

SCITplus: LCMS Developed at the College of Internet Distance Education of Assumption University

Prof. Dr. Srisakdi Charmonman

E-mail: Charm@ksc.au.edu

Mr. Firouz Anaraki

E-mail: Firouz@ksc.au.edu

and

Dr. Santithorn Bunchua

E-mail: Santithorn@ksc.au.edu

Abstract

The College of Internet Distance Education (CIDE) of Assumption University is the first to offer a complete eLearning degree program in Thailand. In the year 2003, CIDE examined over 100 Learning Management Systems (LMSs). After comparing the capabilities, functionalities, and prices of some commercial LMSs, CIDE decided for in-house development of an LMS. That took more efforts and time than expected. So, CIDE executives agreed to find an open-source LMS. Finally, Moodle was chosen to be developed using PHP and MySQL database which are also open source. The system was named SCITplus to indicate that it was developed at Srisakdi Charmonman IT Center (SCIT). The first version was released in the year 2005, the second version in 2006, the third version in 2007, and future versions will be available from time to time. As of the year 2007, SCITplus has been used in MS (ICT), MS (Management), Ph.D. (eLearning Methodology), and short courses.

1. Introduction

The authors have written many papers [1-15] relating to eLearning. It may be said that the central nervous system of eLearning is the software to manage and support all stages of learning activities. The abbreviation and the names of the eLearning software may be:

- “LMS” [19] for Learning Management System, which may be used for planning of learning events, delivering of learning events, and managing of learning events.
- “CMS” [21] for Content Management System for courseware development.
- “LCMS” [23] for Learning Content Management System or Learning and Content Management System. If “LCMS” is used to stand for “Learning Content Management System”, it is for creating and re-using learning contents. If “LCMS” is used to stand for “Learning and Content Management System” is the combination of LMS and CMS.
- “CLCIMS” [16] for Computer Learning Content Information Management System.
- “DMS” [20] for Document Management System which may be a part of CMS.

- “LAMS” [17] for Learning Activity Management System which is open-source software for courseware creation, management, delivery, and etc. of eLearning.

2. College of Internet Distance Education

Prof. Dr. Srisakdi Charmonman proposed and got approval from the Board of Trustees of Assumption University (AU) on April 25, 2002 to establish the College of Internet Distance Education, www.eLearning.au.edu [18]. AU constructed “Srisakdi Charmonman IT Center (SCIT)”, www.scit.au.edu [22] at the cost of about 19 million US\$. It has 12 floors and covers 12,000 square meters. There are rooms with 408 terminals, 120 terminals, 60 terminals and 40 terminals; diesel electric generator, TV and radio studios, VDO conference room, and etc.



**Srisakdi Charmonman IT Center.
(SCIT)**

3. SCITplus Version I

In early 2003, the executives of CIDE looked around searching for some readily available LMS. CIDE found over 100 LMS, e.g. 24 x 7 Learning, Absorb LMS, EL or Acumen Enterprise Learning, Adventus, Angel

Learning, Apex Learning, SAP+, Atutor, BlackBoard, CADE Learning, Iaroline, ClassTeacher, ClearCourse LMS, TM or Compliance Training Manager, DeSai LMS. Desire2Learn, DigitalThink, Dokeos, eLearning Consulting LMS, eLearning in a Box, EasyGeneratorSuite, eCampusPro, eDocent, Education Exchange, eLeap, eLMS Pro, eLogic Learning, EZ LMS, Flex Training, Generation 21, GeoLearning, Global Teach, Haiku, HRsmart LMS, HyperWave, ImpaKt, Manhattan, Moodle, Meet and Train LMS, NetDimension, NETg, exus Vista, OLAT, OLE, OnPoint Learning, Outstart Evolution, People Come First, Plateau Learning, Prosperity, Q-Multimedia, Sakai Project, Qscheduler, Ready Solution, ReliantSTM, Saba, Scholar 360 Network, SimplyLearn, Site@School, SITOS, SkillPort, Solid State LMS, StepStone, StudyWiz, Sumatra System, SumTotal, TeachMeIT, Telematica, TeN, The Learning Manager, Thinking Cap, Tooling University, TopClass, TrainingMine, TrainOnTrack LMS, Upside Learning, Vclass, WBT Manager, WebCampus, WebCT, WebTrain and XerCeo.

Most LMS systems are web-based to facilitate “anytime, anywhere” access to learning content and administration. Few companies such as BlackBoard and WebCT were contacted to demonstrate their products to the executives of the College.

