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Development of Learning Management System for AMA Computer College

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Abstract *– The project sought to design and develop a learning management system for AMA Computer College, describe the features of the proposed system, and to test the acceptability of the system .The study utilized the descriptive to describe the current existing system and developmental type of research in developing the system, particularly Scrum Agile methodology in software engineering. The findings showed that the current existing learning management system lacks important features which defeat the purpose of the implementation of the system. The supplication of the stakeholders served as the basis for identifying and developing the features of the system. By carrying out the features of the system, the organization can maximize its potential to facilitate reinforcement of education beyond the classroom. Further study should be made to assess the overall performance of the system so as to accommodate room for improvement*.

Keywords *– Learning Management System, Learning, Features.*

INTRODUCTION

From the traditional four corners of the classroom to the electronic virtual classroom, scholarly personnel can now take their students to any part of the globe right from within the corners of the classroom. The speedy progressive evolution of technology has elicited new initiatives in the academic realm, markedly in universities and schools. One of the utmost sententious developments in this field is the conceptualization of digital learning and studying. Although the electronic learning environment has long been in existence since 1950's, learning management systems (LMS), in their leading-edge form, have only been available since the 1990s (Bartolome, 2008).

Vollmer (2003), even before the proliferation of the internet, academic institution has already been employing computer-based learning, particularly computer-aided learning technology which is a computer program that is developed to deliver educational resources which supports text, audio, and visual based file. Decades have elapsed since the establishment of the internet, and computer-aided learning platform has been outpaced by a more advanced platform which is called the learning management system which has then emerged as the standard in the global educational system. Regardless of the intention whether for off-campus or on-campus education, numerous learning institutions are employing learning management systems to improve learning within their institution enabling educators to organize and manage scholarly resources.

The shifting of learning institutions to adopt e-learning is a natural transition for educational institutions of the 21st century. Many educators around the globe tend to build a collection of free commercial web services that are one-trick applications, for instance, Facebook for social networking, electronic mails or Google Docs for submitting written assignments, drop boxes or file-sharing cloud services for media files, Yahoo! Groups for discussion forums, and free test preparation sites. Utilizing all of these varieties of services requires learners and teachers to create a number of user accounts, one for each service, and manage them all accordingly. Faculty members must always keep track of the learnerss' rights across

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the assortment of services and sites. From a technical perspective, this is not clearly an easy arrangement to administer and is almost impossible to do on a medium or large scale. Secondary to the complexity of administrating different electronic means, a well-designed learning management system has all the tools and services one needs to create and manage user accounts, courses, social networks, news, announcement and messages, discussion groups, assignment and file submission systems, assessment quizzes or test, presentation of lessons, grading and feedback among others in one convenient system, with one user account for each system Regardless of the means of delivering these academic activities, scholarly personnel perceive e-learning as an educational innovation that holds a substantial means for enhancing teaching and learning.

In essence, Kats (2013), defines learning management system as a software application that could either be mobile or web-based technology used to plan, implement, and assess a specific learning process. Conventionally, a learning management system provides support an instructor with a way to create and deliver content, monitor student participation, and assess student performance.

There are two general types of e-learning as claimed by Kruze (n.d.), synchronous and asynchronous training. Synchronous refers to the actual interaction through the web in real-time. While asynchronous allows the student to complete the web training on their own time and schedule, without live interaction with the instructor. Asynchronous e-learning is more popularly known because it creates a just-in-time on-demand student learning experience. In contrast, in synchronous training, students do not need to schedule their time around the predetermined plan of the instructor. Asynchronous training comes in two forms, facilitated and self-paced. Facilitated asynchronous training involves instructor and students interacting not in real-time. With this kind of training students will have more time for self-research, and more peer interaction. Self-paced training is a form of delivery which is consists of standalone instructional material that can be accessed and completed via the web, without additional interaction among students.

By its nature, Brown, and Johnson (n.d.), contend that a learning management system makes all academic material available and accessible to multiple students from any location allowing consistency in the delivery of the exact same course material. The learning management system also allows viewing the required learning path and tracking progress against the learning path for both the students and facility educator. Moreover, the learning management system allows students to be evaluated prior, during and upon completion of the course.

Pertinent to usefulness, ease, and convenience in the academe, the learning management system has been adopted throughout the world. Among the many other nations that implement e-learning (Harrison, 2012), the United States, India, China, South Korea, Malaysia, Australia, South Africa, and United Kingdom plays were among the key players in digital education.

In the US, a study conducted by the Sloan Consortium found that one-third of all those enrolled in higher education are utilizing the e-learning system. E-learning is also rapidly becoming popular in Australia want to reconsider going back to school without placing careers on hold. In the United Kingdom, the government's online learning task force proposed an investment of approximately 159 million dollars in online education in order to support the nation build its brand, developing better online educational resources, and becoming a major international player in the distance learning market (Harrison, 2012).

In Asia, China is the home to almost 70 different online colleges, a number that will likely to grown in the coming years in order to meet the high demand for e-learning opportunities. Another high-end growing nation that employs e-learning is South Korea

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with more than 17 Colleges, all of which boast state-of-the-art facilities and software. The small Asian nation Malaysia is also forging ahead at full speed when it comes to learning online (Appelo, 2008).

