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## **DEVELOPMENT OF A SOFTWARE COMPONENT FOR THE FORMATION OF REFERENCES LISTS IN THE PREPARATION OF METHODOLOGICAL DOCUMENTATION OF THE DEPARTMENT**

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One of the tasks of every teacher is developing or updating methodological materials of various types. The National Technical University «Kharkiv Polytechnic Institute» (NTU «KhPI») introduced the concept of «educational and methodological complex of the discipline» [1], which includes the syllabus, work program, methodological developments for classes, etc. To prepare most of the components of this complex, it is necessary to create a list of recommended literature. The analysis of known approaches to the creation of lists by teachers allows us to assert that simply creating such a list by one teacher is not a task of great complexity, on the one hand, but, on the other hand, the task of preparing coordinated lists designed in the same style, according to the same principles, in all documents of all packages within the department or faculty (and even the entire educational institution) is quite a difficult task. Based on this, the task of automating the formation of the source database and its use for creating lists of recommended literature should be considered urgent.

The purpose of the presented material is to show the peculiarities of the formation of lists of recommended sources for methodical materials by teachers of one of the departments of NTU «KhPI», forming in parallel the requirements for the software component to support the formation of such lists, which is proposed to be created to reduce the time and improve the quality of their preparation.

The existing approach to creating a list for a new document usually begins with the fact that an «old» document of similar content is taken, and a check is made for the compliance of the current version of the reference list with the new content of the methodical document or development. In the case of identifying the need for updating, the following is usually carried out:

- searching for information about new sources of information (usually on the Internet, less often in special library catalogs);
- adding information about the source to the list manually;
- formatting of the list depends on the type of document for which the list of sources is intended.

The described process has certain features that determine the need for its automation.

1. The task of finding relevant literature is a rather time-consuming process. Information must be searched on the Internet, while the exact location of the necessary sources is unknown. Therefore, it is often a sequential review of links issued by the browser's search engine. After finding a source that can be included in the list, information on the source is entered manually. At the same time, it is vital to consider for which document the list is formed. Because his template of presentation of sources in the syllabus can be one, and in methodical development, the presentation template will be different.

Some sources can be found in scientific and metric databases or on resources that collect data on methodical and scientific publications of registered users.

Sources can be included in documents prepared by different teachers. Taking into account the fact that in most institutions of higher education, training is carried out remotely, they can be located in different cities and countries. Therefore, a situation is possible when two teachers look for information about the same source and present it differently in methodical documents. One of the teachers is also doing extra work if he searches for an already known source without considering the results of his colleagues' searches. However, this is normal for the current situation because colleagues also need time and awareness of the availability of such information to «write off.»

The specified block of features determines that data storage must be organized on resources that allow the simultaneous work of registered users without being tied to a location. In fact, we are talking about the organization of data storage in the client-server database management system. It is also defined that the software component must provide access via a web interface. This, in turn, determines that the software component must be ready for integration in the form of a service into a system with a broader range of tasks to be solved.

2. Provided that the issue of organization of data storage on sources in the database is resolved, there will be changes in the information technology for preparing lists of sources. First, teachers can use the results of colleagues' work by reviewing existing sources in the database. Secondly, the description of the sources to the list can be carried out in a predetermined correct form - this is a common task in programming work with symbolic data. Solving this task will allow for standardizing the presentation of the list in documents for all teachers of the department and even the institute. Based on these considerations, the following should be included in the system of requirements:

- the interface of the software component must provide a search for sources according to the requirements with filtering and the possibility of selection by semantic tags, taking into account the requirements for the language of the source and the date of its publication;
- the system interface should provide the ability to save selected sources of information to its own list in the selected format of specified office programs (most often - Microsoft Word and Microsoft Excel);
- the implementation of data output in a given format should ensure consideration of the requirements for formatting paragraphs and fonts, established by the requirements for the design of methodological documents of various types, and the system architecture should allow changing the output templates in the future with minimal time spent on updating.

The implementation of output in a standardized (or unified) form will reduce the time spent on rearranging the components of the description by individual teachers, as well as eliminate the time required for the appropriate persons to review all packages, analyze each list of literature from the standpoint of compliance with design standards.

4. University departments can train students from other countries on a contractual basis or the basis of inter-university cooperation. For such departments, the issue of preparing packages of methodical materials in several languages is relevant. Based on this, an additional requirement is to ensure information storage in the required languages

in the database. In addition, it is necessary to consider possible differences in the presentation of the list of sources for the version of methodological documents in the state language and the required foreign languages.

5. In conclusion, the data availability on the sources presented in the database should be noted. In modern conditions, competition has become an integral part of the functioning of higher education institutions and departments. The struggle for applicants is an integral part of solving the tasks. Therefore, information based on which sources the department organizes the training of its students should not be freely available. On the other hand, the department should publish its syllabi and training programs. However, these are already ready-made documents, which, in turn, become objects of study by teachers of other departments and higher education institutions.

The following requirements can be included as security requirements:

- access to the database of information sources should be provided only to employees who are included in the staff of the department in the current year, as well as identified as those involved in the development of methodical materials;

- in order to resolve the issues of recognizing the compliance of sources as satisfying the requirements, define the role of «Moderator of source databases», whose duties are to resolve technical issues of maintaining a list of sources - identifying duplicates of one source, entering information when a duplicate is detected when saving, saving information that partially does not meet the requirements (for example, current IEEE standards with an adoption date of more than ten years), etc.;

- the removal of sources from the database should be carried out by the commission, provided there are no references to them in the current methodical documents and developments.

The analysis of the presented list of requirements for the software component for automating the recommended source list creation shows that the development of the system is possible and can be carried out after solving the issue of choosing a technology stack for its development.

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## **ВИКОРИСТАННЯ ПОТЕНЦІАЛУ ДИСТАНЦІЙНОГО НАВЧАННЯ ДЛЯ ПІДВИЩЕННЯ ЕФЕКТИВНОСТІ ДІЯЛЬНОСТІ ВИЩОЇ ШКОЛИ**

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Сучасні інформаційні технології дають змогу задовольнити запити суспільства. В Україні розвиток систем дистанційної освіти перебуває на початковій стадії впровадження, але вже активно залучається в навчальний процес. Використання дистанційної освіти здійснюється переважно в складі звичайної освіти.

Актуальність застосування інноваційних технологій зумовлена нагальними потребами суспільства і ринку праці, що виявляється в таких проявах, і підкріплено:

- теоретичними напрацюваннями та практичним досвідом стосовно тенденцій упровадження технологій дистанційного навчання; спрямування результатів наукових досліджень на модернізацію освітньої діяльності закладів освіти;
- сприянням систематизації та поширенню сучасних галузевих та міждисциплінарних знань, оволодінню новітніми досягненнями наукової методології, розширенню можливостей викладачів;
- продовженням роботи над покращенням якості професійної освіти, оновленням стандартів та розширенням співпраці з роботодавцями.

Причому освіта має здійснюватися самопливом, але свідомо й мотивовано, без постійних тривалих виснажливих лекцій, результат її суспільно обумовлений і затребуваний. Із цього складаються і форми здобуття освіти – очне, змішане, дуальне, дистанційне. Але саме відкрита освіта, гнучка і доступна кожному, інтегрує всі наявні форми в єдиний освітній простір, руйнуючи межі між різними верствами суспільства. Створення єдиних відкритих і доступних освітніх структур дозволяє здобувачеві освіти вибудовувати його освітній потенціал, щоби сповна розгорнути професійні здібності й освітні потреби.