CIDE executives at that time were Prof. Dr. Srisakdi Charmonman, CEO; Prof. Dr. Chaiyong Brahmawong, CTO; Prof. Dr. Utumporn Jamornmann, COO; Dr. Santihorn Bunchua, MS(ICT) Program Director; and Mr. Firouz Anaraki, NOC Director

After observing the capabilities, functionalities, and prices of few commercial LMSs, the CEO of the College opted for the in-house development of an LMS or LCMS for CIDE.

A team of directors, programmers, and web designers from AuNet, Computer Lab and Office of VP for IT was appointed to design and develop an LMS from scratch. Development of a big software project such as an LMS is not an easy task. Such a project requires quite a number of web programmers, web designers, analysts, team leaders, and project coordinator and years of development and testing to become a viable LMS product.

CIDE then decided to look for an open source alternative for development of an LMS. If a good open source LMS could be found to perform the necessary tasks needed by an eLearning environment, then more time and effort could be spent on development of the “contents” as needed by various schools rather than the development of the LMS.

There are many good reasons to use the open source software, i.e.

- it's free with no pop-up advertisement
- full control of options and settings
- the right to edit and modify the code
- online support forum
- modification and derivation of other software from it.

A thorough study of a few open source LMS software such as aTutor, Moodle and OLAT was done.

The executives of the College found Moodle as the most promising open source LMS due to its functionality, online forum and the number of university and colleges using it. Moodle was chosen to be developed using PHP and MySQL database which are open source programming language and database system and therefore could be run on any platform, i.e. Windows servers, Linux, and Macintosh computers under Apache which is also an open source web server.

The “Courseware Production Team” includes Instructional Designer, Web Programmer, Web Designer and Video Editor/Graphics Designer. The main objective of the Courseware Production Team would be to design and develop online courses suitable for eLearning environment. The contents are added to the LMS software and thus the system could be called an LCMS. The Instructional Designer (ID) acts as the team leader responsible to constantly communicate with the Content Expert (CE) to understand the subject and its contents and to transform the material to electronic format suitable for eLearning mode. The ID at the same time seeks the expertise of other team members to accomplish the online preparation of the courses. The web programmer must perform a very important task of understanding the coding and structure of the Moodle and to write programs to add new features and functionality to Moodle when needed. Web programmer, web designer, and the video auditor must also work closely with the ID to design and develop online courseware.

The CEO of the College approved the name “SCITplus” and its variant “SCIT⁺” to be given to the LCMS developed at Srisakdi Charmonman IT Center (SCIT) which is the seat of the College of Internet Distance Education. The online contents and the courseware are prepared by the courseware production team. The whole package of Moodle, new programs added to Moodle, and the courseware hence is called SCIT⁺.

At the beginning, the College executives decided to use SCIT⁺ for preparation of the online courses for the School of IT which offers master degree in ICT. Under the guidance and blessings of the CEO and CTO of the College, Program Director of the School of IT and the Director of Courseware Production Team adopted the video-based approach for delivery of online courses.

At the first trial, the Audio Visual Department was requested to take a video camera to the classroom where the lecturer was teaching and record the class lecture. Instructor was given a microphone to wear and the whole class lecture was recorded. This was in early 2005 when the eLearning mode was not yet recognized by the government of Thailand, and students were required to attend the classes on campus. After video lectures were taken, they were edited by the video editor member of the courseware production team and with the cooperation of other team members, the video lecture was prepared in Windows Media Video (WMV) format and put on the College server, a Windows 2003 server with Apache, PHP, and MySQL, and running the first version of SCIT⁺.

The program to synchronize video lectures with PowerPoint slides was developed by the courseware production team and was called PowerV. This PowerV software was based on streaming technology which allows users to watch a video before a full download. Students registered for the courses could access the web-based SCIT⁺ web-based software from anywhere and anytime to watch the video lectures using video streaming. One major drawback of the first version was lack of clarity of video lectures as they were taken in a live classroom environment.

4. SCIT⁺ Version II

In order to improve the quality of the video lectures, the College agreed to buy a high quality video camera and to start recording of the lectures in an office turned into a small studio for video recording. The program director of the School of IT was the first one to volunteer to record his subject ICT 5000, an Introduction to Computers at the studio.

A few more ICT courses followed the same pattern. The quality of video lectures were greatly enhanced. The main drawback in Version I was overcome. The PowerV software was also updated and new features were added to this software, i.e. students could pause at any time, rewind or forward through the video or jump to a specific topic in the lecture. All the added features were considered very important in using the video lectures. However, there was still a minor problem, i.e. the videos were in Windows media video format which meant only those using a computer under Windows could watch the video lectures.