With the educational institution gearing towards electronic learning, a reliable content management system that is capable of managing academic content designed to deliver, track, and manage training education is required (Lonn, 2009). With this matter at hand, several learning management software platforms were developed such as Virtual Learning Environments, Collaborative Learning Environments, and Modular Object-Oriented Learning Environment (MOODLE).

Arimbuyutan (2012), claimed that the earliest advocates that lead the drive to incorporate e-learning technologies into the Philippine school system were scholarly personnel from the irrefutable universities like the University of the Philippines (UP) which has established in 1995 the UP Open University, as an alternative to traditional classroom. The University of Sto Tomas (UST) which provides e-learning course through e-LeAP (e-Learning Access Program). Additionally, Ateneo de Manila University, Dela Salle University and other major universities offer some form of online courses, mostly these academic institution uses prepackaged programs purchased from suppliers, although some institutions have developed their own platform using different software. E-learning in the Philippines is new and still in its embryonic stage. Among many existing school in the country AMA Computer College is one of the few learning institution employing learning management system using MOODLE.

The AMA Education System is the largest educational network in Asia. It has an annual population of 150,000 students in its more than 200 campuses all around the Philippines and other parts of the world. Its main school, the AMA Computer University, is the first and largest ICT University in Asia. AMAES is committed to its perpetual vision to become the leader and the most dominant provider of globally recognized education and training in Information and Communication Technology. Like so many other educational sector, AMA Computer College goes global, and globalization in education goes hand in hand with an increase in the availability of digital learning resources.

Since AMA Computer College caters to a majority of Filipino who are into information communication technology its corporate vision and mission is to become the leader in information technology education and for the company to accomplish this it needs to understand and assess the current situation and needs in the Philippine education. By tradition, the Filipino culture places a high regards on education. The entireties of Filipinos accept the truth that the best way to alleviate poverty and to secure a better future is through education, this is upheld by the Philippine government providing educational scholarship. However, despite the governments thrust to provide free education, there are some areas in the country which are remotely located that access to colleges or universities is seemingly impossible. In addition, the inevitable predicament on acquiring learning materials such as books, journals and manuals are hindered by financial constraints. To recompense for these, e-learning is advocated to edify the circumstances. The electronic learning management system is the latest emerging concept in education as a part of reformation to supplement insufficiency in the Philippine educational system and current under developing stage.

While there are numerous dozens of different types of Learning Management System employed by various organizations to date, and although these system typically share a common purpose which is to manage and administer course materials to a larger distributed branches. In choosing an LMS, the AMA Educational System has chosen open source software secondary to its advantage which is free. And because the source code

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is open, customization is limited to certain extent. Further, since it's for free, open source tends to be very complicated and does not hold dedicated customer support system than commercial ones. Without reliable and dedicated support, making even the smallest changes can be very difficult. Secondary to this, the current learning management system employed by the AMA Educational System does not fully meet the requirement of the users, thus making its usage insufficient to a certain extent

With this issue at hand, the developer being employed in AMA Computer College, Dagupan City Campus endeavors to seize the opportunity to be a part of the development and improvement of learning management system in the country specifically within its domain of employment, the AMA Computer College. The developer is motivated and dedicated to design a good learning management system to suit the students learning preference from AMA Educational system.

OBJECTIVES OF THE STUDY

The study aimed to design and develop a learning management for AMA Computer College.

Specifically, the study aimed to"

1. Determine the features of the system
2. Test the acceptability of the system.

MATERIALS AND METHODS

Research Design

The developer in this project utilized the descriptive-developmental type of research. Key (n.d.), defines descriptive research as the type of research used to obtain information concerning the current status of a certain event. In order to acquire all pertinent information thereto several survey method were utilized. Such acquired data shall be treated statistically to analyze and evaluate the current condition of the system. Hence, descriptive type of research is employed because the study involves gathering, organizing, tabulating, interpreting and presenting data that were obtained from the respondents to describe the current existing system.

The developmental type of research according to Dr. Tim (n.d), aims to specify the product to which a developer aims to address the problem, and indicates how the product will resolve the current issue on hand. It involves the production of knowledge with the ultimate aim of improving the processes of instructional design, development, and evaluation. Developmental research is based on either situation-specific problem solving or generalized inquiry procedures.

The descriptive type of research design utilized by the developer has been perfectly matched with a software development type of tool dubbed as agile-scrum software engineering model that served as a guide in the creation of the software.

These two approaches are deemed appropriate and absolutely suitable for the development of the project on hand as both of these research designs complement one another. Descriptive research describes, evaluates and analyzes the existing current system and in addition, it provides information on the desired functions and features of the stakeholders, while the developmental type of research is administered in order to develop an improved system in accordance with the requested requirements both functional and nonfunctional.

The developmental method employed the Agile-Scrum Methodology. According to Pressman (2012), a Scrum is a project management tool used in agile software engineering development tool process. The Scrum model has long been used and the most popular and leading software engineering model to used to develop web-based development projects. Scrum focuses on delivering the highest priority features in the shortest span of time. It allows rapid and repetitive inspection of the actual software through a series of sprints in order to achieve a real working system, the developer may decide when to release the system as soon as possible in order to allow the users to use and evaluate the system whether the features and other functional requirements were achieved. Should the requirements were not met system will be returned to the developer for further enhancement through sprint.

