Implementation of LMS in the Education in the Field of Programming

Niko Naka[1] ,Snezana Savoska[2] and Josif Petrovski[3]

Abstract – **LMS (learning management system) represents a software application for administration, documentation, monitoring, informing and delivery of educational courses or training programs. The implementation of such systems in teaching and in the educational process has many advantages as online courses, accessing materials from any place, interactive teaching, opportunity for testing with these learning systems, higher concentration during the lectures. This whole article is devoted to the needs of the use of these learning systems, our benefits, as well as its use within the educational process, particularly at the faculty of Management and Information Systems.**

Keywords – **LMS, web-based application, courses, education.**

I. INTRODUCTION

LMS is a software application for administration, documentation, monitoring, informing and delivery of educational courses or training programs. The LMS spectrum of systems for managing training and education registers software for distribution of Internet or mixed/hybrid courses on the Internet, with functions for online cooperation. Colleges and universities use LMS to provide online courses. Corporate training departments use LMS to offer online training, as well as to automate the records and stuff subscription. Most LMS are web-based in order to make the access to the learning content and the administration easier. LMS is used by the regulated activities to comply the training. They are also used by the educational institutions to improve and support the teaching and to offer courses for wider population of students from all over the world. This software application or web-based technology which is used for planning, implementation and evaluation of specific learning processes, provides instructions in order to create and provide content, to observe the student's participation and to assess the students' performance.

LMS should be able to do the following:

- to centralize and to automate the administration
- to use self-service and self-managing
- quickly gather and deliver learning contents
- consolidate training initiatives on a scalable web-based platforms

[1]Niko Naka – Master student - Faculty of administration and information system management, Bitola 7000, R.of Macedonia, E-mail: naka_niko@yahoo.com.

[2]Snezana Savoska, Faculty of administration and information system management, University St.Kliment Ohridski, Bitola 7000, R.od Macedonia, E-mail: snezana.savovska@uklo.edu.mk

[3]Petrovski Josif – PhD student - Faculty of administration and information system management, Bitola 7000, R.of Macedonia, E-mail: thejosif@yahoo.com.

- personalization of the content and an opportunity to re-use the knowledge

This powerful software for managing complex databases performs a combination of digital management within the program, training materials and evaluation. Some LMS services include "performance management systems ", which include staff views, competency for managing, analysis of the skills, succession planning and assessment. The contemporary techniques now include competency based learning, in order to discover gaps in the educational process and the choice of materials.

II. LMS AS A FACTOR FOR SUCCESS

If a faculty wants to succeed and to fit in today's rapidly changing and competitive market, it must increase the labor productivity and to optimize the level of organizational talent. With the rapidly changing set of skills and job requirements, this becomes even more difficult challenge for the faculties.

"The best in their class" Learning Management System (LMS) allow universities and the organizations of human resources to create, deliver, assess and evaluate the corporative learning programs to create high-performing labor. It enables:

- Change of the employees efficiency on new levels - it effects dramatically the bottom line of the business
- Linking the learning with various human activities: Engaging the employees with opportunities of development, such as monitoring the performances, career developments and continuous planning.
- Strongly related learning initiatives with key business operations: increase of the incomes, clients satisfaction and overall results.

Benefits

- Easy adaptation and re-use of materials over time
- Multiple choice for the curriculum creators, such as the delivery method, the material designs and the evaluation techniques
- Creating economies of scales that make it cheaper for organizations to develop and maintain content
- Improvements of professional development and evaluation, allowing companies to get more value from human resources, strengthening people with additional tools for self-improvement

III. LMS DISTANCE LEARNING SYSTEMS

The distance learning system is becoming a greater need today. This learning system should contain an average computer, with an average Internet connection and above all a great willpower and self-discipline. By subscribing to a particular item it enters the virtual classroom, which is shared with colleagues who may be from another town or from any other country. The professor is available 24 hours. You have the time and place freedom to access the learning materials, but you also have the responsibility to send the professor electronically the tasks that you should do. The technology plays a key role in enabling the functioning of the remote learning system, which is a generator of changes and obstacles in the adoption of this concept. Distance learning is defined as a formal type of education with institutionally oriented character in which, those who attend the course are organized in groups, while the telecommunication systems are used to establish connection between the students, the professors and the learning content.

- Online learning provides immediate information, and allows faster realization of the efficiency and the competence. By online learning you can repeat the learning process as many times as you want.
- It adapts to long-distance and flexible learning
- The online learning is a mechanism for realization of knowledge and solutions that are focused on the student – if required they deliver short control segments, consistent and relevant for the organizational management of knowledge.
- It reduces the costs of the students training, such as travel, accommodation and childcare

The distance LMS crosses all barriers such as geographical barrier, isolation in some mountain areas and unites the students from all over the world in one common group where they use audio and video contacts, they learns and collaborate. There are numerous examples that prove the functionality of the LMS systems.