One major enhancement at this stage was providing the MP3 audio format of the video lectures available on SCIT⁺ LCMS. Students really enjoyed this feature of SCIT⁺ as they could hear to the audio of the lectures on their iPods or other MP3 players anytime and anywhere.

In a survey taken in 2006, students considered availability of the MP3 audio lectures as the second most important feature of SCIT⁺ after the video lectures.

5. SCIT⁺ Version III

By the middle of 2006, the College of Internet Distance Education spent more than 1.5 million US\$ to create its own Radio and TV studios. During this time, the courseware production team started utilizing the studios.

At the same time a totally new version of PowerV was developed which works under Macromedia/Adobe Flash Player. Flash Player can be run on major platforms, i.e. Linux, Macintosh, and Windows based computers. This allowed the video lectures to be viewed under almost any personal computer.

The Technology Division of the College of Internet Distance Education decided to call this new version of its software as PowerFx to be similar to FlashFx.

There were many other enhancements of this version, i.e. students could choose to watch both lecturers windows and PowerPoint Windows or just view the PowerPoint Windows or change the size of the windows.

6. Educational Programs Using SCIT+

As of the year 2007, learning programs on SCITplus include

1) Master of Science Program in ICT. MS (ICT) has about 100 students with 4 majors:

- Information Technology.
- Computer Communications and Network.
- Computer Graphics and Animation.
- Technology Management.

2) A Part of Master of Science Program in Management. MS (Management) has about 200 students with 5 majors:

- Human Resource Management.
- Technology Management.
- Strategic Marketing Management.
- Business Management.
- Small and Medium Enterprise Management.

3) Ph.D. in eLearning Methodology. Ph.D. in eLearning Metrology at CIDE is the first and the only such program in the world. There have been applicants from 30 countries such as USA, Canada, England, Germany, Australia, New Zealand, and Japan.

4) CIDE eTraining Courses. Several short courses are being implemented including the subjects of

- Basic Concepts of Computer.
- Basic Concepts of the Internet.
- Management Information Systems.
- Computer and Internet Security.

- eLearning.

5) A certificate program with 12 courses has been implemented. Over 16,000 persons have visited the web and over 1,000 have taken the courses. Eventually, there will be degree programs for SME.

SCITplus relies on Moodle. It allows flexible and powerful user authentication and authorization based on Roles, Course Management, Activity Tracking, Activity and Grade Reporting and Other Learning Activities. It allows fast and simple content authoring for instructors and administrators, such as: Labels, Text Pages and Web Pages.



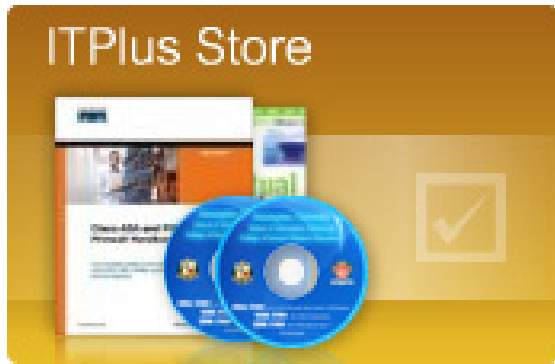
www.cide.au.edu/moodle

Web Hosting Service: Offers free spaces for creating home pages of SCITplus users.



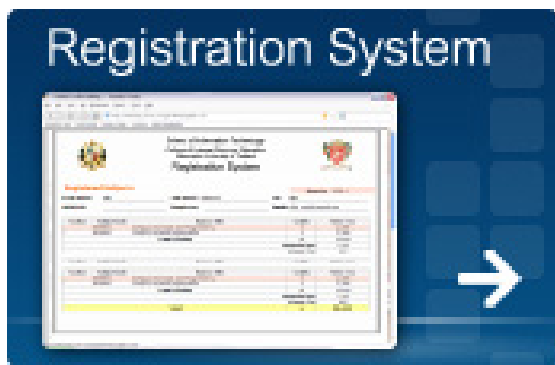
Web Hosting Service

ITplus Store: Provides materials for sales to SCITplus users. Examples include textbooks, computer software, and lecture materials in CD/DVD.



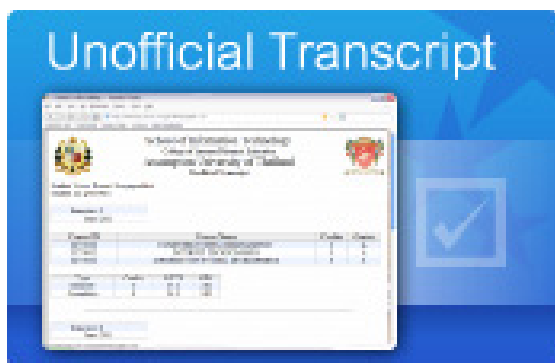
ITPlus Store

Registration System: Provides a registration system that is customized for the school's registration process.