The Scrum model has the characteristics of controlling very complex process of software

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development through a series of sprints, giving emphasis of the delivery of usable functionality to the clientele by identifying sprint backlogs. The following figure shows the phases of the Scrum model.

In relation to this, a study conducted by Anthony Billman (2011), utilizes the same Agile Scrum methodology for the development of electronic voting system for india, establishing that Scrum is the ideal methodology for developing such system because of its iterative nature with the advantages of focusing on capturing product feature, incremental development through product delivery and testing until the desired product is accomplished. Both recommended the methodology because of its innate nature which is high visibility progress, regular customer feedback, measurable productivity, self organizing team and emphasis on face to face communication.

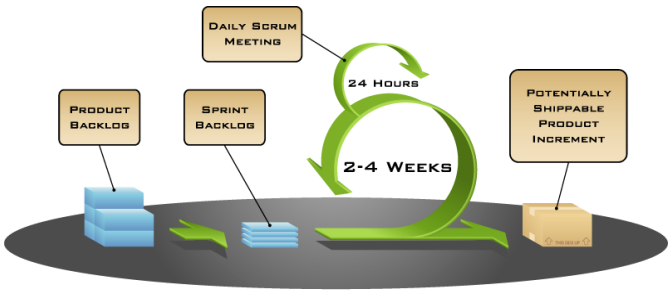

Figure 3.1: The Agile Scrum methodology

Phases of Scrum Model

Basically, a scrum is a skeleton that contains sets of practices and predefined goals. There are three important entities involved in scrum these are: scrum master, the product owner, and the team. The scrum master is the entity responsible for planning; the team is the functional groups that do the analysis, design, development, implement and testing while the product owner correspond to the clientele.

Product Backlog. These are the prioritized list of project requirements or features that provide business value for the product owner. It is an specific ordered list of the desired work on the project which are gathered from the system owners, usually a combination of story-based and task based work. This contains prioritized list of the desired feature of the product (Schwaber and Beedle, 2001).

In this phase, the developer identified all the requirements acquired from the clientele through interview and observations which is most likely consists of assumptions of the desired future system. Based on the gather data through interview and observation, the developer now identifies the task to be done in order to meet the features and functional requirements of the system.

Sprints Planning. This phase is consist of work units that are required to achieve a required to achieve the stated requirement defined in the product backlog list that must be fit into predefined time-frame (typically 30 days). It contains a list of task needed to complete the product backlog items the team has committed to complete in the sprint (Saddington, 2012).

The developer in this phase analyzed the product backlog based on the given requirements from the product owner and system users. Tasks were then identified and were given priorities in order to determine which has the highest priority in the development through a time boxed activity called as Gantt Chart. At the end of each sprint, the product developer conducts sprint retrospective meeting with the product owner together with other teams to show what has been accomplished. Typically, this takes the form of product demonstration of the new features.

Further, throughout this phase the developer identified the required time to accomplish the entire tasks that were not done yet. The remaining approximated task in the sprint were calculated on a daily basis and graphed, resulting in sprint. The developer analysis of the system is divided into five major iterations, the design intended for the system module, coding and integration of the different modules of the system along with alpha testing, were done.

Sprint Backlog. The sprint backlog is a list of task identified by the Scrum team to be completed during the Sprint. The list is derived by selecting product backlog items from the top of the product bakclog until the work is enough to fill the sprint (Felix, 2009).

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In this phase, the developer spends more time understanding that task, the design, the existing code, and the architectural possibility. A deeper understanding of the system development will serve as a guide for the deeper understanding of the solution.

Daily Scrum. This refers to the short meeting held every day to coordinate the effort and overcome roadblocks during a sprint. The objective of daily scrum is to take a pulse of the progress and remove impediments as quickly as possible (Schwaber and Beedle, 2001).

In this phase the developer considered what was the task that has been met previously and the plans for the future days to come and considers the possible roadblocks preventing from achieving the planned task.

Product Release. The final phase of the scrum is the product release, every time the sprint is accomplished; a new system feature is delivered to the product owner for testing and employment. Once the sprints were accomplished, the system on hand will be delivered to the product owner or clientele for product testing of the new feature that were added. It important to note that the demo may not contain all planned functionality, but rather those functions that can be delivered within the time-frame that was established (Millet, 2011).

In this phase the developer ends the development process and the product shall be prepared for the release which includes integration, product testing, user documentation materials, training, and marketing preparation.

RESULTS AND DISCUSSION

Features of the developed system

This section provides the summary of the expected features that the system must possess in order to perform its functionalities as learning management system.

The notion of the development of the learning management system for AMA Educational System is secondary to the advanced changing and escalating development in the web development technology. The current learning management system processes of the educational system were the considered to be the guideline through which the developed system was based. Mostly, the purpose of the Learning Managements System is to manage users, courses and students

The Learning Management System served as the official site where the AMA Educational System managed students courses online. The system provides a linkage between students and faculty members.

The developed learning management system for AMA Educational System holds three main modules, specifically these are course management, student management and user management which can be required by the different stakeholders to meet their needs and to achieve the objectives of the business.

Hereunder the features of the developed system based on the requirements of the stakeholders.

