitions, entering the additional signs disclosing values of terms without definition distortion of meaning.

Formation of keywords' base is a necessary condition on carrying out examination as keywords in accuracy retell the main matter of discipline's theoretical material.

It is necessary to consider that the words synonyms, that is the words different in writing, but making the same sense can occur in the dictionary of terms. Therefore, if during creation of the program not to consider existence of words synonyms, two synonyms on comparing are apprehended as two word, different in sense, so, the program will give incorrect result of examination. Therefore on the keywords' bases the dictionary of synonyms of discipline's subject domain is formed.

Having keywords' base and the dictionary of synonyms it is possible to enter data into the program for carrying out examination of the discipline's training program on compliance.

Ready disciplines' training programs in electronic option have to be transferred for carrying out examination to compliance to specially organized structural division responsible for carrying out examination of programs training. The file of keywords and the dictionary of synonyms is attached to the electronic version of the program of training of discipline. The electronic version of the discipline's training program is located in specially created folder which is attached to the program of carrying out examination of the disciplines' training program. In case of need the user in a program window through a key "Directly create the catalog for unitary enterprise" can open and check the electronic version of the training program.

Entrance information is served by the file of keywords and the dictionary of synonyms. The dictionary of synonyms is brought in base which viewing is carried out via the "Synonyms" button in a window of the main program. And, the base of words synonyms can be filled up or deleted from it unnecessary words synonyms during implementation of the program.

The file of keywords is made out in the form of the file with the *.keu expansion. At an initial stage of carrying out examination the file of keywords is introduced in the keywords' base. After selection of the command "To Compare", the program begins the process of the discipline's training program's analysis on compliance, using a comparison method of keywords. Each entered file of keywords is compared to the keywords which are already available in base.

The relationship of main and auxiliary programs can be written in the form of schemes:
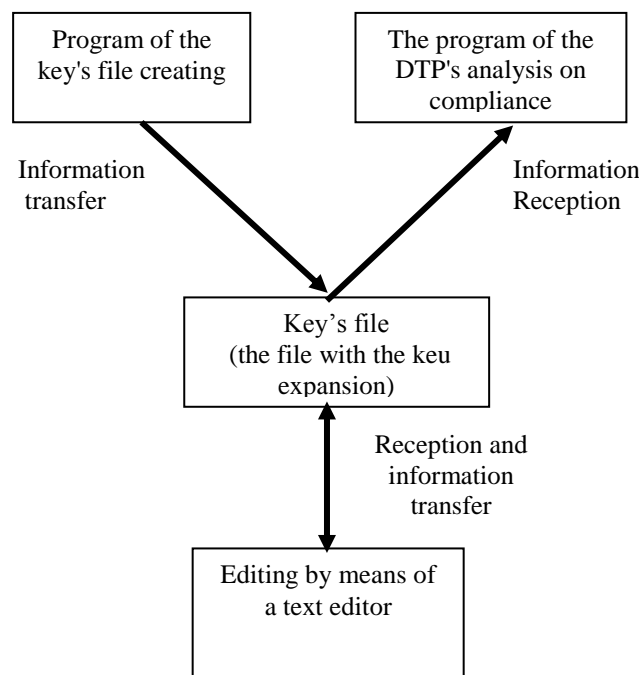
Figure 1 - Interrelation of the main and auxiliary program.

It should be noted that the program provides two options of the keywords' file creation:

1) input of keywords directly in a program window where the counter shows quantity of the keywords (30 keywords) entered by the user;

2) the set of keywords in the Notebook program in a column (through Enter) with the subsequent saving the file with the *.keu expansion.

The quantity of keywords in the program is strictly limited, makes 30 keywords for each discipline. This restriction is connected with the fact

that by drawing up an educational and methodical complex the teacher-developer depending on the credits allocated on discipline makes the training program in discipline in which the number of lecture, practical, seminar training is strictly differentiated.

