

# **E-LEARNING**

## **AND ITS APPLICATION TO TEACHING**

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# PART I

## E-LEARNING BASICS



## 1.1. CONCEPTS

There are many different perceptions and concepts of e-Learning. Each concept is presented from a different perspective and, therefore, connotations of concepts are different. Typical definitions of e-Learning include:

*\* e-Learning is the convergence of learning and the Internet<sup>1</sup>.*

*\* e-Learning is a form of learning by media via the Internet in a way which interacts with learning content and is designed on the basis of teaching approaches<sup>2</sup>.*

These two statements suggest that everything called e-Learning relates to the Internet. This implies that learning without using the Internet would not be considered as e-Learning. In the second definition, apart from technology, the author also emphasizes the fundamental factor, i.e. the teaching method used in the course of design and delivery of teaching activities via e-Learning.

*\* e-Learning is the use of network technology to design, deliver, select, administer, and extend learning<sup>3</sup>.*

*\* e-Learning is using the power of the network to enable learning, anytime, anywhere<sup>4</sup>.*

These two definitions are broader, extended to include IT infrastructure into e-Learning. That is to say, apart from the Internet, ICT systems only require network connectivity to act as the technological basis for e-Learning.

*\* e-Learning is the delivery of content via all electronic media, including the Internet, intranets, extranets, satellite broadcast, audio/video tape, interactive TV, and CD-ROM<sup>5</sup>.*

*\* e-Learning comprises all forms of electronically supported learning and teaching. The information and communication systems, whether networked learning or not, serve as specific media to implement the learning process<sup>6</sup>.*

(5) and (6) are definitions with the widest connotations in terms of technical infrastructure in e-Learning, saying that all electronic forms used to support teaching should be considered as e-Learning.

Given the many different concepts, e-Learning will have many different characteristics. Just as teaching approaches are always different; technical infrastructure, implementation approach, advantages, shortcomings of e-Learning will also be different. This means that none of the material covering e-Learning will be exactly in

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<sup>1</sup> Howard Block, Bank of America Securities

<sup>2</sup> Resta and Patru (2010) in the UNESCO publication

<sup>3</sup> Elliott Masie, The Masie Center

<sup>4</sup> Arista

<sup>5</sup> Connie Weggen WR Hambrecht & Co

<sup>6</sup> Wikipedia



line with all of these concepts. Therefore, in this document, we must first agree upon a single concept to describe e-Learning. On that basis, we can select the content most thorough and useful to learners.

Looking at these many definitions, considering the intrinsic nature of each and every one of them, and based on the prior experiences of the author, *e-Learning can be understood as a mode of learning via the Internet in the form of courses and managed by Learning Management Systems to ensure interaction and collaboration to address learners' needs any time and anywhere.*

In line with this interpretation (which is used in this document), a system of e-Learning must ensure the following conditions:

- Use of the Internet;
- Delivery in the form of learning courses;
- Use of Learning Management Systems;
- Interaction and collaboration in learning.

## 1.2. E-LEARNING SYSTEM MODEL

At the heart of the e-Learning system is the Learning Management System (LMS). Teachers, learners, and system administrators all have access to this system but with different objectives, to ensure that the system operates and/or teaching practices take place effectively.

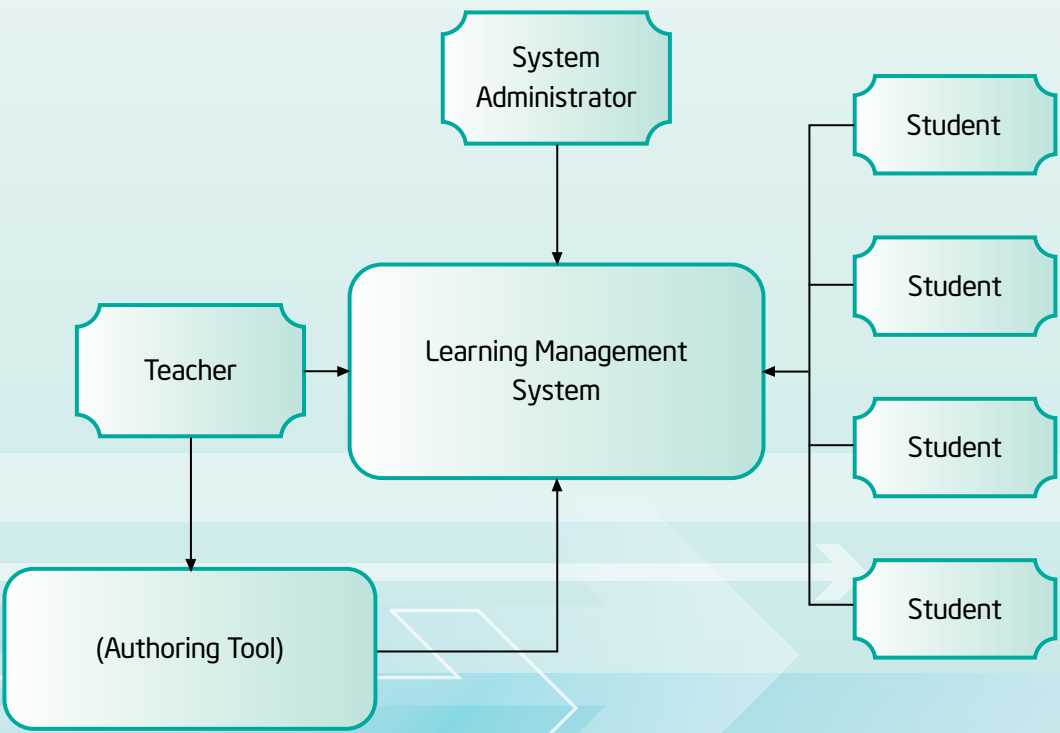


Figure 1.1: E-Learning System Model

To create and manage a learning course, the teacher, other than working directly on the Learning Management System, must use tools for developing learning content (Authoring Tools) to design and develop a learning course. The teacher must also have it packaged using standard protocols (usually referred to as the SCORM standard) and sent to the Learning Management System. In some cases, the content may be designed and developed directly without authoring tools. The systems that can do so are called LCMS (Learning Content Management Systems).

## 1.3. ADVANTAGES AND LIMITATIONS OF E-LEARNING

### 1.3.1 Advantages of e-Learning

Compared with traditional learning, e-Learning offers the following advantages:

#### ***Convenience***

Learning based on e-Learning takes place in line with learning progress, ensuring learning any time, anywhere, with supporting collaboration within the network environment. The system administrator should find it easy to manage the class with a large number of learners.

#### ***Cost and selection***

The cost incurred for a learning course is not high. In addition, it is possible to select learning courses in line with individual needs and aspirations to meet increasingly growing learning demands of the entire society.

#### ***Flexibility***

When attending a new learning course, learners may not need to study all content (he or she may already know some parts). In this case, it is possible to accelerate learning progress. Learning courses are also easy to update regularly and quickly.

### 1.3.2 Limitations of e-Learning

Although e-Learning has many advantages, this mode of learning has some drawbacks, as follows:

#### ***For learners***

- e-Learning can require learners to work independently and have a high sense of self-awareness. In addition, they need to show an ability to collaborate and share ideas via the network effectively with lecturers and other members.
- Learners also need to know how to make a plan which suits their own needs, to direct themselves in learning, and effectively implement what has been set forth in their plans.

### ***For learning content***

- In many cases, it is not possible or recommended that overly abstract and complex ideas be introduced. This is especially so with content related to experiments and practice which IT could not deliver or would do so ineffectively.
- The e-Learning system cannot replace activities related to formation and development of skills, especially those of manipulation and operation.

### ***For technological implications***

- Learners with a low level of technological skills of learners may find e-Learning less effectiveness and efficient for their needs.
- In addition, the technological infrastructure (Internet, bandwidth, cost, etc.) has a significant impact on progress and quality of learning.

## **1.4. MODES OF E-LEARNING**

e-Learning is very flexible and can be organized in different ways. In a learning course, there are two main modes of e-Learning: online and blended learning.

### **1.4.1 Online learning**

This is a mode of learning where completion of a learning course is conducted totally on the network environment via a Learning Management System. However, e-Learning this way only makes use of the advantages of e-Learning and neglects the strengths of face-to-face teaching.

Within this mode of learning, there are two sub-modes, i.e. Synchronous Learning, in which both teacher and learners participate in the Learning Management System; and Asynchronous Learning, where teacher and learners participate in the Learning Management System at different points in time.

### **1.4.2 Blended learning**

This is a mode of learning in which a course is delivered using a combination of both online and face-to-face teaching. This way, e-Learning supports the learning process and only uses content and themes of most relevance. The remaining content is still delivered via face-to-face teaching, using its advantages to the maximum. These two types of learning need to be designed properly, with a close and mutually supplementary relationship towards realizing the objective of quality improvement in the learning course.

For these reasons, blended learning is a very popular mode of learning in many educational institutions around the world, including countries with a developed education.

## 1.5. RESOURCES FOR E-LEARNING

### 1.5.1. Human resources

According to E-Learning System Model (1.1), there are three subjects involved in a Learning Management System, all with different roles. They include:

#### ***Administrator:***

This person takes the responsibility for administering the entire Learning Management System. This includes creating a learning course, delegating rights to teachers, providing user accounts, setting up the environment, supporting teacher and learner in respect of technology, etc. This person should have a firm understanding of training programs, training management operations, strong skills in information technology (IT) in general and in Learning Management Systems in particular.

#### ***Teacher:***

The teacher is the key element in providing learning courses in the Learning Management System. Apart from learning activities, materials must be designed in accordance with pre-defined pedagogical scenarios adapted from learning activities using face-to-face teaching methods to help make the learner self-reliant. The teacher also needs to directly manipulate different functionalities of the Learning Management System in terms of directing learning plans, notices, warnings, instructions, and assistance to learners in a regular and timely manner.

#### ***Learner:***

The learner is the central subject in e-Learning and courses need to be designed in a learner-centred approach. Learners will perform activities designed in accordance with predefined pedagogical scenarios so that they will be more self-reliant and proactive in exploring new knowledge and skills. In addition, learners also receive instructions and assistance on a regular basis in case of difficulty, or discuss and share information through collaborative functions on the network.

### 1.5.2. Information Technology Infrastructure

#### ***For educational institutions:***

They need to own or hire a server robust enough to ensure stable operation when involving concurrent participation by large numbers of teachers and learners. On the server, software for the Learning Management System should be installed (this will be discussed in Section 2).

#### ***For teachers and learners:***

Both need to have computers with Internet connectivity. Teachers need to have tools for designing learning courses (Authoring Tools) in order to design learning content (discussed in Section 3). In addition, it is important to use software packages to create and process multimedia objects, animation, multi-choice questions and capture screen images. This software can be used to create resources in a particular learning course.