VI. LMS TOOLS

It is a system that can make the creation and distribution of a graphic display for managing reports[4]. It can also achieve other benefits:
- Managing, schedule and cost of a school - based training
- Facilitating online booking
- Assigns an industry standard for e-learning including all SCORM 1.2, 2004 and AICC objects
- Submit and share learning content including documents, video and audio
- Getting Accreditation, Certification and Compliance
- Creating job profiles, appointment of plans and objectives of learning
- Managing the Extended Enterprise Ecommerce, Finance and Marketing

- Customization of the interface with branding and language support

VII. LMS Implementation for the Subjects in the Field of Programming

For the needs of the Faculty of Administration and Management of Information Systems, for the needs of the subject web programming and applications, it is installed Front LMS through which we planned to cover the classes for exercises and to allow the use of the system as a knowledge base [2]. It was found that there is a need for such a system for greater precision when explaining the parts of the code. This system contains a MySql database which included lectures from each lesson, especially in the form of a power point presentation, where there are examples of exercises with pictures and instructions on how to perform the exercises, and what you will get after the execution of PHP code and steps until it gets to the performance of that code. As a result of the internal instruction, it is set an intranet environment that gives students the opportunity to complete the exercises at a certain period of time to see and download the lectures and to use additional literature in the type of books or pdf formats (Fig. 2). Also, there is a possibility to organize online examination for the course, because the test questions are included and there is an opportunity to define the time frame for each test. The test generates random and is assigned to the user who calls, and the results are recorded in Negoita result – the time passed, the number of points scored.
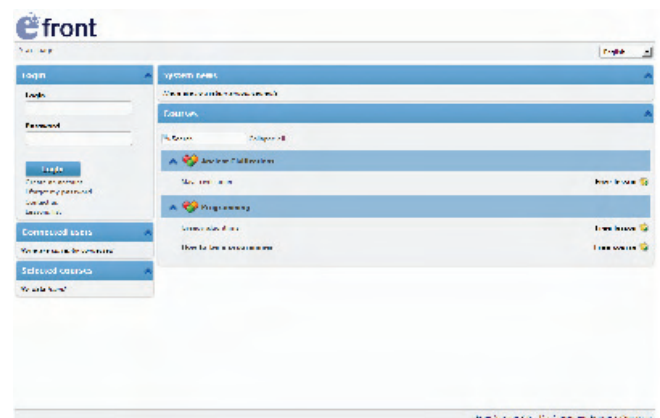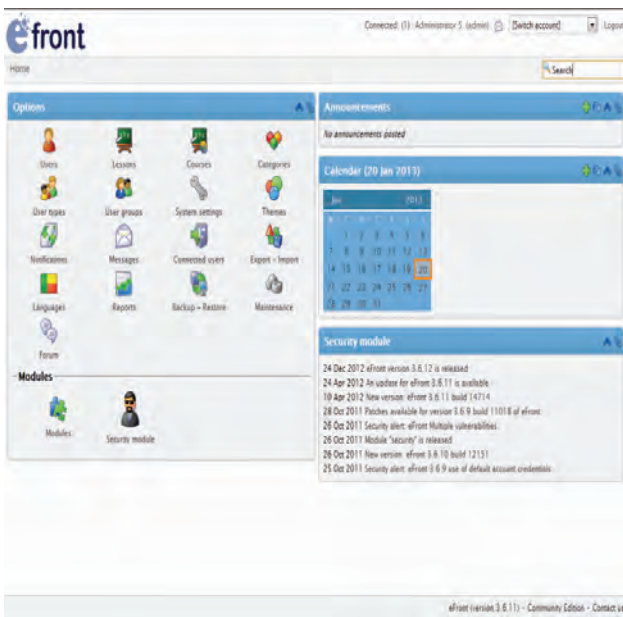

Fig. 1. Screen of the eFront login user

Fig. 2. Screen of the practical implementation of eFront

Fig. 3. Screen of the professor dashboard

On the left side is the entry box, shown in Fig. 1, through which the professors can log and post some new classes, and students can log in. It is possible to publish current users, and the most important thing that you can notice immediately, are the courses that are loaded (uploaded) by teachers, which can be attended by students. Another screenshots are shown on the Fig. 2 and 3.

Experience in working with the system showed that students can learn the lessons much easier, use the codes and instructions for programming and efficiently to complete the exercises provided in class. The interest in the subject has increased and with the possibility of using manuals made for this purpose and the students' opportunity to try to fit some of the codes in any of the previously created applications. After that, they can run and see the concrete effects, to find errors in the code and remove them by using the base for most common errors occurring. All this increases the engagement of students in class and their commitment to complete the provided and other exercises.

VIII. FINAL CONCLUSIONS

LMS system that is used for enrichment of the teaching subjects in the field of programming can promote the learning of the subjects because of the possibility of students to focus on solving the issues and get help from the system and from the professor.

The system allows the use of a base of knowledge, tutorials and opportunities to help the students on the lessons for exercises as well as the cooperation between students during classes. With this is achieved active participation of students in class, evaluation of the work done by the subject teacher and detecting program errors, which allows students to learn thematic content easier and faster.

As future recommendations on the use of the system that we think are interesting for assessment through the LMS system, creating a database of frequently asked questions from students and learning system, with which can be carried out and evaluation of the hours that each student spend in the system, the tasks they did and can evaluate the level of knowledge of the student.

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