The following plate presents the homepage for the administrator of the learning management system for AMA Computer College.

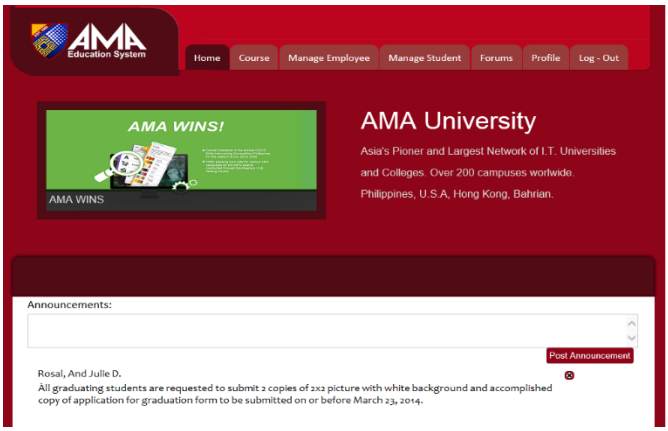

Plate 4.1
Administrator's Homepage

Homepage (Administrator). The administrator homepage entails important functions which are paramount to the intendment of the system. It incorporates navigation Course Management, Employee Management, Student Management, and Forum Management. Each navigation is designed for specific functionalities intended for substantial purpose. The course management includes add courses, assign

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courses and viewing of courses. The employee management tab encompasses adding of employees and viewing of employees. The Student Management tab carries adding of students and viewing of students. The forum tab allows the administrator to view and delete posting of the students in the message board as deemed necessary, such as offensive word. The profile tab on the other hand lets the administrator places his identity and for password management.

The course management feature corresponds to the basic yet the most important feature of the developed system.

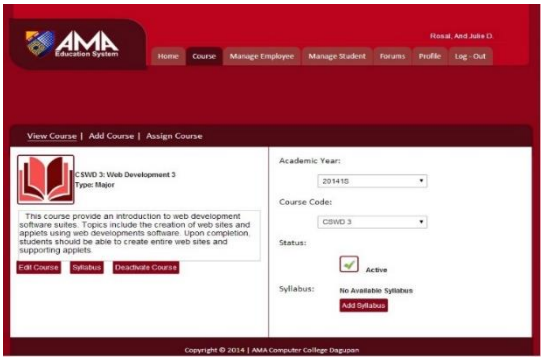

Plate 4.2
Course Management Page

Course Management. This page focuses on the management and distribution of courses and the faculty members assignment as well (Ferriman, 2012).

The course management page allows the administrator to add course duly prescribed by the academic department and to assign the course to the Webcast Faculty as per approval and recommendation of the branch human resource department and the Dean. The course management page contains a detailed description of the course being presented, this is so to avoid confusions from among similar course title, and this is to the secondary to the never ending updates in the realms of information technology.

In addition, the course management page concedes viewing of courses for specific academic year. The course management page initially loads up with the view sub link so as to present the courses that has already been placed within the system. Likewise, the course management page displays only one course at a time with pertinent details relevant to the course.

The course management page holds three features such as the editing of course details, viewing of uploaded syllabus and deactivate course button. The deactivate button shall be used to deactivate courses which is no longer required.

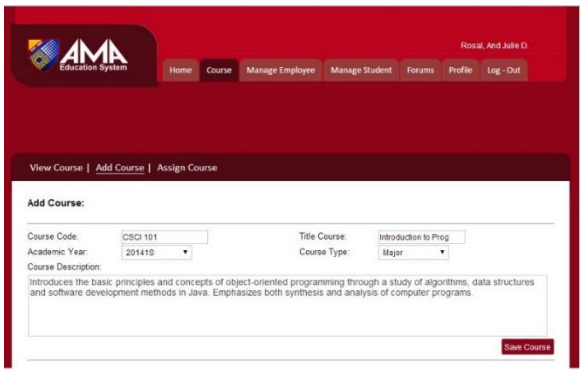

Plate 4.3
Add Course Page

Add Course. This is the page where the administrator generates the courses to be offered for the semester. The add course navigation has the following dimensions for adding courses such course code, course title, academic year, course type which could either be major or minor course. It holds the brief description of the course being added for, the course code and the course title respectively. The Academic Year drop down box corresponds to the year and the semester to which a given course be offered. The course type defines whether a given course is minor or simply general education courses and major for computer courses.

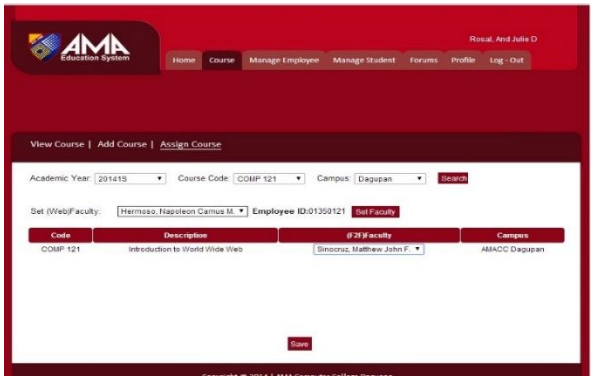

Plate 4.4
Assign Course Page

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Assign Course. Courses served as the basic building block and logical unit of the complete program offering. Assigning of courses is an imperative feature of any learning management system. They are important because students should enroll in them in order to access the lessons loaded in the courses (Namaste, 2013).