## 1.6. HISTORY OF E-LEARNING IN VIETNAM<sup>7</sup>

Before 2002, research documentation on e-Learning in Vietnam was not readily available. But in 2003 and 2004, research of e-Learning in Vietnam received more attention from many institutions. More recently, conferences and workshops on information technology and education have focused on e-Learning and its applicability to education and training in Vietnam. This includes, for example, a workshop on raising training quality of Hanoi National University of Pedagogy in 2000, a Conference on Higher Education in 2001 and the first-ever science workshop on research on development and application of information and communication technology (ICT) held in February 2003. A second science workshop on the same topic was held in September 2004, and the first ever science workshop on e-Learning in Vietnam was held in March 2005, co-organized by the Institute of Information Technology (Hanoi National University of Pedagogy) and the Faculty of Information technology (Hanoi University of Technology).

Vietnam has also joined the Asia E-Learning Network (AEN, [www.asia-elearning.net](http://www.asia-elearning.net)) with participation from the Ministry of Education and Training, Ministry of Science and Technology, Hanoi University of Technology, and the Ministry of Posts and Telecommunications.

In other words, the state of research and application of this mode of training has received wide interest in Vietnam. However, compared to other countries in the region, e-Learning in Vietnam is still in the initial stages and much needs to be done if it is to catch up with neighbouring countries.

<sup>7</sup> Dẫn theo [elearning.lyct.edu.vn](http://elearning.lyct.edu.vn)

## 1.7. SELF-EVALUATION

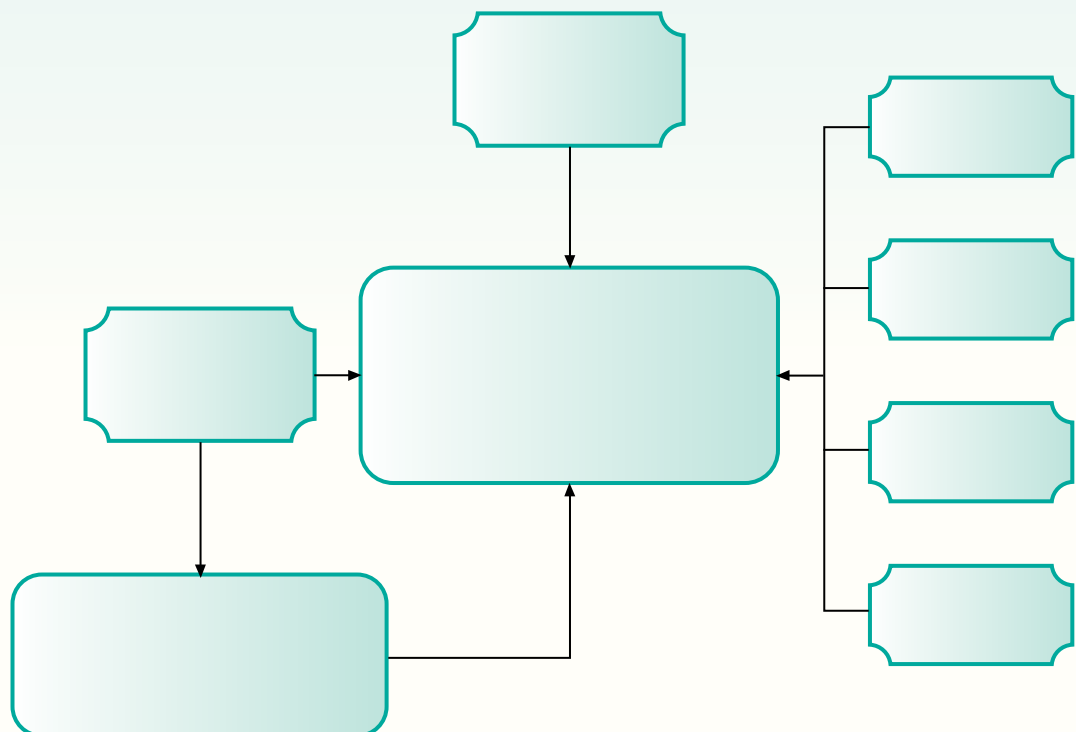
### 1.7.1 Complete the following content by filling in missing words in the gaps

E-Learning is a mode of ..... via..... in the form of..... and managed by..... to ensure.....and collaboration to address learners' needs any time,.....

### 1.7.2 Select 4 of the following characteristics that represent e-Learning, as defined in this document:

- Use of Internet network
- Use of computer network
- **Existence in form of learning courses**
- Related to ICT equipment
- Use of Learning Management Systems
- As a normal webpage
- Ensuring interaction and collaboration in learning

### 1.7.3 Add the content to the following diagram to complete the e-Learning model e-Learning



**1.7.4. Fill the correct subject (i.e. Teacher, Administrator, Learner) in the right column of the following table**

Activities	Subject (Teacher, Administrator, Learner)
Uses Authoring Tools packages	
Management of user accounts	
Allowed to get access to the system	
Transforms learning content into web-based activities	
Implementation of learning activities	
Collaborates with other individuals	
Gives responses and feedback to questions	

**1.7.5 Write before each item either “A” if it is an advantage or “B” if it is a disadvantage**

- Participation in a learning course does not influence the individual plan of the learner
- No requirement for participating in traditional classes
- The learning is done in line with progress made by the learner
- Not compulsory in terms of time
- Not compulsory in terms of location
- May use online learning materials or download the same into computer and use at a later stage
- Abstract, difficult and complex issues are hard to express using e-Learning
- Strengthens collaboration via a network environment. This is not limited to the organization or educational institution but extended to the whole world
- Easy to manage a large number of learners through the Learning Management System
- Learning is sometimes boring, requiring independent working and a high sense of self-awareness by learners
- May face difficulties in IT infrastructure, or other such technological obstacles
- The cost for a learning course is lower than that incurred in a traditional learning model
- Difficult to stimulate interest or give impact to thoughts and emotions of learners

- Many learning courses are available for learners to select in accordance with individual needs
- Meets the objectives of continuing education
- There are many options in terms of tuition fees for participating in learning courses
- Difficult to perform some learning activities effectively compared with traditional teaching, such as competitive learning activities, seminars, formative assessment
- Learning place is appropriate to interests and needs of learners
- May select learning courses with guide from teachers or self-study
- When meeting difficulties, it is not likely to receive immediate support. This might cause interruption to the learning process of learners
- It is possible to skip content that the learner already knows, and only pay attention to content and themes of interest. As such, it is possible to undertake a learning course more quickly than the conventional method
- Uses learning tools of most relevance to learning style of learner
- Learning courses can be easily and quickly updated in terms of content, and delivery approach geared towards increasingly effective learning
- It is not possible to organize practical activities geared towards the formulation and development of manipulation skills

#### 1.7.6 Read the following 4 text passages, group them into two topics and name the two topics accordingly

**Topic 1:** Comprises the paragraph (.....) and paragraph (.....) with the title as.....

**Topic 2:** Comprises the paragraph (.....) and paragraph (.....) with the title as.....

- (1) This is a mode of learning in which a learning course is delivered with a combination of both online learning and face-to-face teaching. This way, e-Learning supports the learning process and only uses content and themes of most relevance to the strengths of e-Learning. The remaining content is still delivered via face-to-face teaching, using its advantages to the maximum. These two types of learning need to be designed properly, with a close and mutually supplementary relationship towards realizing the objective of quality improvement of the learning course.
- (3) This is a mode of learning where completion of a learning course is conducted totally on the network environment via Learning Management System. However, e-Learning this way only makes use of the advantages of e-Learning and neglects the strengths of face-to-face teaching.
- (2) Within this mode of learning, there are two sub-modes, i.e. Synchronous Learning, in which both teacher and learners participate in the Learning



Management System; and Asynchronous Learning, where teacher and learners participate in the Learning Management System at different points in time.

- (4) Given such characteristics, this is a very popular mode of learning in many educational institutions around the world, including countries with a developed education.

## 1.8. REFERENCE MATERIALS

ICT Transforming Education

E-Learning, A Guidebook of Principles, Procedures and Practices

<http://www.answers.com>

<http://www.wikipedia.org>

<http://www.worldwidelearn.com/elearning-essentials>

<http://www.howstuffworks/e-learning.html>



# PART 2

## LEARNING MANAGEMENT SYSTEMS



## 2.1. OVERVIEW OF LEARNING MANAGEMENT SYSTEMS

### 2.1.1. Definition

*A Learning Management System - LMS - is software that manages learning processes and distributes course content to learners. LMS is comprised of many different modules that help make the web-based learning process more convenient and easier to bring into play all the strengths of the Internet.*

### 2.1.2. Functions of a Learning Management System

- Registration: Learners register to learn through a web-based environment. The management of learners is also done through a web-based environment
- Planning: a schedule for learning courses is produced and training programs are created in order to meet demands of organizations and individuals
- Distribution: distribution of learning courses, tests and other resources online
- Tracking: keeping track of the learning process of learners and creating reports
- Information exchange: exchange of information via chat, forum, e-mail, screen sharing and e-seminars
- Testing: providing the ability to test and assess learning performance of learners

### 2.1.3. Tasks of a Learning Management System

- Manage online courses and learners
- Manage the learning process of learners and teaching content of learning courses
- Ensure the course registration of learners, admit and monitor the process of knowledge accumulation by learners. Assist managers and teachers in performing testing, monitoring and collecting learning results, reports from learners and improve teaching quality.
- In addition, the system also integrates services for supporting information exchange between teachers and learners, learners and learners. This includes the following tasks: assigning tasks to learners, discussion, communication, emails, learning schedule, etc.

### 2.1.4. Classification

There are different types of LMS, and an accurate and comprehensive comparison of them is a daunting task as many different factors are associated with LMS. The basic differences include:

- Expandability
- Compliance with standards
- Closed or open system

- User-friendliness
- Support in different languages
- Ability to provide learning models
- Costs

Some popular LMSs around the world include IBM, BlackBoard, WebCT, Atutor, Itias, LRN, Moodle, etc. For the purposes of this document, the popular Moodle LMS, an open source Learning Management System, used by a great number of people all over the world, will be introduced and discussed.

## 2.2. MOODLE LEARNING MANAGEMENT SYSTEM

### 2.2.1. Introduction to the Moodle Learning Management System

- Moodle is an Open Source Course Management System (CMS). This means it is free and the source code can be modified, allowing the creation of learning courses on the Internet or online learning websites.
- Moodle (short for Modular Object-Oriented Dynamic Learning Environment) was originally established in 1999 by Martin Dougiamas, who continued managing and developing the project. He was content with the commercial WebCT LMS/LCMS in Curtin University of Australia, but also determined to develop a free source e-learning software platform oriented towards education and users. Since then, Moodle has developed remarkably quickly and attracted the attention of almost all countries in the world.
- Moodle is best known for its educationally oriented design, to be used by those active in the education sector. Moodle is very easy to use, with a visual interface, and teachers only need a little time to get familiar with it and use it conveniently. Teachers can instal and upgrade the software themselves.

