

# Introducing Learning Management System in Higher Education

Tin Htar Nwe

University of Computer Studies (Magway), Myanmar

tinhtarnwe@gmail.com

## Abstract

*Learning Management Systems (LMS) allow communication and interaction between teachers and students in virtual spaces. Using Learning Management Systems (LMSs) in higher education has facilitated the communication between students and teachers, and raised new challenges as well. The fast growing technologies have changed the ways of teaching and learning in educational institutions. The aim of this paper is to introduce the role of LMS in the learning and teaching processes from students and teachers perspectives. Teachers can organize their classes and post different documents, assignments, tests, etc. The student can answer the test that is created by the teacher. After taking the test (tutorial), the system provides the result of the tutorial that the student took and the pdf file to download for that tutorial and teachers' lecture slides and documents. LMS can increase motivation of learners, promote learning, encourage interaction, provide feedback and support can be provided during the learning process.*

**Keywords:** Higher education, Learning Management Systems (LMS)

## 1. Introduction

In an educational context, e-learning platforms are also known as Learning Management Systems (LMSs) which are "internet based, software allowing instructors to manage materials distribution, assignments, communications and other aspects of instructions for their courses" [1]. Today, LMSs have

become an integral component of the educational systems in most universities and interest is increasing in hybrid approaches that blend in class and online activities. A LMS is not intended to replace the traditional classroom setting, but its main role is to supplement the traditional lecture with course content that can be accessed from campus or the Internet. While the potential benefits of augmenting the traditional class with LMS have been recognized and discussed, what has remained largely unknown are student and teacher reactions to using a LMS as an addition to the traditional lecture [4].

In this era of information technology, the internet is easily available and accessible by urban areas in Myanmar, which is where most universities are situated. Most university students nowadays also have access to the internet as their university provides internet access, and usually there is an internet from the university's campus wifi, catering to students. Some also have internet access within their own home as they subscribe to an internet service provider. University students are mostly independent in their learning as lecturers usually give out lecture notes, and further information are left for the students to discover on their own. The learning process at the university level is a two-way process, lecturers share their knowledge and students give their opinions or thoughts in return a topic in a class discussion. Therefore, university students need to constantly broaden their knowledge by searching for information. So, the students can use internet and LMS easily.

A learning management system (LMS) is a software application for the administration, documentation, tracking, reporting and delivery of educational courses or training programs. Expanding on this definition, LMSs can be

described as enterprise level, server-based software systems used to manage and deliver (through a web browser) learning of many types, particularly asynchronous eLearning [5]. They help the instructor deliver material to the students, administer tests and other assignments, track student progress, and manage record-keeping. LMSs are focused on online learning delivery but support a range of uses, acting as a platform for fully online courses, as well as several hybrid forms, such as blended learning and flipped classrooms. LMSs can be complemented by other learning technologies such as a training management system to manage instructor-led training or a Learning Record Store to store and track learning data [2]. In this paper, some of the characteristics of open sources learning management systems were analyzed to identify the basic characteristics for designing a learning management system and their roles.

## 2. Related Studies

A learning management system is a server-based or cloud based software program. Nowadays there are two kinds of Learning Management Systems. First of them is commercial, and the second is free or so called open source project. The followings are concentration on the second type which is designed for the Higher Education purposes.

COSE (Creation of Online Study Environments) is a system which facilitates active and collaborative learning for a wide variety of learners (traditional, distributed and distance), with a particular focus on approaches such as problem-based learning and cognitive apprenticeship [6].

Moodle is a software package for producing internet-based courses and web sites. The design and development of Moodle is guided by a particular philosophy of learning, a way of thinking that you may see referred to in shorthand as a "social constructionist pedagogy". The word Moodle is originally an acronym for

Modular Object-Oriented Dynamic Learning Environment, which is mostly useful to programmers and education theorists. As such it applies both to the way Moodle was developed, and to the way a student or teacher might approach studying or teaching an online course. Moodle will run on any computer that can run PHP, and can support many types of database (particularly MySQL). Moodle is an Open-Source e-learning system, currently in use at 987 sites in 74 countries, and has been translated into 34 languages . Adding documents one at a time to a Moodle page is painful. It is much more convenient to store the documents in network storage space and then create a link to these documents from Moodle [8].

OLAT is a web-based Open Source Learning Management System (LMS). Learning Content Management System (LCMS) used in the public sector of Switzerland. The initial development started at the University of Zuerich, Switzerland where it is deployed on the main OLAT server. Official support for OLAT is available at the Multimedia and e-Learning Center (Only available for Swiss university members). OLAT is open source and completely free of charge [3]. In this paper, some of the characteristics of above open sources learning management systems are described.