The assign course link is the page where the administrator designates a specific course to the faculty both webcast and face-to-face. The assign course link incorporates search feature by academic year, course code, and campus so as to look for a specific subjects to be assigned with the faculty.

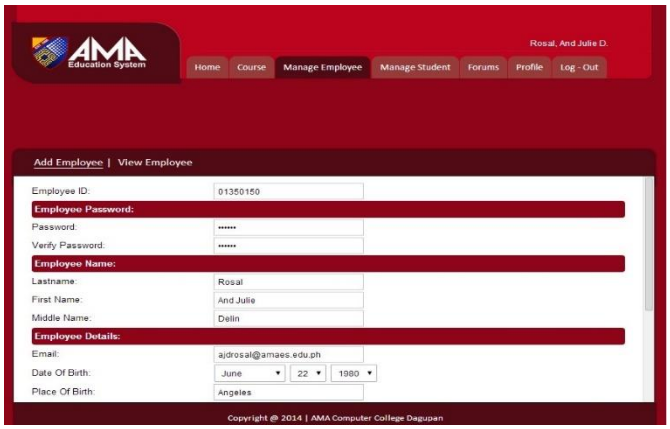

Plate 4.5
Add Employee Page

Employee Management. The employee management page is the link where the administrator registers an official employee to be engaged in the implementation of the system. The employee management holds details about the employees, for instance employee ID serves as the username of the employee, the password in order to gain access into the system, personal information such as the last, first and middle name of the employee. The birthdate of the employee is also included to be posted in the announcement board to give recognition to the employee during his date of birth. Further, pertinent details of the employee such as email were included.

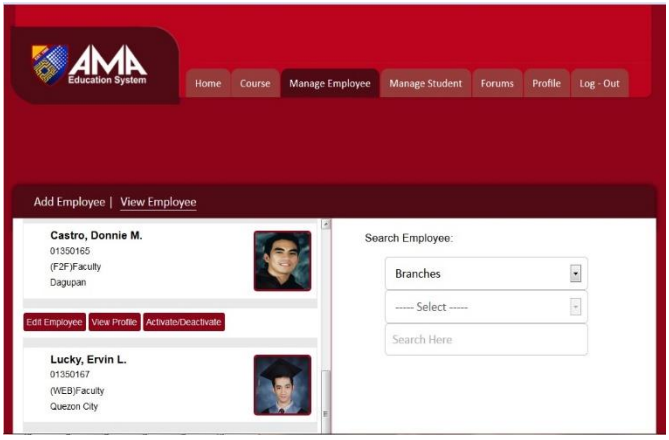

Plate 4.6
View Employee Page

View Employees. The view employee page is the page where the administrator views all the list of employees responsible for the implementation of the system. It specifically holds features for searching employees within the database in term of branch, by last name or even first name. To make viewing of employees in much easier way, the system incorporated search feature in order to look for specific employee within the system. The search feature is done and sorted according to branches, last name and even first name. This is one of the functional feature of the system since to date, AMA Computer College has 41 campuses nationwide, excluding foreign branches.

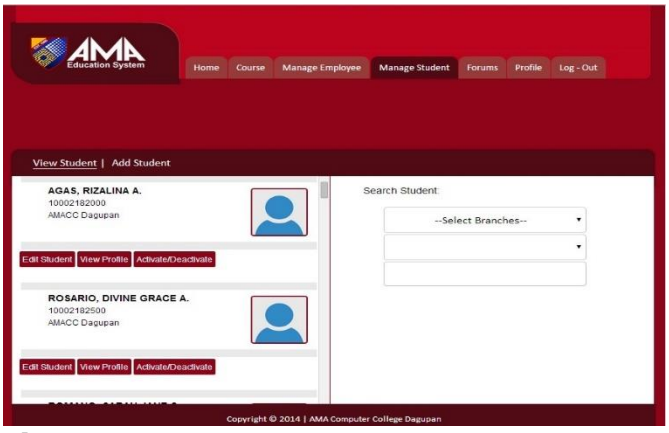

Plate 4.7
View Student Page

View Students. This feature allows the administrator to view all students who have registered into the system. The students are presented in such a way that the lists are sorted in alphabetically arranged. The view student feature also has a search feature to

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easily search for a particular student within the database of the system. The search feature has specific filters in terms of campus in order to view only the registered students within the given campus. Further to view a student in a quick and efficient way, students are filtered either by first name or last name.

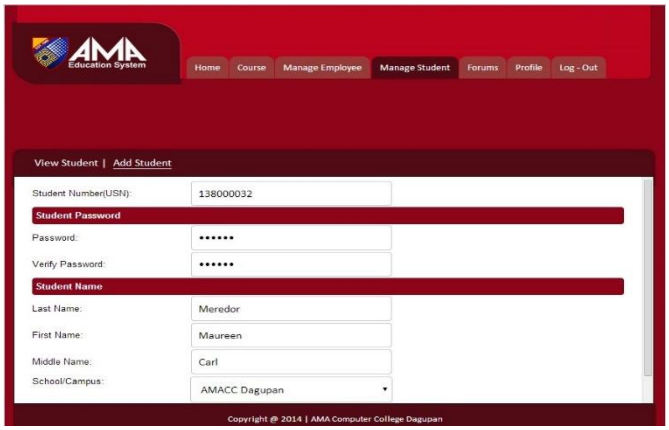

Plate 4.8
Add Student Page

Add Student. The add student page is the page within the manage student link so as to add students into the database. The list of students to be encoded includes the following student details such as universal student number, password in order to gain access into the system, personal information such as the last name, first name, the middle name and the branch to which the students is presently enrolled.