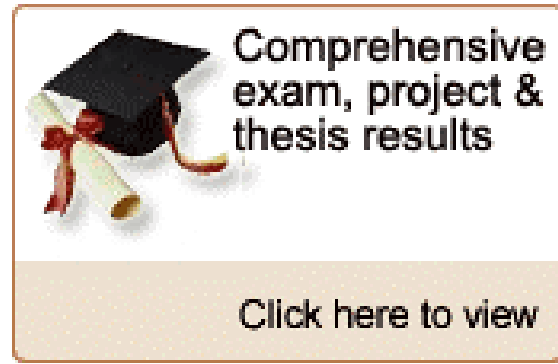
Registration System

Unofficial Transcript: Provides unofficial transcript based on the official registration and grade information from the school's database.



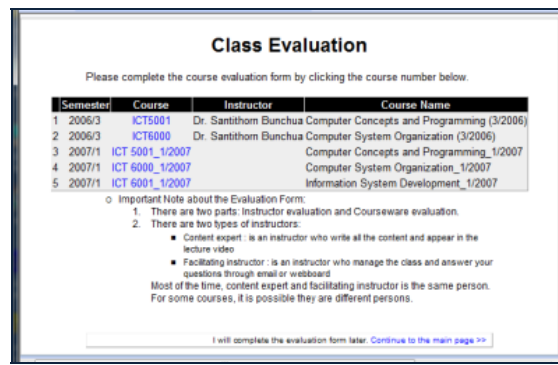
Unofficial Transcript

Examination Results: Provides a report for examinations required by the curriculum.



Examination Results

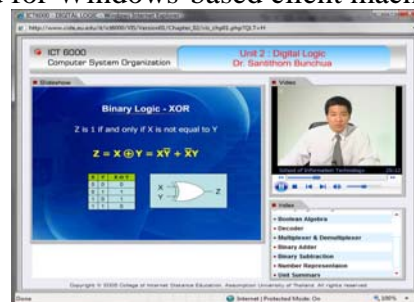
Class Evaluation: Provides a customized class evaluation questionnaires based on enrolled classes.



Class Evaluation

The following delivery systems were designed and created for SCITplus:

1) Power-V System. Combines the Windows Media-based lecture video with image-based content slides, plus easy to navigate topic index. Both video and slides are streamed from the content delivery server. The system is suitable for typical lectures and virtual classes, and is well-suited for Windows-based client machine.



Power-V System

2) Power-Fx System. Similar to Power-V but based on Flash technology. Video and slides are streamed from the content delivery server. Client machines from any platforms that support flash technology on the web can access it. The interface is more interactive than Power-V.



Power-Fx System

3) Power-Fx Player System. Power-Fx Player is based on Power-Fx but with only one section for video. This layout is used mostly for computer software training courses and other courses that are not well-suited to the split-section layout of Power-V and Power-Fx.



Power-Fx Player System

7. Future Version of SCITplus

At the end of the year 2007, the courseware production team is working to further enhance the features of SCITplus in various ways. The following are a few of the

work in progress and immediate plans to enhance the features of SCITplus:

- Plan to make it more interactive.
- Plan to make video lectures available for mobile devices.
- Plan to allow access to SCIT+ resources by mobile devices.
- Plan to prepare a synchronized form of forum to allow lecturers and students communicate in real time by using video conferencing.

8. Concluding Remarks

It should be noted that: 90% of large universities (with at least 15,000 students) in the US are offering eLearning. The State of Michigan law requiring all high school graduates must have taken at least one eLearning course. In China, hundreds of universities and over 500,000 schools have offered or are in the process of offering eLearning. All countries in the world, including those in South East Asia, cannot avoid offering eLearning.

Educational institutions will have to use LMSs. They can choose a commercial LMS, an open-source LMS, development of a new LMS, or modification of an open-source LMS.

The College of Internet Distance Education of Assumption University of Thailand decided to develop its own LMS based on Moodle. The system was called "SCITplus" to signify that it was developed at "Srisakdi Charmonman IT Center (SCIT)", which is the seat of the College.

The first version of SCITplus was released in the year 2005, the second version in 2006, and the third version in 2007. SCITplus has been used in all courses of MS (ICT), a part of MS (Management), Ph.D. in eLearning Methodology, eTraining courses and eSME University. The College of Internet Distance Education is happy with SCITplus. However, further improvements of SCITplus will be carried out from time to time.