### 2.2.2. Installing local Moodle Learning Management System in Windows

This section describes how to install Moodle Learning Management System on a personal laptop for practice, before installing the system on the Internet. The installation is quite easy and can be done as follows:

**Step 1:** Download Moodle for Windows package

Start a web browser-> Type the following line into the address bar: <http://download.Moodle.org/windows/>



Figure 2.1: download Moodle

- Step 2:** Unzip the file
- Step 3:** Run **Start Moodle.exe** to start the system (Simulate web server)
- Step 4:** Open the web browser and type in this line <http://localhost> in order to start installing Moodle on Windows.

## INSTALLATION PROCESS

1. Choose the main language for the installation process and for your site. Then, press "Next" to continue.

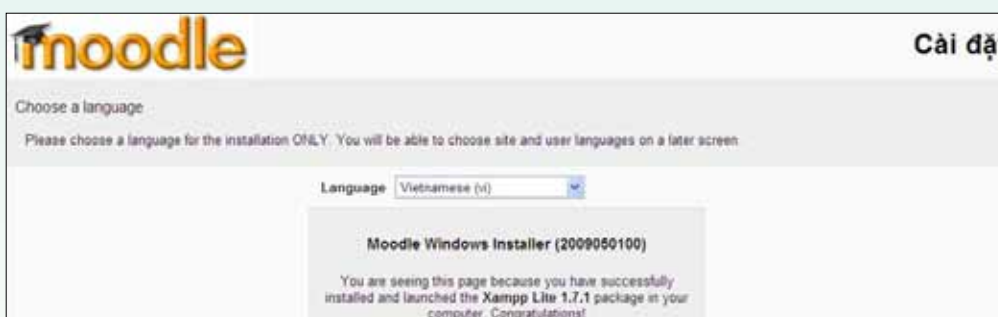


Figure 2.2: Choose a language

2. Check information and system requirements. If everything is OK, with the word "Pass" appearing in green, then the checking procedure is complete. Press "Next".



Figure 2.3: Checking PHP settings

3. Confirm the locations of the Moodle installation: Web Address, Moodle Directory and Data Directory

If everything is OK, accept default information. Press “Next” to continue.

**moodle** Cài đặt

Please confirm the locations of this Moodle installation

**Web Address:** Specify the full web address where Moodle will be accessed. If your web site is accessible via multiple URLs then choose the most natural one that your students would use. Do not include a trailing slash.

**Moodle Directory:** Specify the full directory path to this installation. Make sure the upper/lower case is correct.

**Data Directory:** You need a place where Moodle can save uploaded files. This directory must be readable AND WRITEABLE by the web server user (usually 'nobody' or 'apache'), but it must not be accessible directly via the web.

Địa chỉ web:

Thư mục Moodle:

Thư mục dữ liệu:

Figure 2.4: Locate Moodle

4. Configure the database settings for Moodle

Enter a password to protect the database (if necessary), while other information remains at default. Press “Next” to continue.

**moodle** Cài đặt

Now you need to configure the database settings where most Moodle data will be stored. This database will be created automatically by the installer with the settings specified below.

Type: fixed to "mysql" by the installer  
Host: fixed to "localhost" by the installer  
Name: database name, eg moodle  
User: fixed to "root" by the installer  
Password: your database password  
Tables Prefix: optional prefix to use for all table names

Type:

Host Server:

Cơ sở dữ liệu:

Thành viên:

Password:

Các bảng có định trước:

Figure 2.5: Database configuration

5. Check the system environment.

The process for checking file php.ini at the server will now take place. If everything is “OK”, press “Next” to continue.

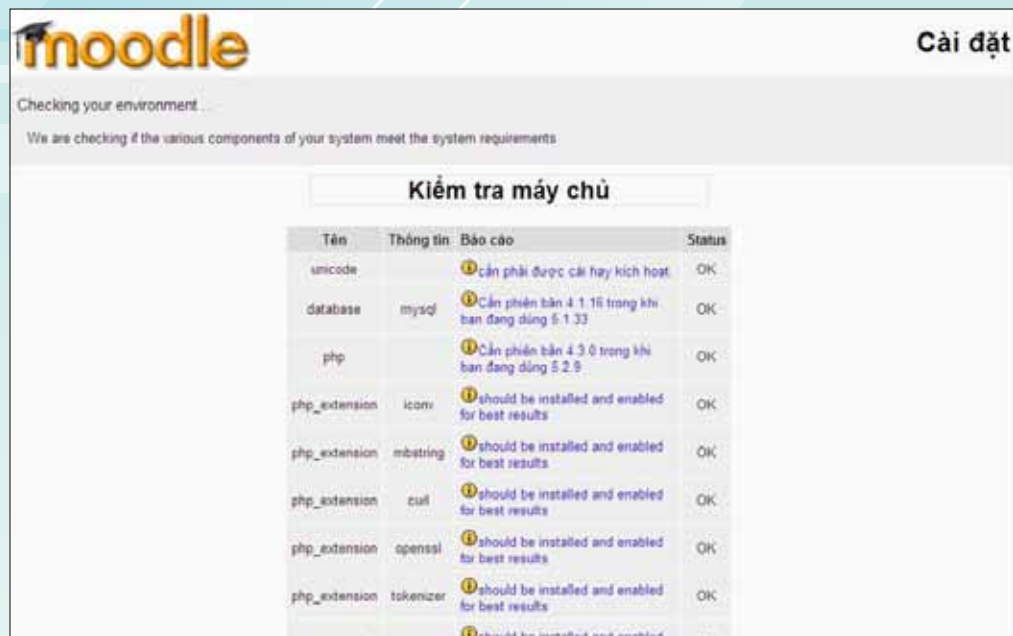


Figure 2.6: Check the environment

6. Download Vietnamese language pack.

Press “Download the &quot; Vietnamese (vi)&quot; language pack” to download Vietnamese language. When the download process completes, press “Next” to continue.

(Note: when downloading the Vietnamese language pack, the computer must have Internet connectivity).



Figure 2.7: Download Vietnamese language pack



When the Vietnamese language pack download is complete, there will be a prompt message regarding release notes for the Moodle version. Press “Continue”.



Figure 2.8: Successfully install Vietnamese language pack



Figure 2.9: Information about Moodle version

7. Install database and create a checklist of modules for Moodle.

After about two minutes, a prompt message “đã nâng cấp thành công cơ sở dữ liệu” (database successfully upgraded) should appear. Click “Continue” to continue installation.



Figure 2.10: Install database

Move to the stage “lập bản liệt kê các plug-in” (create a checklist for plug-ins), and click “Continue” multiple times until completion.

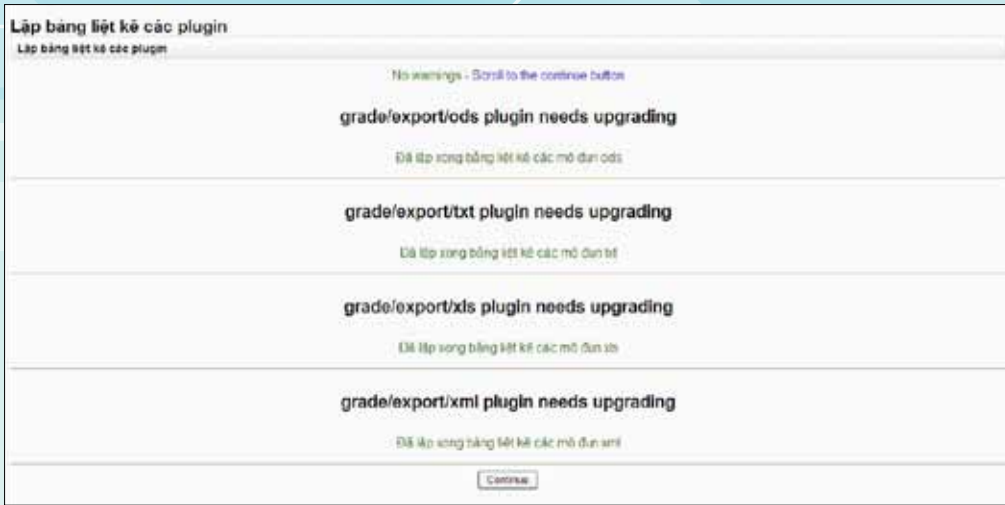


Figure 2.11: Create a checklist for plug-ins

8. Create a system administration account

Provide the following information

- Username: login name
- Password: login password
- Full name of administrator
- Email
- Province/city
- Country: Vietnam
- Time zone: UTC + 7
- Preferred language: Vietnamese
- The representative image has a maximum size of 16MB

Click “update profile” to complete.

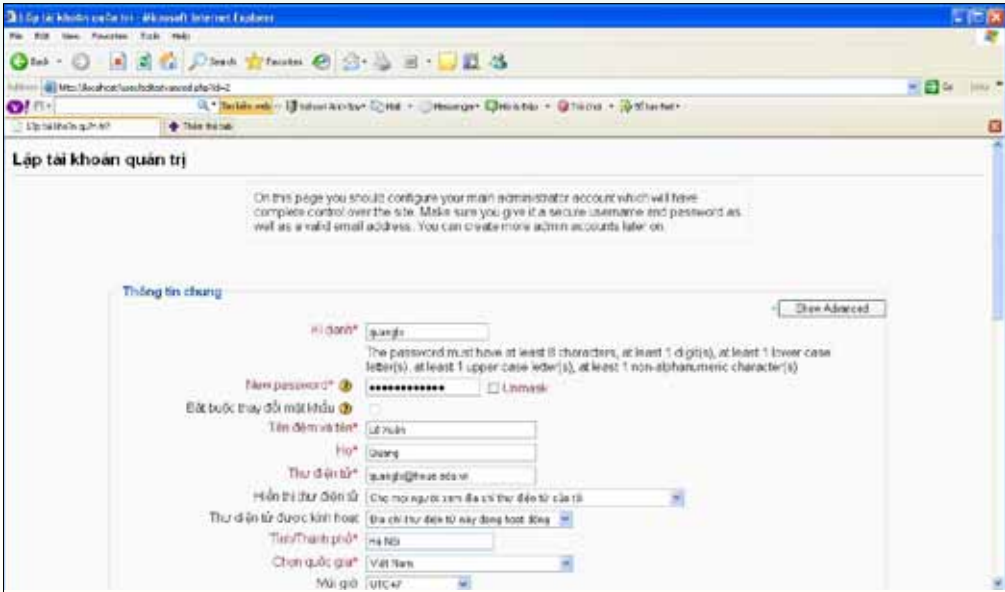


Figure 2.12: Create an administrative account

## 9. Create a new home page

Provide the following information

- Full name of the system (subject to the installer)
- Abbreviated name of the system
- Description of home page (a brief introduction to this Learning Management System and its description will be provided on the home page)

Click “Lưu những thay đổi” (save changes) to complete.