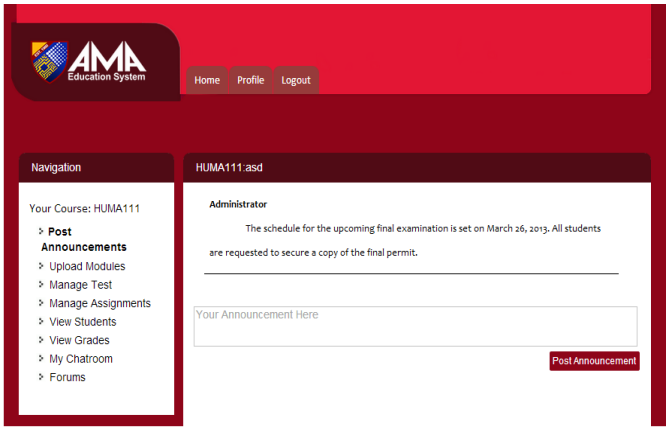

Plate 4.9
Index Page for Webcast

Index Page (Webcast). This page is where the offered courses are managed, once the course has already been assigned to the webcast faculty member. The index page holds the following navigations and sub navigations such as post announcements, upload modules, manage test, manage assignments, view students, view grades, chatroom and forums. The post announcement is where the webcast faculty member post all pertinent announcement in line with the courses being handles, such as schedules of quizzes and examinations. The aforementioned sub navigations are deemed significant and is considered to be the heart and soul of the system. It also have the chatroom feature wherein the students can interact with the webcast faculty should any question regarding the courses offered, it is where the students can collaborate ideas and concepts with some other students enrolled in the same course. Further the index page has forum features where questions or matters concerning the course are posted.

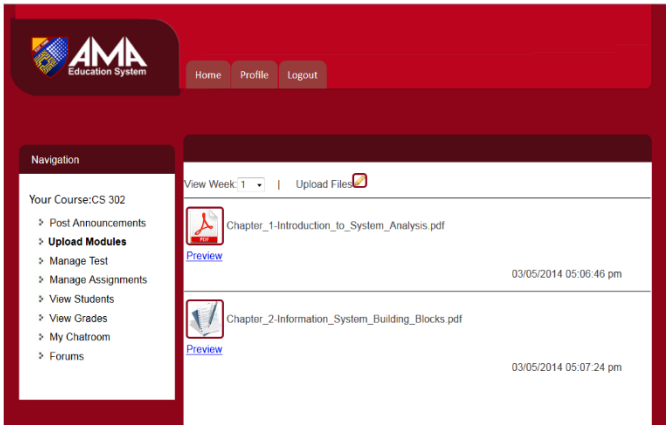

Plate 5.0
Upload Module Page

Upload Modules. This page is one of the most significant part of the system, there is where initially the management of courses begins, The webcast faculty member will be the only authorized user to post all appropriate instructional materials. These instructional materials are materials which have been duly approved to be posted by the academic department.

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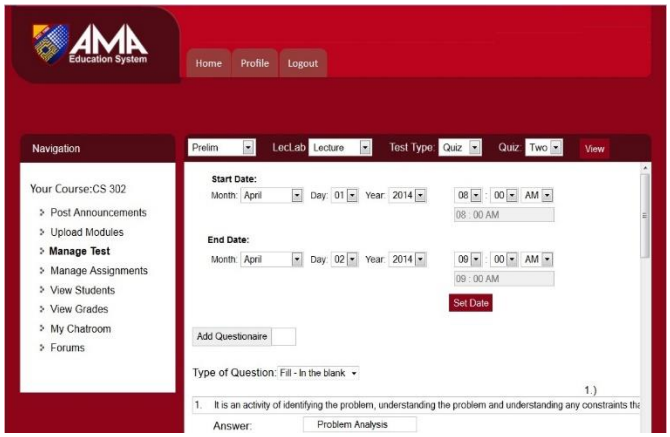

Plate 5.1
Manage Test

Manage Test. The manage test page once loaded present initially the term to which the quiz or examination is intended for. It also has the feature to select whether the assessment is created for lecture or laboratory. Further, the system allows a user to determine whether the assessment being developed is designed for quiz or examination. The user will also have the option to choose when to make the assessment and when to lock the assessment. Lastly, it also has the capacity to add question and choices for the selected assessment.