These are about 15 lecture occupations for discipline. On each lecture occupation it is formed one or two keywords which have to retell accurately the matter, the main idea of lecture occupation.
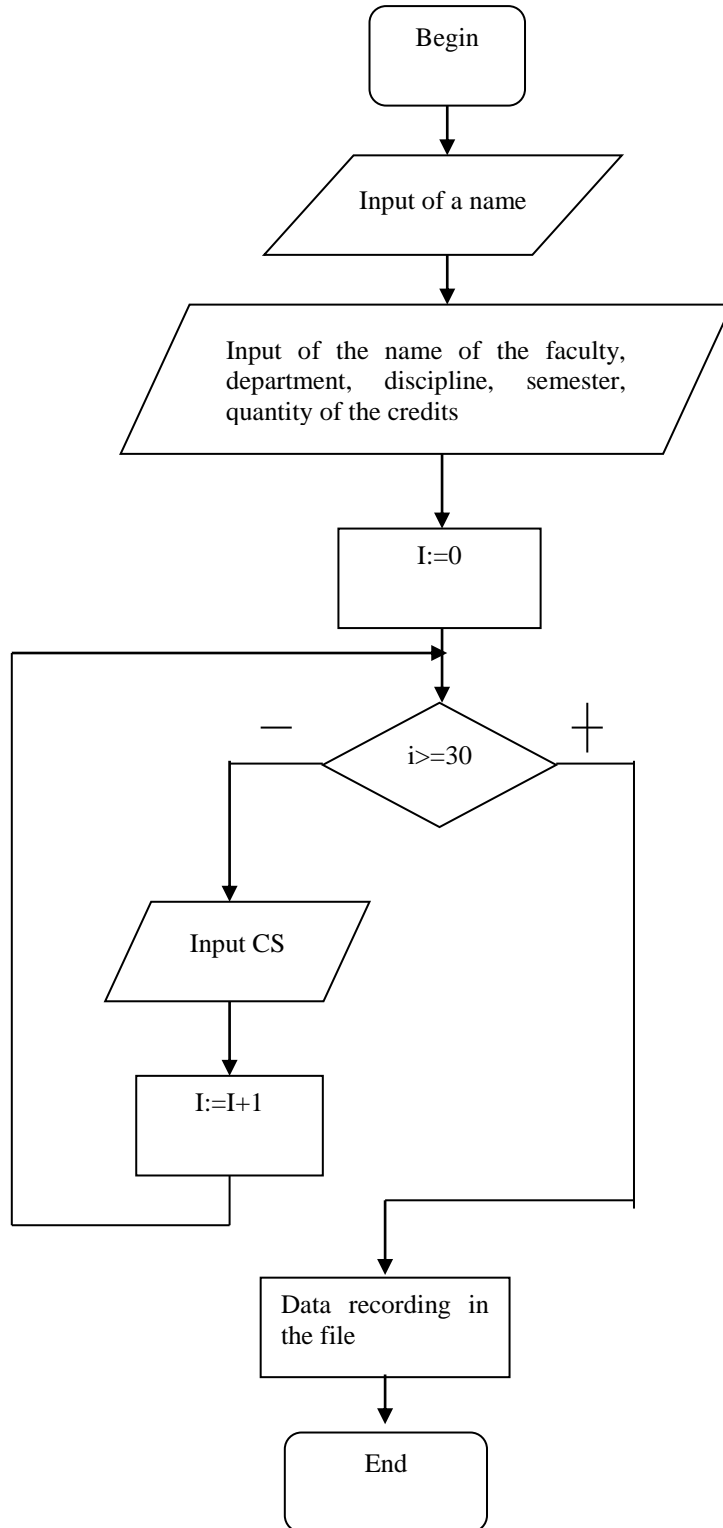
Figure 2 - Algorithm of the key file's formation.

In case of need the quantity of the keywords entered into the program can be changed to 40, 50 etc.

Formation algorithm of the key file it is possible to present flowcharts in the form 2

Chances when the phrase acts as a keyword (the motherboard, random access memory). In this case in the program input of keywords - phrases through the lower line is considered (the_motherboard, random_access_memory). The gap between two words is perceived by the program as a divider of two words, and the lower line is perceived as part of the word, i.e. two words divided by the lower line are perceived by the program as one uniform word.

Process of examination of the discipline's training program consists in comparison of keywords for an educational and methodical complex of disciplines with the keywords which are already available in base.

Each entered base of keywords on discipline automatically is compared to the keywords which are already brought in base. If on comparing coincidence of keywords makes 40% and more, the program gives the message that the training program is duplicated and, therefore, given DTP of discipline is considered not passed the examination and goes to reprocessing. Output information is issued in the form of the message on a duplication of the training program.

Each program is adapted to the conditions of economy, management and use which have developed in a certain field of activity, has a certain circle of users and the principles of work, basic data, output forms, techniques of the resultant indicators' analysis of the project efficiency, approximately identical with other programs.

The described software product, as well as any automated system, possesses the same functional structure:

1) Information sources. As a source of information the files of keywords, the training program of discipline and the dictionary of synonyms act.

2) Carries out preliminary data processing (check and specification), and then transfers it to the database or directly for the subsequent processing and the analysis.

3) Database. Data are result of collection of information, measurements of objects' characteristics and management processes and in such systems are submitted according to certain standards, forming the database.

4) Processing and the analysis of information - the central block of the automated system. It solves the following problems:

– managements of the database, including ensuring it's updating and integrity, protection against unauthorized access;

– reactions in the unforeseen situations requiring the fast solution;

– performance of mathematical, statistical calculations.

The program of automation of the discipline's program training's examination allows in the automatic mode:

– to form the file of keywords;

– to form the dictionary of synonyms;

– to supplement the dictionary of synonyms;

– to control input of keywords;

– to fill up base of keywords;

– to carry out comparison of keywords;

– to carry out calculation of a percentage ratio of keywords.

The developed software product represents the program which forms the database and the corresponding application for automation of the discipline's program training's examination, has rather ample opportunities for change of entrance data. The software product is focused on the end user who isn't highly qualified in the field of computer facilities possesses the simple, convenient, easily mastered interface which provides to the end user all functions, necessary for work, and at the same time doesn't give him the chance to perform any excess operations. The window of the program contains components the visualizing contents of the database, the button by means of which it is possible to add, change, to delete entries in the database.

Thanks to automation the process of discipline's program training's examination significantly accelerates, reliability of information considerably increases. There is a possibility of control of the discipline's program training contents from the block for choice, many of which duplicate already available training programs.

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