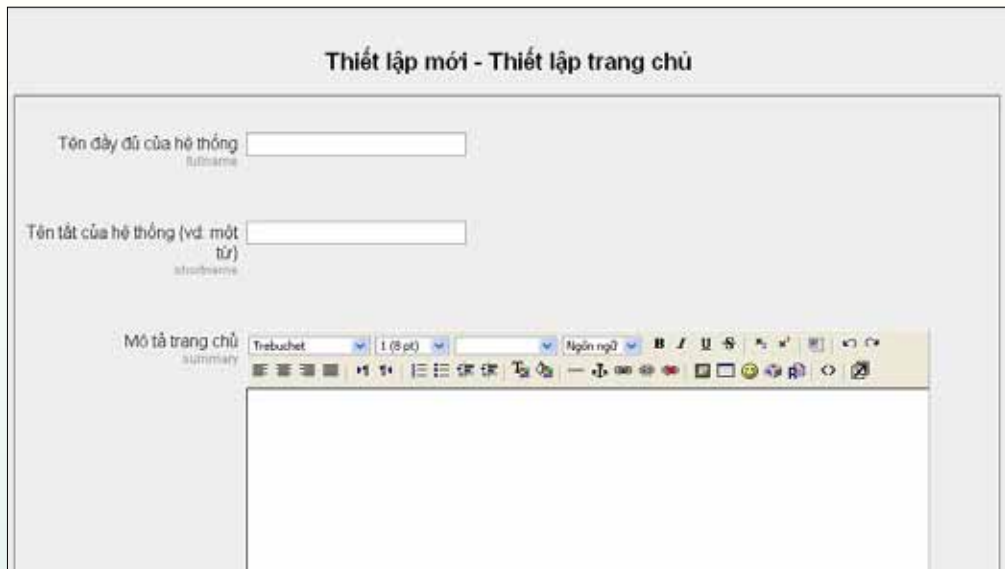


Figure 2.13: Create a home page

## 10. Authentication management

Choose authentication based on Email.



Figure 2.14: Create authentication management

When the installation process is successful, the home page of SPKT e-Learning appears.

**Note:** despite choosing Vietnamese language pack, many items still appear in English.



Figure 2.15: Home page of the Learning Management System

2.2.3. Set up system parameters

a. Set up the system interface:

This functionality helps choose the display format for the system (interface, schedule, submitting the drafts, etc.)



Figure 2.16: Set up the interface

Install system interface: Select **Giao diện/Chọn giao diện (Interface/Choose Interface)**, then choose interface **Computer - scientist**. If the theme **Computer - scientist** is not available, it can be downloaded from <http://www.themza.com/Moodle/computer-scientist.html> then uploaded into the Moodle theme folder.

When it comes to setting up the interface, select default (i.e. members are not allowed to change the interface of the system, interface of the learning course, or interface of themes. Settings are locked).

**b. Set up home page:**

Manage information on the home page (i.e. create, backup, restore, etc.)



**Figure 2.17: Set up the home page**

The home page of the system is set up as follows:

System name: SPKT e-Learning

Before and after log in, the home page will display news and general components (consisting of a list of themes and learning courses).

Number of latest articles: 3

Number of learning courses displayed on page: 20

Not allowed to display learning courses opened in hidden themes

### c. Set up the protection mode and system policy



Figure 2.18: System policy

The system policy is set up as follows:

- Protect username
- When modifying information, members must log in the system
- Open for Google to infiltrate
- Maximum file size for uploading depends on limit of server
- Allow for message sending in the system
- The maximum time for editing an article is 30 minutes
- Full name format: Family name + middle name + first name (Christian name)
- Rule for password is not set

### d. Set up language for the system

- Set up automatic recognition of language
- Default language is Vietnamese
- Display language menu
- Set up buffer memory (cache) for language menu



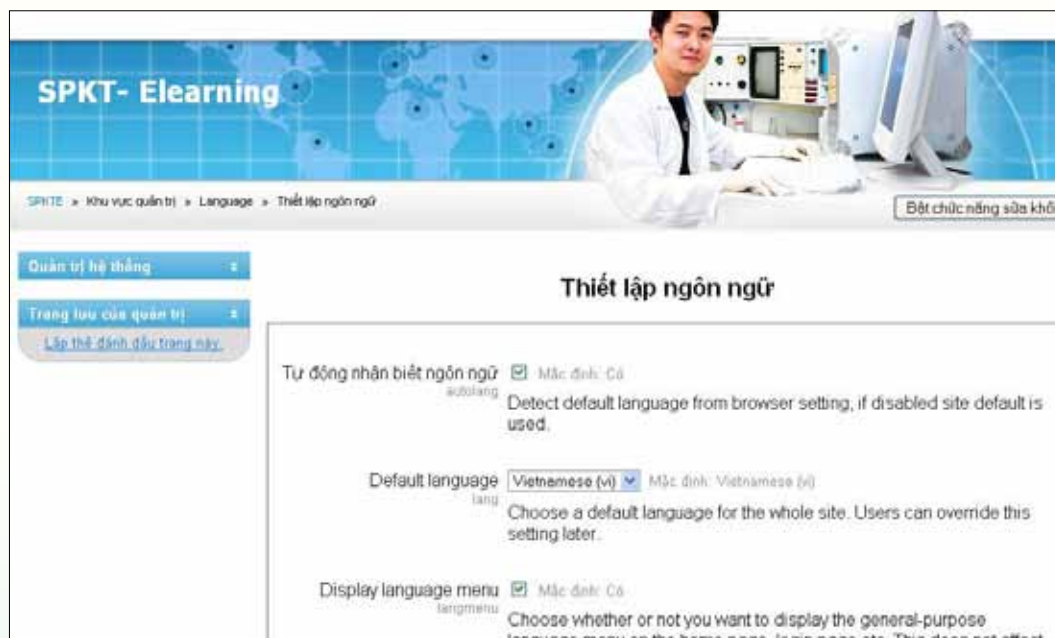


Figure 2.19: Set up language

## 2.2.4. Management functions

### a. Membership management functions

- **Authentication:** this allows the authentication of members joining the system
- **Tài khoản (Account):** allows viewing the list and modifying member accounts, adding new members, uploading representative image of members, etc.
- **Permissions:** Delegating authority to members.

### b. Functions for management of learning courses

- Allows add/revise of learning courses
- Default set up of learning courses: Allows default set up of learning courses, e.g. set up of learning courses to be displayed on the home page by week, set up of number of learning courses to be displayed in a week, regime for continuous reading, maximum size for uploading, etc.

- Register

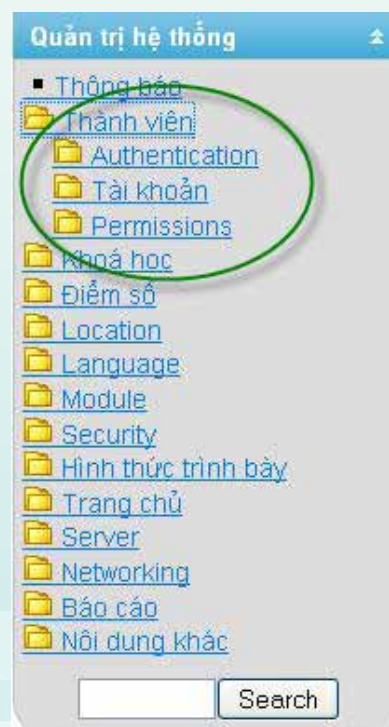


Figure 2.20: Members

- Request to open the learning course: allows the set up of functions so that learners may post the requirements for opening new learning course.

### c. Functions for module management:

Set up and manage installed module, including:

**Resources:** Upload resource files from the learning courses to webpage, such as Word file, multimedia, etc.

**Assignment:** Allows teachers to score assignments uploaded by the learner.

**Chat:** Module Chat allows participants to have a discussion through the web, or Diễn đàn (forums): either between teachers or between teachers and learners.

**Database:** Get direct access to the database. For exchanges between members.



Figure 2.21: Learning Course



Figure 2.22: Activities

## 2.2.5. Create and add a learning course

**Step 1:** Download the system administration, Click **Learning course - Add/modify learning courses**

**Step 2a:** Create a new theme, Click **Thêm mục mới (add new folder)**



Figure 2.23: Create a new theme



## Thêm mục mới

Mục cấp trên: Bậc trên

Tên mục\*: Điện tử - Tin học

Description:

Trebuchet
1 (8 pt)
Ngôn ngữ

**B** *I* U ~~S~~

$x_2$   $x^2$

Các khóa học liên quan đến Điện tử - Tin học

Path: body

?

Tạo danh mục

Hủy bỏ

### Figure 2.24: Declare and describe the new theme

**Step 2b:** Create a new learning course: Click **Thêm khóa học mới** (add new learning course)

## Danh mục khoá học

Danh mục khoá học	Khoá học	Chỉnh sửa	Chuyển mục tới:
<a href="#">Nội dung khác</a>	0	   ↓	Bậc trên 
<a href="#">Điện tử - Tin học</a>	0	   ↑	Bậc trên 

Thêm khoá học mới
Thêm mục mới

### Figure 2.25: Add a new learning course

### Step 3: Setup of a learning course

*General setups:*

- Choose theme for the learning course
- Pick a title for the learning course (compulsory)

- Give abbreviated name for the learning course (compulsory)
- Code for the learning course (so it matches the training program frame)
- Summary: a synopsis of the learning course
- Set up for the start of the learning course
- Set up the learning course as either continuous or discrete

*Set up of registration (Internal Enrollment)*

- How to register (the system default is Internal Enrollment)
- Learning course allows self-registration (Yes, No, or Term registration) etc.

....

After finishing the set up, choose **Save Changes**.