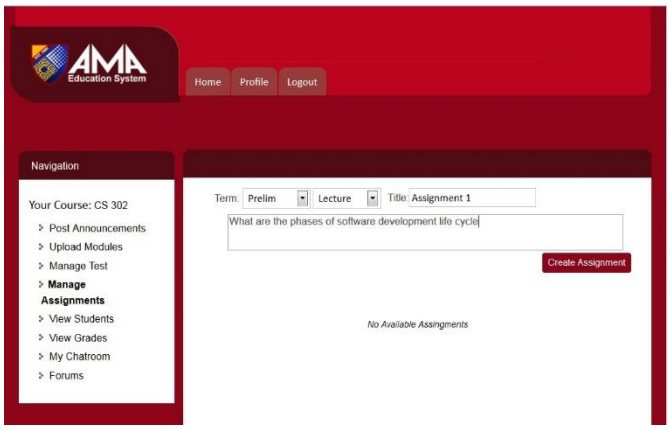

Plate 5.2
Manage Assignment Page

Manage Assignments. This is the page where the webcast faculty member posts assignment as one of the assessment criteria of the student. The webcast faculty may member can post assignment which can be viewed at the students' portal. The students upon viewing the assignments are required to respond back by uploading the required documents online. The manage assignment portal is a feature of the system that allows the students to upload files in document format such as word or pdf format.

Plate 5.3
Login Page

Login Page. Login refers to the credentials required to obtain access to a computer system by a certain user by means of a controlled authentication through a credential presented by the user itself.

Getting started with the system is easy, the login page allows the registered user, to logon to the system. User is authenticated against the data stored in the database of the system, and once the authentication is successful user is allowed to proceed with the system. The login window contains three fields to enter, the type of user account, username and password. Registered user can login to the system with the personal username and password provided by the administrator of the system. Should the user forget its username or password, the system allows the user to retry for entry up to three attempts. At the last attempt, the system holds a password retrieval feature through email.

Acceptability of the Developed System

Upon the completion of the system, the developer conducted a test to determine the satisfactory of the system. The developer presented the developed system to the stakeholders, particularly that of the ELearning Coordinator, Webcast and Face to Face Faculty Member, the Dean and the Students. An acceptability test was conducted that may prove that the developed system shall be esteemed and accepted by the educational system of AMA Learning Center.

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Ayrmer (2010), states that User Acceptance Testing (UAT) is a very essential for the successful implementation of any bespoke system. User Acceptance Testing (UAT) is the procedure of testing the functionality of a bespoke system once the development phase has been completed. The ideal world to test the platform is to recreate a real life situation, including data – that allows the user to test the user interface and functionality of the system.

The developer made used of the standardized Website Analysis and Measurement Inventory test in accomplishing the acceptability of the system. The themes imposed in the Website Analysis and Measurement Inventory (WAMMI) are based on a data using a statistical methods known as latent variable analysis. In the same way, Cecil (n.d) utilizes the same tool analysis WAMMI for the evaluation of CSL Learning Management System.

The sophisticated statistical methodology behind Website Analysis and Measurement Inventory (WAMMI) guarantees a reliable and valid voice for the users for the web site being evaluated for. The evaulation tool for the acceptability dubbed as WAMMI has been scientifically proven and has a reliability data rating of between 0.90 and 0.93.

The service revolves around the statement questionnaire and the international database. User experience is measured by asking the expected stakeholders of the website to compare their expectations against what were actually experience during the actual usage. Improvement of the system is done by obtaining pertinent data from the users for analysis.

In a study presented by Gardner and White (n.d), WAMMI was used to test the acceptability of the system through the percieved usefulness. To test the acceptability of the system, the developer conducted a survey to the intended end users such as students, face-to-face instructor, elearning coordinator, webcast faculty members and administrator using WAMMI.

The succeeding table below shows the feedback of the identified users in terms of: Learnability, the speed at which users become familiar with a website. Remeberability, refers to the ease at which the users remember how to use a website when they return to it. Efficiency of use, which refers to the websites features which are easy to find and quick to load up. Reliability in use, which refers to the website being available and complete. User satisfaction, which refers to the degree to which users feel comfortable using the website.

To give relevant meaning to the organized numerical data, a Likert Rating Scale of one to five will be used. The Likert Rating has a value of 5 for strongly agree, 4 for agree, 3 for neutral, 2 for disagree which means that the respondents are somewhat not favor with the concept and 1 for strongly disagree, which means that the respondents strongly does not favor the concept.

Table 4.1: System Evaluation According to Learnability

	Mean	**Description**
Learnability		
1. This website needs more introductory explanations.	4.84	SA
2. Learning to find my way around this website is problem	4.75	SA
3. Using this website for the first time is easy	4.82	SA
4. Remembering where I am on this website is difficult.	4.96	SA
Weighted Mean	**4.84**	**SA**

Table 4.1 presents the system evaluation criteria for the learnability of the system. Learnability is the pace at which users becomes familiar with a website. as presented in the above table, has four survey questions that asked whether the website has an introductory explanation, a help menu, the ease of use and the familiarity of the stakeholders with of the system. An average mean score of 4.84 reveals that majority of the respondents strongly agrees that the developed system is uncomplicated and simple to use.

