

ARCHIVING DOCUMENTS IN MOODLE LEARNING MANAGEMENT SYSTEM AT FACULTY OF AERONAUTICS

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The article discusses about design and implementation of the archiving documents in the Moodle learning management system at the Faculty of Aeronautics of the Technical University in Košice and their harmonization with the applicable laws of the Technical University Košice. The faculty uses the system Moodle as part of e-learning. The aim of our design is to archive of students' tests and evaluation. This program design can be used at other faculties and in practise.

K e y w o r d s : Moodle, test, quiz, pdf, export

1 INTRODUCTION

E-learning is a learning based on the means of information and communication technology (ICT) involves computer-assisted learning and technology, which enable development of multimedia databases of information in the form of electronic courses. They are similar to web pages, which are available from any computer connected to Internet and can communicate remotely with teachers and other members of the training course. too. Although the students like these non-traditional ways of learning, they want to have study materials in printed form, because of easy learning. E-learning students is considered only as a supplement to normal (contact) learning currently. Our efforts is to encourage more extensive use of the Moodle system at the Faculty of Aeronautics and harmonize it with the applicable laws of the Technical University Košice. Then this system will become the fully-fledged part of the learning process at the FA.

2 MOODLE SYSTEM AND ITS USE AT THE FACULTY OF AERONAUTICS

Moodle learning management system is one of the tools used to support e-learning, i.e. learning by means of the ICT. Technology is constantly progressing and is focused in the direction of the theory of learning, the way of thinking, which is sometimes briefly called as socio-constructivist pedagogy.

The Moodle System has been in use at Faculty of Aeronautics since September 2008. It contains 128 courses to the date of 2/8/2011. Currently, the Moodle LF system is an integral part of the education and information portal of the Faculty of Aeronautics. [1]



Fig. 1 Opening page of MOODLE at FA (<http://moodle.leteckafakulta.sk>)

Evidence of this is in increased number of records as well as greater involvement and use on the part of the teachers. The system serves as a useful tool for supporting learning. It allows you to create interactive courses that enable interesting way of studying and support self-studying. One of the favourite forms of using the system is testing students. It's a very effective and quick method of verifying knowledge. The system is also helpful during semester as support of learning or collection point for various assignments. Using system as a part of education can not only save time for teachers when examining a test of knowledge, but also help in the final evaluation as a summary of activities during the semester.

3 QUALITY MANAGEMENT SYSTEM AT THE TUKE

As the first and still the only university in Slovakia, the Technical University Košice boasts itself having implemented a quality management system after a long and difficult process. The quality management system and its functions are described in the "Quality Manual". From the manual it is known that responsibility for to the documentation falls to TUKE managerial processes, which are management tools for coordinating the management main and support processes. Organizational guideline OS/TUKE/M3/01 describes Management of documentation as part of the process M3 Records management, classification and management of documents, records and data. Related to this is the prescription of the Registry system and registry plan of TUKE, based on Law no. 216/2007 Coll. about archives and registries. Registry system and registry plan of the Technical university in Košice (further "RPaRP TUKE") is ruling the procedures of the Rector's Office TUKE, TUKE faculties and Students hostels and TUKE canteens, Registry and administration, especially in organizing and handling records and files as well as in proper and regular extraction of files. Point no. 4 of this document describes the obligations for surveying, processing and storing records as well as decommissioning. The RPaRP TUKE assigned the responsibilities for archiving documents of teachers and departments, too. Within the registry plan and subject group "Study matters", component D I – Study,

following two items are important for the department and teacher at the faculty:

D I/15 Written works and students' tests (continuous, final assessment)

D I/16 Exams, repair exams and their authorization, evaluation and inspection reports.

For the first of them D I/15 is deposited time one year, which begin going on 1. January after the year in which the file has been fitted. In the second case D I/16, record is assigned a character value "A", record is also designed for delivering into permanent archive care and the retention period is 10 years. [2]

The validity of these two rules was necessary to integrate into all archival processes within the Moodle system of the LF.

4 ARCHIVING DOCUMENTS IN MOODLE

Moodle system allows the export of tests, interim and final evaluations in other formats, but these are not very suitable because of their content, they don't permit backward scan into export documents without need for renewing of whole course into Moodle system. And that is not effective because of time difficulty and complexity of recovery and access rights.

At the LF TUKE, the Moodle system is used largely for testing students. Archiving of results is available in formats .ods, .xls and .txt. In terms of functionality and results archiving is used format .xls at LF TUKE. The output in format .xls is clearer than format .txt. The teacher see student's name, time of test, the resulting points and points for each question. It is necessary to modify the column width when we can print this output more transparent. In this format we miss the header, which make clear, that this is LF TUKE document. Archiving only the points of test is not sufficient. It is important to archive the whole test together with questions and marked answers. However, the Moodle system does not enable it in its present form. We must archive the overall evaluation from course, not only the tests. Options for archiving are weak and inadequate. The teacher doesn't have an easy way to archive a complete test and survey of marks. Teachers often use their own auxiliary table to write the tests results.