**Sửa các thiết lập cho khoá học**

General

Mục ⓘ Điện tử - Tin học

Full name\* ⓘ Kiến trúc máy tính

Tên tắt\* ⓘ KTMT

Mã số ID khoá học ⓘ ĐTTH01

Tóm tắt ⓘ

Trebuchet 1 (8 pt) Ngôn ngữ B I U S x<sub>2</sub> x<sup>2</sup>

Path: [body](#)

**Figure 2.26:** Set up for a learning course

#### **Step 4:** Create content and activities for the learning course

Click the title of the learning course (e.g. Learning Course on Computer Knowledge). The system will take you to **Tổng quan các tuần lễ** (Weekly Overview). Under administration section, click **Turn Editing on**, and the system will show the following interface:

**Figure 2.27:** Design activities and resources for learning weeks

**a. Create content for the learning course:**

There are 5 steps for displaying the content, as follows:

- **Chèn nhãn (insert label):** Used to create title of a chapter, a lesson, or any other content.
- **Viết một trang văn bản thô (write up a draft document):** Allows the write up of a simple page, without font size, color, links, etc. Field is a compulsory name, the summary is optional, and the content of the text typed in to "Toàn văn" (full text) is compulsory.
- **Viết một trang mạng (write a web page):** Allows the write up of a webpage, the content of which is drafted in "Toàn văn". The title of the webpage is compulsory. This webpage is usually used to write the course program, learning time, prerequisite conditions, learning guide, objectives, etc. There are some setups for when the webpage is browsed, such as opening another window or the same window, size of the page when opening, etc.
- **Tạo các liên kết (create links):** Allows links to local files within the system or to a web address. The title of the link is compulsory and the field location is the actual location of the linked file or address of a linked webpage.
- **Hiển thị một thư mục (display a folder):** Allows the display of a folder containing original resource material.

## b. Create activities for the learning course

### FORUM:

In order to create a forum, the following fields need to be provided with information:

*Tên diễn đàn (forum title):* Moodle does not set out rules for giving a name to the forum. You decide the name (this rule applies to all modules of Moodle).

*Kiểu diễn đàn (type of forum):* **forum for normal usage/each person generates a topic for discussion/single discussion.**

*Giới thiệu về diễn đàn (introduction to the forum):* General introduction to the forum, such as purpose, topic, etc. This section is usually used to familiarise the audience with a particular forum.

*Lựa chọn có thể cho phép học viên gửi bài viết lên diễn đàn (permits learners to send articles to the forum):* This option is used to limit or allow learners to submit articles to the forum).

*Bắt buộc mọi người đăng ký (requires one to sign up):* this describes the way to join the forum).

- No: No sign up necessary for joining the forum.
- Temporary agree: Agree to sign up but at a later date can cancel sign up.
- Agree: Agree to sign up, but at a later date cannot cancel the sign up.

*Theo vết cho diễn đàn (tracing the forum):* Turn on this function if you want to record activities of the user, and turn it off, or select optional (Optional).

*Cho phép đánh giá (allow evaluation):* **Together with discussions and responses, users may have different assessments** depending on options:

*Nhóm (group):* This function allows the management of learners by group (no group/ separate groups/visible groups). It is possible to organize forums for each group.

*Nhìn thấy với các học viên (visible to learners):* On, allows learners to see and join the forum. Off, it is invisible to learners.

### ASSIGNMENT:

An assignment is set up with tasks, deadline for submission and a maximum score value. Learners may upload one or more file as required. The date and time that learners upload files are recorded. The teacher may look at their individual files and time of submission, then score and comment on the performance of a respective learner. Half an hour after scoring a particular learner, the system will automatically send an email to that learner to notify them of the assignment results.

The assignment has the following format:

- Upload many files
- Online text
- Upload a file
- Offline activity

### SCORM:

The lesson is designed in accordance with the SCORM standard

*Thông tin chung (general information):*

- *Tên (title):* Name of the e-Learning lecture in LAMS or SCORM format (compulsory).
- *Tóm tắt (summary):* This option allows a brief description of the lecture.
- *Package file:* Fill in the address of the package file, or click "Chọn" (choose) or
- *tải lên tập tin ...* (upload the file) to choose a file already in the system or upload a new file to the system.

*Thiết lập khác (other setup):*

- *Phương pháp phân loại (classification method):* Score status - highest score; mean score; overall score.
- *Điểm cao nhất (highest score):* Range from 1 to 100
- *Số lần thử (number of trials):* Range from 1 to 6 or unlimited
- *Cách tính điểm (how to calculate score):* Highest score; mean score; the scores of the first attempt and last attempt.
- *Stage size:* The size of the window when browsing the lecture. Width, height, display in the same browsing window or in another window, etc.

### TEST ITEMS:

The Module Test is used to assess learners' performance using familiar forms of assessment, including true/false, multiple choice, short answer responses, convenient questions, random questions, number questions, responses with graphs and descriptive texts. For online learning, the test items must be carefully picked to suit the different types of learners.

The Module provides the means for organizing an online exam, including providing information to learners of the exam schedule, creating test items and entering test results.

### *Configuration parameters :*

- Time for the exam (unlimited /1-110 minutes): Time limit for the test. If this is set to “không” (none), there is no time limit.
- Number of questions per page: This sets the layout for presenting questions on each page.
- Change position of questions: This allows changing the order of questions in the test, to avoid duplication between different exams for learners.
- Swap position of responses: Also for the purpose of avoiding duplication, changes the position of responses in each of the questions.
- The number of times sitting the exam: allows students to do the exams a number of times. The score can be calculated, based on how to solve this problem. This is very useful for learners because it allows them to review previous ways of doing the exam and gives feedback.
- Attempts based on the previous exams (yes, no): if the test allows multiple attempts, learners can review the outcomes of previous attempts and feedback and select response options.
- How to score: the way to calculate the final score for a learner, based on the number of attempts by learners. You can take the highest score possible, average score, the first attempt, or the last attempt.
- Allow for deduction solving: applies when learners are allowed to do the test multiple times. Then, learners may receive feedback from previous attempts.
- Deduct score if wrong (deduction): applies to a test allowing multiple attempts. For each question, whenever a wrong response is selected, a score will be deducted from the score of the question.
- Score after decimal places: Regulates the accuracy of test results.
- After learners respond, they can examine information (i.e. answers, score, feedback, response) in different ways:
  - Right after finishing the test.
  - At a later date, but before the test is finally closed.
  - After the test is closed.

### *Other set ups:*

- Learners can look at the test in a separate window: allows one to look at the test in another window.
- Password required: only those learners with a password are allowed to sit for the test.
- Web address required: the web address to which the computer is connected allows a group of addresses. Then, any single learner sitting the test must have a password to confirm.

- Highest score: used to calculate the final score for the test. It corresponds to the total score of all items in the test.

### CREATE A TEST:

This function is performed by the administrator and teacher of the respective learning course. The following information needs to be provided:

- Name: Name of the test
- Content: Description of the test, possibly using Moodle's drafting tools.
- Start time: Learners start after this time.
- Finish time: Learners cannot submit the test after this time.
- Time for doing the test (0-110 minutes): This is the length of time for learners to do the test. If it is set to "None", there is no time limit.

More information for configuring the test module:

### CREATE QUESTIONS:

To create new questions, choose the function "tạo câu hỏi mới" (create a new question) and choose the type of question to be created. The following types of questions are supported by the system:

- Multiple choice question: Select a correct answer from multiple options given.
- True/False question: This type of question has only two options, i.e. true or false.
- Short-response question: The response is short in text.
- Number-format question: Questions with responses in the form of numbers.
- Calculation question: The response is a formula, or result of an equation.
- Match question: Learners select the correct option in accordance with predefined answers.
- Descriptive questions: Along the lines of an essay. Learners do not choose predefined answers but have to produce their own responses.
- Random match questions: A question with a short response selected randomly from short responses in the list.
- Multiple-response questions: A type of consolidated question including many small questions such as short-response questions, multiple choice questions and number-format questions.

## 2.2.6. Upload Moodle to Internet network

Installation of local Moodle on Windows allows us to configure the Learning Management System, or for local operation, draft content and other such activities for a learning



course. However, in reality, a Learning Management System is often uploaded to the Internet, through a server and with an access domain.

To upload the Moodle to the Internet, you need to have **Host** and **Domain** (this can be purchased from a provider, by consulting <http://www.matbao.net>) and then take the following steps:

**Step 1:** Download Moodle **Standard Moodle packages** from the address <http://Moodle.org/download>

**Step 2:** Upload the whole product package to web-hosting

To make the upload easy and fast, you can use the Filezilla software (download from <http://filezilla-project.org/download.php>). After installation and running of Filezilla into the interface of the program, enter parameters of Host - IP address of the website, Username, Password, and then click Quickconnect to check the connectivity with server. Once connected, you will be notified that Directory Listing is successful. Then uploading data to the server can be done easily, as if you were working on a hard drive.

**Step 3:** Installing database

Log in to the host to create an empty database and user account for the database.

**Step 4:** Start a web browser, and in the address bar, type the name of the registered domain and start the installation process.

Up until now, the installation steps have been similar to those in Windows. In the section for declaring database information in Windows, it was set as a default. Now, when uploading to an Internet host, you must declare the correct database you use (e.g. MySQL), name of Host server, name of database, user, password (xxxxxxxx), and initials of database tables (default).

## 2.3. PRACTICE

- Install Moodle system on Windows, using the product pack Moodle for Windows
- Set up Learning Management System
- Configure fixed blocks in the system
- Change the system interface
- With the account of administrator, add new members for the system and delegate authority to such members, e.g. compiler teachers, teachers, lecturers, teacher assistants.
- Create a learning course on Moodle

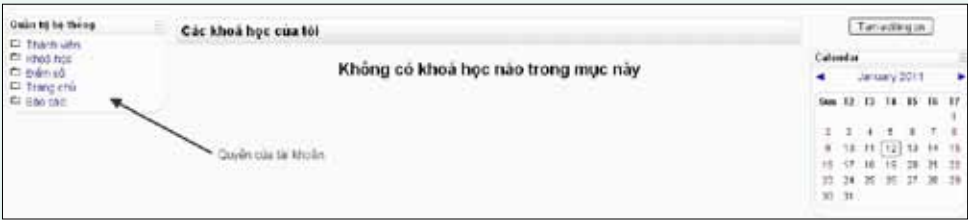


2.4. REVIEW

2.4.1. Tick “X” in front of each item if it is the main task of the LMS

- Manages learners through an Internet environment
- Creates schedule for learning courses and training programs
- Delivers learning courses, tests and other resources online
- Creates lectures in accordance with the SCORM standard
- Keeps track of learning processes of learners and creates reports
- Makes individual plans for learners
- Exchanges information through chat, forum, e-mail, screen sharing and e-seminars
- Provides capability for testing and assessing learners’ performance.

2.4.2. From the administrator account, create and delegate authority to another account so that once logging into the system, that account has the authority as described in the figure below:



2.4.3. Link each designation in theme A with a description in theme B to match the exact definition in terms of roles played by members in the system.