Table 4.2 System Evaluation According to Efficiency of Use

	Mean	**Description**
Efficiency of Use		
1. It is difficult to move around this website	2.38	D

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2. I can quickly find what I want on this website	1.41	SD
3. This website seems logical to me	1.43	SD
4. This website helps me find what I am looking for	4.83	SA
5. The website is too slow	3.43	U
6. I can easily contact the people I want on this website	4.95	SA
7. I feel efficient when I'm using this website	4.69	SA
8. It is difficult to tell if this website has what I want	4.78	SA
9. Using this website for the first time is easy	4.62	SA
10. Using this website is waste of time	2.14	D
Weighted Mean	**3.47**	**A**

Table 4.2 showed the system evaluation criteria for the efficiency of use. The efficiency of use of the developed system refers to the features which are easy to find, quick to load up, navigation within the system, difficulty in moving around the system. Based on the analysis, a weighted average mean of 3.47 were obtained which connotes that a great number of the users agrees that the systems features is easy to find, relevant and loads up quickly.

Table 4.3: System Evaluation According to User Satisfaction

User Satisfaction	Mean	Description
1. The website has much that is of interest to me	4.76	SA
2. The page on this website are very attractive	4.96	SA
3. I feel in control when I'm using this website	4.56	SA
4. I don't like using this website	1.43	SD
5. I can easily contact the people I want to on this website	4.85	SA
6. It is difficult to tell if this website has what I want	1.43	SD
7. This website has some annoying features	1.32	SD
8. Using this website is a waste of time	1.44	SD
9. I get what I expect when I click on things on this website	4.87	SA
10.Everything on this website is easy to understand	4.96	SA
Weighted Mean	**3.46**	**A**

Table 4.3 presents the criteria for the evaluation of the system based on user satisfaction. The satisfaction of user refers to the degree to which users feel comfortable using the system. Maskari (n.d) states that user satisfaction is subjective variable which can be influenced by several factors such as system effectiveness, user effectiveness, user effort and user characteristics and expectations. User satisfaction is generally considered as one of the most important evaluating factor which is generally considered as a criterion of system success and effectiveness (Griffiths et. al., 2007).

Based on the analysis of the data presented, a score of 3.46 weighted mean were obtained which signifies the users agree that the system is very comfortable in terms of user satisfaction.

Table 4.4 System Evaluation According to the Reliability of Use

Reliability	Mean	Description
1. This website is too slow	3.25	U
2. I get what I expect when I click on this website.	4.71	SA
Weighted Mean	**3.98**	**A**

Table 4.4 presents the criteria for the evaluation

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of the system based on the reliability of the system. Reliability signifies that the system is being available and complete all the time. Analysis of the obtained data from the users reveals a weighted average score of 3.98 which insinuates that the system is reliable, available and all links are active. The system proves to be reliable to the stakeholders.

Table 4.5: System Evaluation According to the Rememberability

Rememberability	Mean	Description
1. Remembering where I am on this website is difficult	1.68	D
Weighted Mean	**1.68**	**D**

Table 4.5 presents the criterion for the evaluation of the system based on remeberability. Rememberability refers to the ease at which the users remember how to use a website when a user returns to the system.

An analysis of the data gathered from the users reveals that there is no difficulties in remembering system usage with a weighted mean of 1.68 which signifies that the system can easily be remembered by the users.

Table 4.6: General Weighted Mean for Acceptability of the System

Description	Mean	Description
1. Learnability	4.84	SA
2. Efficiency of Use	3.47	A
3. User Satisfaction	3.46	A
4. Reliability	3.98	A
5. Rememberability	1.68	D
Weighted Mean	**3.49**	**A**

Table 4.6 presents the general weighted mean for acceptability of the learning management system. The overall average weighted mean is based on the criteria such as learnability, efficiency, user satisfaction, reliability, and rememberability. In general, the weighted average mean of the system is 3.49 which has a description of agree, this means that the concept is favorable to the stakeholders.

Based on the presented findings on the existing learning management system for AMA Educational System, the following are the conclusions of this project are as follows:

Currently the existing learning management system encounters problem that halts the very purpose of the implementation of the system. One of the conventional problems encountered is the coherency among browsers resulting to a rebounding effect non functional links. In addition the system is not structured to deliver different media contents which is relevant to learning. Another important attribute that is not included in the system is the lack of support towards peer learning such as chat and forums. Assesment in the form of quizzes which is relevant to elearning is not also well properly implemented resulting to non randomized questions which might lead to deceitful results.

There are three major considerations of the learning management system, student and course management the. However, problems have risen because of the static based learning management system. This serve as the primary reason why the existing process is not suited to the current trends.

The features of the system were based on response to the requirements of the identified stakeholders. These features include support for multimedia, forums, and chat for collaboration and nonlinear objective assessment.

The proposed system provides a security measure by means of log-in system and control measures be done by exporting databases to keep the stored information.

To ensure that the system is geared toward maximizing user experience by using Website Analysis and Measurement Inventory

RECOMMENDATIONS

Based on the conclusions presented earlier, the developer recommends the following:

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For the initial implementation of the proposed system, it is recommended to have the system be pilot tested by the webcast teacher, elearning staff, and students to verify the system's features and improve system performance.

It is also recommended to conduct training for the intended users on the use and walk-through of the proposed system. Also, the system should be deployed in the AMAES server, and validation of uploading files shall be undertaken to avoid viruses and malware that might destroy the integrity of the service of the system.

Finally, it is recommended that the administrator of the central office of the AMA Educational System administer and manage the proposed system.

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