Each course is archived at the end of the semester and this complicates situation for teacher by viewing tests with hindsight. If the course is already archived, it is necessary to reload and then you can view the contents of each test. The process of reloading is time consuming and inefficient.

5 DESIGN AND IMPLEMENTATION OF SOLUTIONS

Analysing Moodle, we found out that the system supports the production of documents in formats that are

susceptible to inadvertent errors. After having them developed, the documents can be further modified. Because of this, we were looking for a format that will discourage these errors and is easy to generate and print. As the output format for all documents, we selected the format .pdf (Portable Document Format). The Moodle System does not support the export to .pdf by default. It was necessary to find a suitable plug-in which could be connected to the system. This plug-in should be able to generate from HTML pages the document in .pdf. For our further needs, we decided to use PHP library mPDF. distribute them as free software under the GNU General Public License as a tool for generating Pdf. Documents. Because of the need to archive a complete test with questions and answers, we designed a new button to download tests in .pdf to the overview page, see Fig. 2.



Fig. 2 Design button

It was necessary to configure the operation of the button in order to creating documents with completed tests in .pdf using class mPDF. The button was added to the site report.php for overview mode and we linked it with form which helped us with pop-up window receive data about course from teacher.

The file package has its own standard, is framed by thick, in the header can be found logo of TUKE and the name of the document - whether it is an interim control study, final inspection or an overall evaluation. In the right corner of the header is space for labelling and numbers of copy for archiving needs. The body of the document should contain the title of the course and planned activity. At the bottom of the document, information about the course must be given. Because of this, we designed file folders as part of each document. We created a query form where all data necessary for file folder were entered by the teacher, see Fig. 3.

Fig. 3 Enquiry form for data in the file package

After processing the data from the form we created a document, where the teacher immediately knew which course, class and activity it is about, see Fig. 4. The

document made by us meets the requirements for file folders of TUKE's current legislation.

Fig. 4 Document file folders

If the teacher need to print only one test or all tests of the same student, we create buttons to page review.php, see Fig.5. These buttons are also linked with the form.

Fig. 5 Buttons for downloading student's tests

Subsequently, it was important to archive the grade report in .pdf form, which serves as a teacher summary report of all course' activities, see Fig. 6. We developed a new mode to the section Gradebook export which is used as output for .pdf format. [3]

TECHNICKÁ UNIVERZITA V KOŠICIACH, Letecká fakulta, Rampová 7, 041 21 Košice									
Prívetisko	Krídlo	Test: prvý pokusný test	Test: druhý test	Test: tretí test	Test: close test otázky	Test: close test chyby	Test: close test short	Test: close test zadanie	Skóre
English	Jahay	3.86	-	-	-	-	-	-	3.86
Mru	Jan	5.00	4.58	8.75	10.00	10.00	-	2.47	60.80

Fig. 6 Grade report in .pdf form

If the Moodle system is used by the teacher than usually - for testing students, collecting assignments, works and other activities, then he evaluates these activities and takes them into account in the overall evaluation. Within the system a "User report" is located in the grade section. Through the button we archived this part of the course, too. The archive overview with commentaries of activities is also available for teacher, see Fig.7.

Fig.7 User report in .pdf form

All buttons were linked to a form, which was used to collect information for the document file folder. After completing data, processing, creating file folder, generating and saving the selected tests in the final document are in progress, see Fig. 8.

Fig. 8 Extracting student tests

The document was developed so as to clearly specified content and treatment time from the title. Name of the document looks like this:

„ShortCourseName_QuizName_Date(YearMonthDayHourMinute)“.pdf.

At the same time, after initially configuring mPDF it was necessary to define the parameters of the output document, where we typed into the text the name of the university, faculty's name and address. We set the document's heel, too. Therefore we harmonized the requirements for documentation with applicable legislative.

Our solution was applied to the currently used version of Moodle at the Faculty of Aeronautics (version 1.9.7). The version is most widely used in the world. However, as humanity and technology are evolving, system Moodle is evolving, too. The future will require our solutions to be adapted to a newer version of Moodle 1.2 . The more modern system is still being developed and debugged. Its application for the Faculty of Aeronautics is not actual because of the verified stability of whole system.

6 CONCLUSION

Our primary goal was to programmatically modify the Moodle system to support archiving of documents under valid legislation of TU. The result of the proposed amendments is to simplify the archiving process and reduce the time burden of teachers. To achieve this, it was necessary to create documents which contained all the tests with questions and answers, grade report, student's report with feedback to all activities. The document have not been available previously. The biggest contribution of our work is in that our solutions can be used at other faculties, using the Moodle system at our University.

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