A	B
Administrator	can do everything within the learning course, including changing learning activities and scoring learners.
Compiler teacher	are all members who have logged in
Teaching teacher	can teach and score learners, but cannot revise learning activities
Teacher assistant	can create new learning courses and deliver such courses
Student	can usually do everything in the system and all courses
Visitor	has the least authority in a learning course
Authentic member	has only minimum authority and cannot usually write articles

#### 2.4.4. Set up the interface for the system as in the figure below:



#### 2.4.5. Which of the following ways is correct when wishing to set up additional languages for the system?

- Option 1.** Language-> Set up language -> Choose the language to be added
- Option 2.** Language->Revise language -> Current Language -> Choose the language to be added
- Option 3.** Language -> Language pack -> Choose the language to be added -> Install the language pack chosen.

On this basis, set up Chinese and Spanish languages for the system.

#### 2.4.6. Fill in the gap with the correct format for content display in front of the line which describes such a format.

- .....: Used to create title of a chapter, a lesson, or any other content.
- .....: Allows links to files on the system or to a web address.
- .....: Allows the write up of a simple page, without font size, colour, links, etc.
- .....: Allows the display of a folder containing original resource material.
- .....: Allows the write up of a webpage, the content of which is drafted in “Toàn văn” (full text).

#### 2.4.7. Tick "X" in front of each information item to be provided or set up when creating a forum in Moodle.

- Name of forum
- Telephone number
- Nature of forum
- Size of forum database
- Introduction to the forum
- Authentication based on email
- Option allowing learners to send their articles onto the forum
- Regulates how to register for forum participation.
- Allows assessment

## 2.5. REFERENCE MATERIALS

- Moodle Homepage: <http://Moodle.com>
- Moodle Vietnam Community: <http://Moodle.org/course/view.php?id=45>
- Help materials for Moodle: <http://Moodle.org/help>
- Informatics Centre - MOET: <http://el.edu.net.vn>
- Moodle resources: <http://Moodle.org/mod/resource/view.php?id=3856>



# PART 3

## CREATING A LEARNING COURSE



## 3.1 OVERVIEW OF AN E-LEARNING COURSE

### 3.1.1 Concept of Courseware

The English word *Courseware* describes a learning course using teaching based on e-Learning.

There are many definitions of courseware. Below are some found on the Internet:

- Computer software and materials combined together are used for the purpose of education and training

[http://www.itslifejimbutnotaswewknowit.org.uk/lt\\_glossary.htm](http://www.itslifejimbutnotaswewknowit.org.uk/lt_glossary.htm)

- Educational software that delivers course material and instruction via computer.

<http://www.worldwidelearn.com/elearning-essentials/elearning-glossary.htm>

- Software that is designed for an educational program

[http://en.wikipedia.org/wiki/E-learning\\_glossary](http://en.wikipedia.org/wiki/E-learning_glossary)

- Any type of instructional or educational software program

<http://www.cybermediacreations.com/elearning/glossary.htm>

- Software that includes a function to guide learning through lessons of a defined topic.

<http://alt.uno.edu/glossary.html>

- Software that is used in teaching and the learning process to guide students in a specific area

<http://www.kcsd.k12.pa.us/~techhp/techplan/glossary.html>

- A program or software developed or used for educational means, to teach or to learn, assisted by a computer.

<http://www.erudium.polymtl.ca/html-eng/glossaire.php>

- Courseware is a term used to describe software to be used for the purpose of assisting a learning course or part of the course.

<http://netquality.lii.unitn.it/glossary.htm>

On the basis of these concepts, in this document, we construe learning course (courseware) to be *an information technology application used as a learning tool or for assisting the teaching process through providing learning materials along with pedagogical instructions that are optimally designed to ensure learners can conduct self-study most easily and efficiently with the assistance of information technology.*

### 3.1.2 Requirements of the learning course in e-Learning

When learning independently with courseware, learners do not have direct contact with teachers. Therefore, the learning content in textbooks, syllabuses and reference materials must be adjusted with appropriate pedagogical methods, adding a significant amount of resources and other necessary information to ensure that students can study independently in the most effective possible manner. The following basic requirements for courseware are proposed:

- Clearly define learning objectives
- Define prerequisites for attending a learning course
- Provide a brief summary of the courseware contents
- Have a clear and logical structure
- Have accurate content in line with learning objectives
- Have a user-friendly interface, easy to use, and convenient when browsing learning content
- Be able to locate information in a learning process
- Provide support in seeking information
- Present the relationship between learning and courseware and other modes of learning
- Ensure learners know where to start, under what conditions and know details about the learning process
- Ensure that learning takes place through specific activities most of the time
- Integrate state-of-the-art teaching theories in order to make best use of activeness, pro-activeness and creativity of learners
- Ensure interaction with content, and allow for practical experience to formulate typical skills
- Allow learners to assess their own progress in a learning process.
- Help learners to complete the applied exercises and assignments
- Make reference materials available
- Provide diverse and proper learning resources
- Ensure compliance with standards of SCORM 1.2 or SCORM 2004

These requirements exclude factors that ensure interaction and feedback between teachers and learners, and among learners. When one activates the environment of Learning Management System, these requirements will be satisfied. Also, with an LMS, many of these above requirements can be easily satisfied.

### 3.1.3 Structure of a learning course (courseware)

Courseware is developed on the basis of the following:

- A learning course is comprised of sections.
- A section is comprised of many topics.
- A topic is comprised of many learning activities (educational activities).
- A learning activity is comprised of a collection of actions and manipulations (primitive activities).

These above concepts are very flexible, allowing the designer to select topics related to a learning course, or present a topic in the form of specific teaching activities.

A learning activity may be a combination of many actions and manipulations, such as reading a passage, looking at an image, listening to a sound, looking at an animation, experiment, virtual practice, simulations, or some guidelines for solving exercises, etc., all aimed at helping learners acquire knowledge and skills.

There are a great many ways to present the structure of a learning course. Below is a suggested structure made up of 4 main sections: ***General information about the course; Learning guide; Course content; and General reference materials.***

- **General information about the course:** It is important to present basic information about the course. These are aspects that learners refer to at the start of the course. An overview picture of the course is formulated. You might want to include the following information:
  - Course name
  - Developer
  - Number of course units
  - Overall objective of the course
  - A brief description of the course
  - Prerequisite conditions
  - Assessment information of the course
  - Structure of chapter, unit, item
  - Collaboration between learning activities and others
  - Information about copyright
- **Learning guide:** Unlike an e-Book, courseware content is designed to help learners to perform as guided, and participate in activities which learners must study by themselves. This section might include the following information:
  - Introduction to interface, how to move across content
  - Pedagogical idea of the courseware



- Specific guide for some learning activities
- Information about the learning plan
- **Course content:** Main contents of courseware are presented in this section. It is usually presented in form of a tree view or a combination of structured links (up, down, next, previous, top). Content of a learning course is designed in the form of diverse and popular activities (preamble, acquisition of new knowledge, observing pictures, responding to a question, checking the extent of internalization, etc.). The aim is to help students explore learning content by themselves in the most effective way possible.
- **General reference materials**
  - Reference materials in the form of printouts
  - Online reference materials

### 3.1.4 Steps to design and develop a learning course

#### Step 1: Identify demands and objectives

In this step, it is necessary to identify objectives for each and every lesson. Objectives of a lesson include the knowledge learners need to acquire or apply after finishing the lesson. It is imperative to clearly define core requirements in each lesson and the amount of knowledge which learners should be able to acquire.

#### Step 2: Collect resources

Resources must relate to the topic of the lesson. Required resources for the respective topic of each lesson can be drawn from syllabuses, reference materials, movies, and most importantly by experts or those with profound knowledge and expertise in the relevant field. Physical resources used include text; pictures; sound; animation; movies, etc.

#### Step 3: Study the content

The person who develops lessons must have a profound understanding of what is to be presented. Course designers can study the content of a lecture by working with experts, reading books and guide material and should be able to put themselves in students' shoes. In short, it is not possible to develop effective lessons without a good mastery of lesson content.

#### Step 4: Form ideas

Brainstorming is a good way to create ideas. Through brainstorming, designers - with support from many others in the group - may have many different ideas to select, and can then appraise ideas in terms of their quality and feasibility.

### **Step 5: Design the lecture**

Based on the selected ideas, the lecture is presented using appropriate pedagogical strategies.

### **Step 6: Flowchart of the lesson proceedings**

A flowchart of the lesson proceedings is very important as lecture guides for using the computer-assisted material are usually interactive and show links within a lecture. The flowchart also explains when the computer supplies data, what happens if learners make a mistake, and when a lesson finishes, etc.

The level of detail in the flowchart differs, depending on the methodology used in the design. For simple methodology (e.g. guiding unit, review unit, test unit, etc.) it is advisable to use simple charts that provide an overall description of the lesson scope and proceedings.

### **Step 7: Present lesson content**

This step focuses on the design and development of a teaching lesson. Usually, this content is presented in the form of educational activities through specific actions by learners. The quality of courseware depends, to a large part, on how the content is presented/converted into educational activities.

### **Step 8: Insert the teaching lesson into the program**

This step is the process of converting paper-based scenarios into courseware. Many software applications can successfully perform this, including, for example, eXe Learning, Lectora, IBM Authoring Tool, etc.

### **Step 9: Develop supporting materials**

There are often 4 types of materials: guide material for students, guide material for lecturers, technical guide material and supplementary guide materials. Teachers and learners have different demands and therefore the materials for them must be different. For example, technical guide materials need to be designed to serve the "installation" of complex lectures or those accompanied by complex equipment. While, supplementary guide materials involve learning forms, graphs, tests, pictures and essays, etc.

### **Step 10: Evaluate and modify**

Finally, the lecture and other supporting materials should be evaluated by the developer or by an external expert. It might be possible to use an experimental/piloting approach to validate the quality of the lesson. Some adjustments and additions might then be needed to produce the best results.

## 3.2 TOOLS FOR DEVELOPING COURSEWARE

### 3.2.1 Overview of tools for developing courseware

(See Figure 1.1 in Part 1, which shows how teachers can create a learning course in two ways.)

First, teachers may use a Learning Management System to create a learning course (as described in Part 2). This way, teachers do not need to use other tools but still have to create a learning course objectives; learning guide; time allocation, learning plan; provision of resources; design of learning activities; forums for exchange and collaboration, etc. However, there will be some limitations in terms of structure for the learning course, learning materials, and especially interaction with the learning content.

Second, teachers may use Authoring Tools to create a learning course. This way, the structure of a learning course will be clearly presented. Content, resources and learning activities are designed in their entirety, allowing the teacher to plan highly interactive activities. However, a learning course created using this approach does not involve interactive activities between teachers and learners, and among learners.

Usually, teachers combine both these approaches in designing a learning course. They use LMS to create a learning course, make a learning plan, supply external resources, design collaborative activities, share and manage classes, etc. At the same time, they use Authoring Tools to create interactive teaching activities, assessment activities and get access to LMS in the form of SCORM standards. Teachers must be able to control which content should be designed under the first approach and which under the second one.