References

1. Charmonman, S (2006). "What Thailand Should Do to Promote Knowledge Economy?". A paper for the Session chaired by S. Charmonman on "Information Technology in Japan and Lessons for Thailand". Organized by the Office of National Economic and Social Development Board of Thailand and the World Bank, Four Seasons Hotel, Bangkok, Thailand, May 19.
2. Charmonman, S (2006). "Assumption University is the Leader of eLearning in Thailand in the Year 2006". Invited Speaker to "Annual Faculty Seminar 2006", Assumption University at Assumption University Bangna Campus, May 22.
3. Charmonman, S (2006). "University-Level eLearning in ASEAN and Thailand". Invited paper presented to Euro-Southeast Asia 2006 Forum on Information Society-EUSAEA2006, Shangri-La Hotel & Convention Center, Singapore. June 20.
4. Charmonman, S. and Chorpothong, N (2006). "To Develop or Not to Develop New Courseware for University-Level eLearning". Keynote Address, Proceedings of the Third International Conference on eLearning for Knowledge-Based Society (Special Issue of IJCIM, Volume 14, No. SP1), organized by the Ministry of Information and Communication Technology, at IMPACT Muang Thong Thani, Thailand, Pp. 4.1-4.5, August 3.
5. Charmonman, S (2006). "Trends and Issues in Open and Distance Learning". An Invited Paper for the 9th SEAMOLEC Governing Board Meeting, Hanoi, Vietnam. September 13.
6. Charmonman, S (2006). "Open and Distance Learning Policy". Keynote Address presented to the International Seminar on "Policies and Technologies in ODL: Issues and Implementation", Hanoi, Vietnam. September 14.
7. Charmonman, S (2006). "Customizing eLearning to Local Realities". Invited Paper presented to the "Asia-Europe Colloquy on University Cooperation" with the theme "e-Learning for Higher Education: Challenges and Opportunities", Seoul, Korea. September 24-28.
8. Charmonman, S (2006). "Elearning and Human Resource Development". Position Paper for the Panel Discussion on "Elearning: Towards a Learning Society", World Teacher Conference, Impact Muang Thong Thani, Bangkok, Thailand. October 6.
9. Charmonman, S (2006). "Development of University-Level e-Learning Organizations". Paper presented to "Academic Doctoral Seminar 2006", College of Internet Distance Education, Assumption University, Bangna Campus. October 28.
10. Charmonman, S (2006). "The eBusiness of eLearning". Invited Paper for the Fifth International Conference on e-Business (NCEB 2006) with the theme of "Global e-Business: Best Practice", Asia Hotel, Bangkok, Thailand. November 2-3.
11. Charmonman, S (2006). "eLearning to Enhance the Quality of Higher Education". Position Paper for International Conference on Educational Leadership, organized by University Partners for Academic Leadership, Stockholm University and University of Wollongong, at Assumption University, Bangkok, Thailand. November 24-25.
12. Charmonman, S (2006). "Legal Aspects of eLearning". Keynote Address at the International Conference on "e-Learning: Learning Theories vs Technologies?" at Ramkhamhaeng University, Bangkok, Thailand. December 14-16.
13. Charmonman, S (2007). "eLearning for Religious Communities". Invited Paper presented to BISCOP VI, Federation of Asian Bishops' Conference, "Converging Communication for Ministry in Asia", Assumption University of Thailand, Bangkok, Thailand. May 28-June 2.

14. Charmonman, S (2007). "eLearning: The Big Picture". Keynote address, Training for Executives of Hanoi Open University "eLearning Methodology Process and Management Training", Srisakdi Charmonman IT Center, Assumption University Bangna Campus, June 4-8.
15. Charmonman, S. and Bunchua, S (2007). "AU CIDE eLearning as a Success Story for University Mobility in Asia and the Pacific". Invited Paper for Panel Discussion on "UMAP Online Course", at the Seminar on "University Mobility: Trends for Co-ordination", Organized by University Mobility in Asia and the Pacific, Siam City Hotel, Bangkok, Thailand, 4-6 October.
16. en.wikipedia.org/wiki/CLCIMS
17. moodle.esmonserrate.org/mod/glossary/view.php?id=1109
18. www.elearning.au.edu
19. www.gitta.info/website/en/html/website_glossary.html
20. www.gslis.utexas.edu/~scisco/lis389c.5/email/gloss.html
21. www.ojr.org/ojr/wiki/glossary/
22. www.scit.au.edu
23. www.thecatalyst.org/resource/2006/04/21/E-learning-glossary/