## 3. General functions provided by an LMS

A learning management system is used within educational organizations as well as with various industries. An educational LMS is designed to deliver instructor led courses which includes two way interactions between learners and instructors and also between learners and other learners. The LMS is used by the industry as well which have distinct functions and features from the educational LMS. A learning management system for educational background should be able to do the following [7]:

- centralized and automate administration

- use self-service and self-guided services
- assemble and deliver learning content rapidly
- consolidate training initiatives on a scalable web-based platform
- support portability and standards
- personalize content and enable knowledge reuse

The instructor lead courses allow managing the courses and exchanging information with students as per the requirement need.

These days Learning Management Systems is being adopted by many institutions to fulfill the needs and requirement. The users of LMS can be categorized into following:

**The learners:** They use the system for the educational process. The learners are the basic or the main users of LMS such as students.

**The instructors:** The instructors are the teachers and the assistants who use the LMS to supervise, assist and evaluate the learners.

**The administrators:** The administrator can take the support of all the users of the system to keep a check on the proper operating status.

A digital library should be supported for the sharing of information between all the users ( for example- the Digital Public Library of America (DPLA)).

## 4. Design of Learning Management System

LMS can have the following features

1. Registration and Enrollment options to teachers and students.
2. Adding/Deleting Courses by the University/Educational Bodies.
3. Set the different User Roles and user account.
4. Setting the course calendar.
5. Upload and Retrieve Assignment and Resources

## 4.1. Use Case Diagram for LMS

A use case diagram is a simple representation of a user's interaction with the system and depicting the specifications of a use case. A use case diagram can portray the different types of users of a system and the various ways that they interact with the system. The below represented use case diagram shows the interaction of the system with various users in a learning management system.

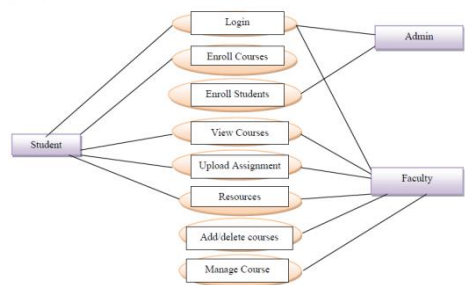


Figure 1. Use case diagram for LMS

## 5. Requirements for LMS systems in an academic environment

### a. Course content management

The storage of personal files to be uploaded by the users should be supported by the system.

### b. Usability

1. The system should be easy to use and learn by the users.

2. Full accessibility of the system should be provided with a web browser.

### c. Configuration and modification

The system source should be modifiable by the administrators to access the source or have access to an API.

### d. Technical requirements

1. The system must be able to work under heavy load.
2. The system must be able to handle growth in the number of users or information.

**e. Progress monitoring**

1. The students overall progress should be tracked by the system.
2. A grade book should be maintained and access should be granted to both students as well as teachers to access the result of the students.

**f. Administration**

1. The eligibility of the student should be checked for admission to a course.
2. Different accounts such as student account, teacher’s account and admin account should be maintained for different roles.
3. The access of material should be the responsibility of the person who maintains the course.

**g. Communication**

Text based chat, internal messages system should be supported by the system.

**h. Evaluation**

1. After the completion of the course the students should be able to evaluate the courses.
2. The result page answers should be viewable by the user responsible for the course.
3. The answers should be analysed by the user responsible for the course.

Learning Management System is a software application for the administration, documentation, tracking and reporting of training programs, classroom and online events, e-learning programs, and training content. LMS is used by audiences like students, teachers and administrators. Also LMS can be used by anyone who is interested in conducting the online classes

and who wants to store and retrieve the student’s documents.

**6. Conclusion**

With the improvement of Computer Assisted Learning, Learning Management Systems are gaining popularity as a convenient medium for delivering and managing teaching and/or training to all users even distant learners. Objectives of this paper are, to study about LMSs and different modules of an already existing LMS, to explore extra functionalities to transform a generic LMS into an LMS that supports various educational bodies. The work is not complete in true sense because some of the functionalities like receiving feedback from the participating educational bodies, processing of accounting information and calculating credit transferable to the individual educational bodies are yet to complete. Moreover, more flexibility in program flow is required. However, there could be more investigations needed in different aspects of versatile operation like, broadcasting any information from the participating universities, checking quality of the content etc. The future work will concentrate on these needs and propose the framework to incorporate those modules. A Learning Management System (LMS) can be used in administration, documentation, tracking, reporting and delivery of e-learning education courses or training programs for teachers and students.

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