The following section introduces some tools used to create a learning course using the second approach.

### 3.2.2 Lectora software

#### 3.2.2.1 Introduction to Lectora

Trivantis Lectora is software that allows individuals or a group of individuals to create highly interactive learning courses. These learning courses can be developed in the form of a website or as an independent application. The software supports many different information formats including text, image, sound, animation, movies, etc, and supports Internet technology standards such as HTML, Java or JavaScript.

Lectora software is easy to learn with “pull-push” tools, and it is easy to create interaction exercises with different objectives in a learning course. You can take ownership of this software in a short period of time.

### **3.2.2.2 Structure of a learning course created by Lectora**

The simplest way to imagine the structure of your learning course is to compare it with a book. The structure of a book is comprised of many pages of information and divided into chapters; each chapter can then be divided into sections. With Lectora software, the structure of the learning course can be designed along similar lines. However, you can structure a learning course more flexibly to suit your needs. This could be only pages of information; or divided into chapters, sections, etc.

### **3.2.2.3 Inheritance - an important concept when using Lectora**

With Lectora, you can save lots of time with the function “inheritance”. It functions like a master page, but is more flexible, so that objects only need to be created once and can be repeated throughout the entire learning course. For example, for the interface of pages, buttons moving across pages, etc.

In Lectora, the “Inheritance” function operates using the following principles:

- Objects available on the same page only appear in that page
- Objects available in a section will appear in all pages under that section
- Objects available in a chapter will appear in all pages under various sections in that chapter
- Objects available in a learning course will appear on all pages in each section of each chapter in that learning course

### **3.2.2.4 Information formats supported by Lectora**

Animation: GIF Animation (.gif); Flash Animation (.swf, .spl)

Pictures: JPEG (.jpeg, .jpg); GIF (.gif); TIFF (.tif); Windows bit map (.bmp); Windows metafiles (.wmf); Portable Network Graphics (.png)

Video: Microsoft (.avi); Quicktime (.mov); MPEG (.mpg, .mpeg); Real Media (.rm, .rmm, .ram); Microsoft Streaming Video (.asf); RealMedia Streaming Video (.rm)

Sound: Wave (.wav); MIDI (.mid, .rmi); MP3 (.mp3); Sun (.au); Macintosh (.aiff or .aif); Microsoft Streaming Audio (.asf) ; RealMedia Streaming Audio (.rm)

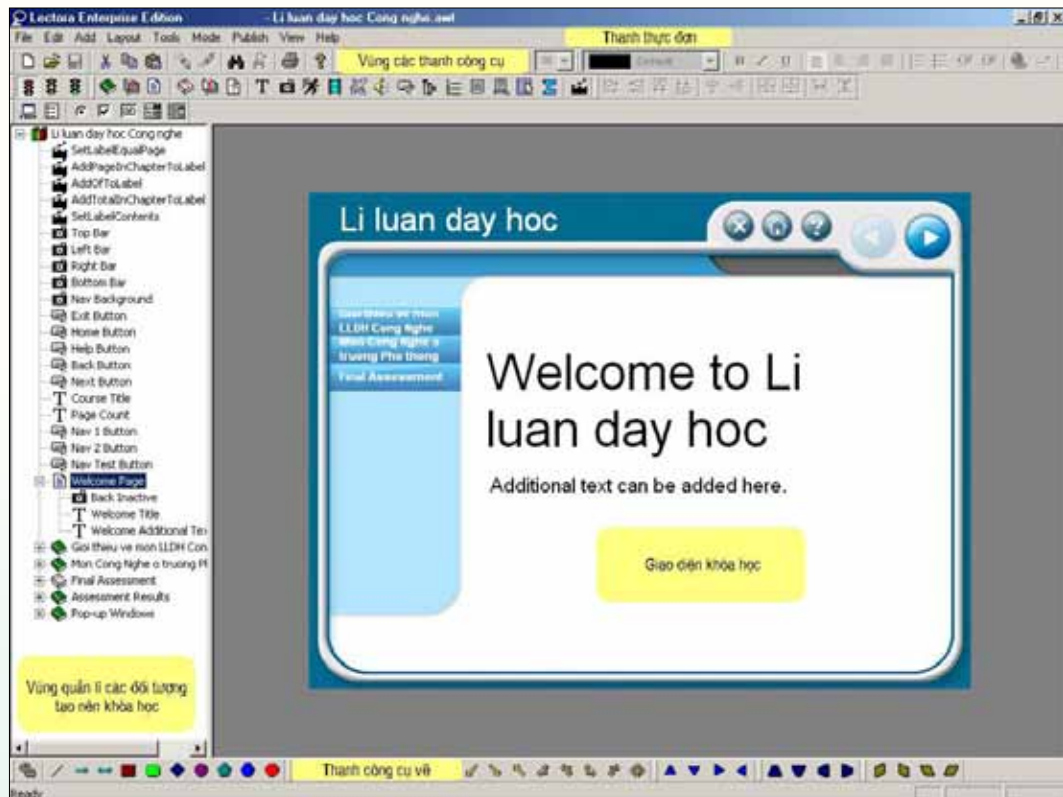
Text: Rich-Text documents (.rtf); Text documents (.txt)

IPIX: An interactive, 360 degree, 3-dimensional image; Shockwave, HTML, Java, Javascript; Supported via the External HTML Object

### **3.2.2.5 Diagram of the learning course**

The *script design* is the first and very important feature to decide on when using Lectora or any other software to design a learning course. The learning course is displayed through a series of consecutive screens in accordance with the logic of the learning course. Browsing of the screens is conducted through a set of command buttons (next, previous) or through a menu.

### 3.2.2.6 Main interface



### Figure 3.1: Lectora Interface

Apart from the menu and toolbar, the Lectora interface is divided into two main parts:

**Left Part** (for management of objects to create a learning course): It is comprised of “actions” to create the number of pages for a learning course and command buttons for browsing content and chapters, sections and information pages for the learning course. It also allows you to move easily to a certain chapter, section or page for editing content.

**Right Part** (for entering information in the learning course): The relevant information is presented in chapters, sections or pages previously selected in the Left Part (for management of objects). While compiling a learning course, content will be directly inserted into this area.

### 3.2.2.7 Toolbars

### Standard toolbar



**Figure 3.2: Standard toolbar**

1. New: Create a new learning course
2. Open: Open an existing learning course
3. Save: Save a learning course
4. Cut: Cut data
5. Copy: Copy data
6. Paste: Paste data
7. Undo: Deactivate the most recent command
8. Redo: Reactivate the deactivated command
9. Find: Find information
10. Find Next: Find next information
11. Print: Print the learning course page
12. Help: Help is available

### **Text toolbar**



**Figure 3.3: Text toolbar**

1. Font: Choose font
2. Font Size: Choose font size
3. Color: Choose text color
4. Bold: Bold text
5. Italic: Italicize text
6. Underline: Underline the text
7. Align Left: Align on the left
8. Centre: Align in the middle
9. Align Right: Align on the right
10. Align Both: Align both sides
11. Numbering: Create a numbered list
12. Bullet: Create a non-numbering list
13. Decrease Indent: Decrease space of indenting
14. Increase Indent: Increase space of indenting
15. Hyperlink: Create links
16. Reference: Reference

### ***Insert toolbar***



**Figure 3.4: Insert Toolbar**

1. Add Chapter: Add a new chapter
2. Add Section: Add a new section
3. Add Page: Add a new page
4. Add Test: Add a test
5. Add Test Section: Add a section in a test
6. Add Question: Add a question
7. Add Text Block: Add text passage
8. Add Image: Insert image
9. Add Animation: Insert animation
10. Add Video: Insert video
11. Add API: Insert picture
12. Add Audio: Insert sound
13. Add Button: Insert command buttons
14. Add Table of Content: Add a table of contents
15. Add Reference List: Add an index of references
16. Add Document: Insert a document file
17. Add External HTML: Insert HTML
18. Add Menu: Insert a menu
19. Add Equation: Insert equations
20. Add Action: Insert actions

### ***Mode toolbar***



**Figure 3.5: Toolbar display working mode**

1. Edit Mode: Drafting mode
2. Run Mode: Trial mode
3. Preview Mode: Preview the learning course



### Drawing toolbar

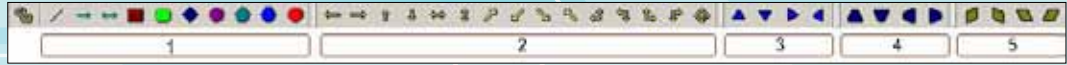


Figure 3.6: Drawing toolbar

1. Shape Bar: Toolbar for drawing shapes
2. Block Arrow Bar: Toolbar for drawing arrows
3. Triangle Bar: Toolbar for drawing triangles
4. Trapezoid Bar: Toolbar for drawing trapezoid
5. Parallelogram Bar: Toolbar for drawing Parallelogram

### 3.2.2.8. Interface for drafting information pages

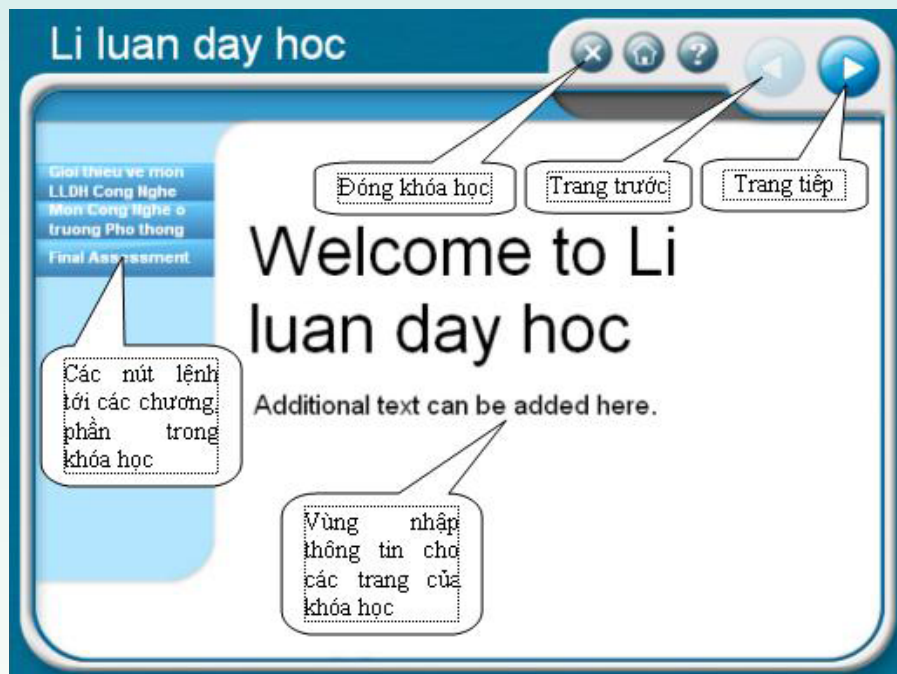


Figure 3.7: Interface of the first page of the learning course



### 3.2.2.9. Area for management of objects to be inserted

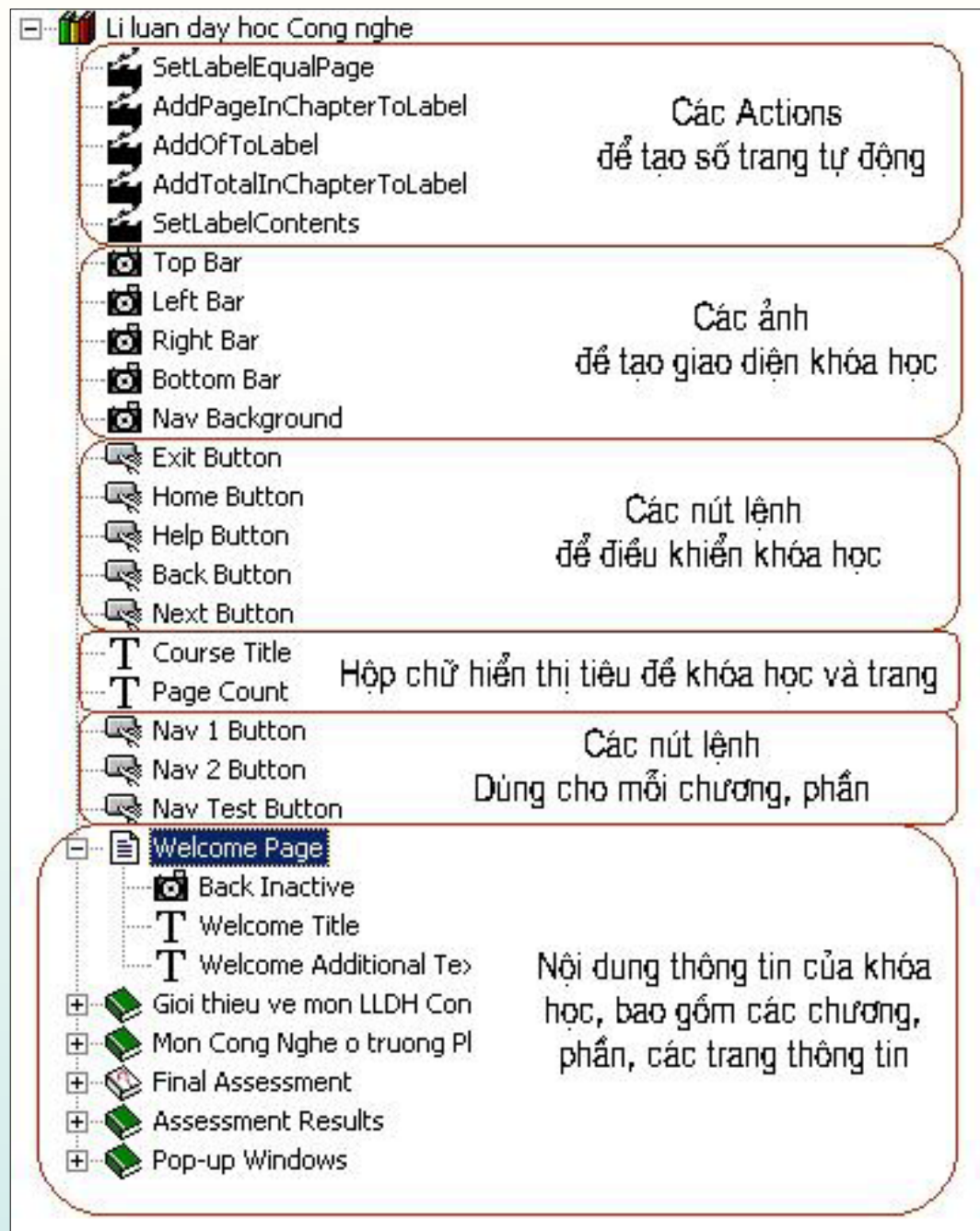
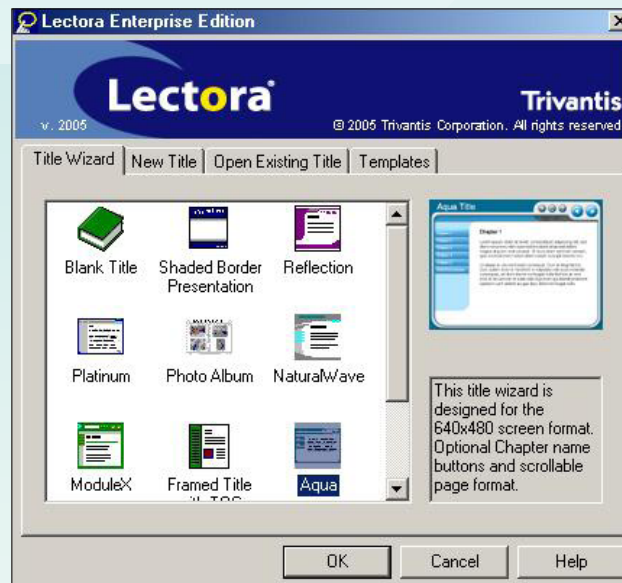


Figure 3.8: Object management

### 3.2.2.10. Steps for creating a learning course in Lectora

**Step 1:** Choose tab “Title Wizard” to automatically create a learning course

Lectora supplies 10 built-in interfaces for a learning course. In the diagram, the newly generated learning course uses “Aqua”. After choosing a type of interface for the learning course, click “OK”.



**Figure 3.9:** Choosing the interface for a learning course

**Step 2:** Give a name (title) to the learning course and choose the location containing the learning course.

In the diagram, the title for the learning course is “Li luan day hoc Cong nghe” (Teaching technology theory). When you need to change the location of the learning course, click “Choose Folder”. Click “Next” to continue.



**Figure 3.10:** Create a title for the learning course

### Step 3: Choose size of the information page

If you choose Fixed page size, the default size is 640x480. It is possible to design a longer page by choosing “Taller page with scrollbar”. Click “Next” to continue.

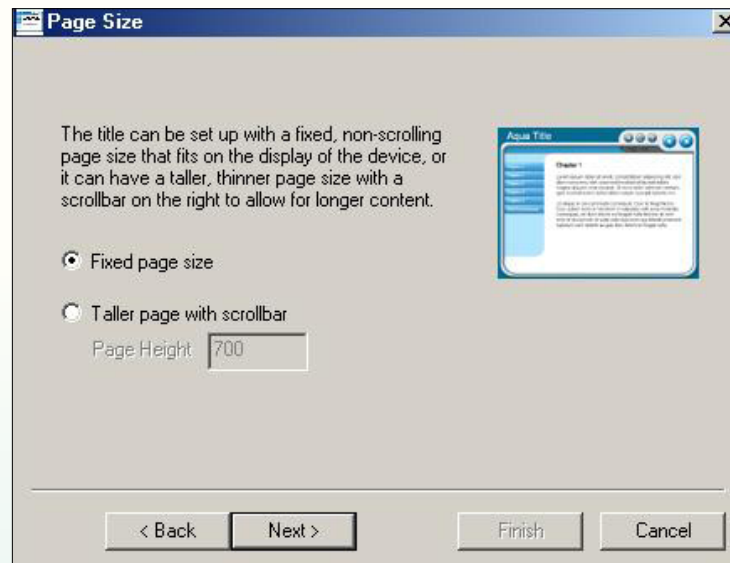


Figure 3.11: Choose page size

### Step 4: Choose number of chapters

Lectora automatically generates the number of chapters in the learning course. In this step, you enter the number of chapters. When the box “Include test at end of Title” is checked, then tests will be automatically added into the learning course. Click “Next” to continue.

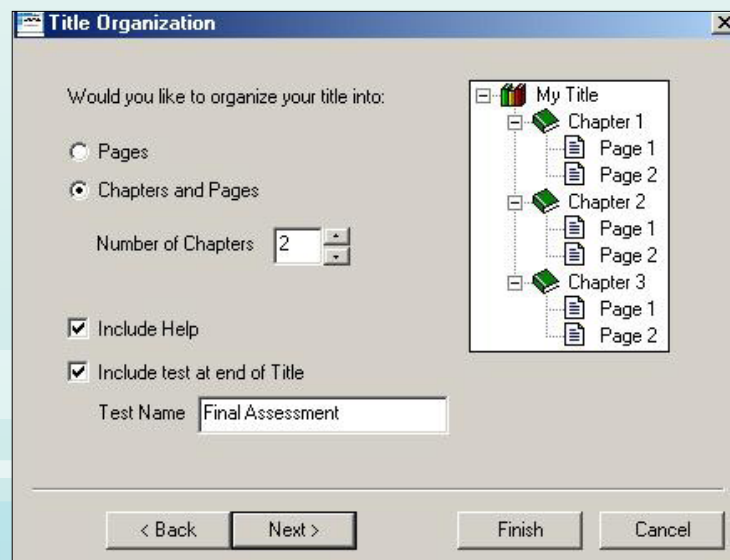
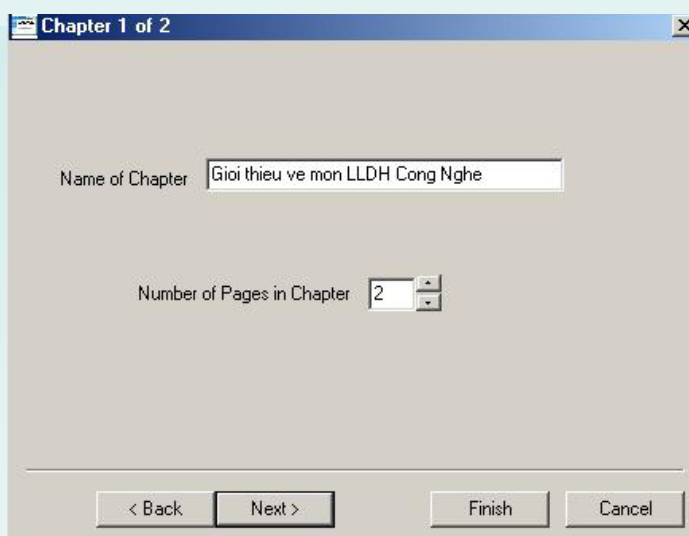


Figure 3.12: Choose the structure of the learning course

### Step 5: Assign names to chapters

Depending on the number of chapters generated in the previous step, Lectora will ask you to assign a name for each chapter. In the diagram, the two chapter names are as follows: “Giới thiệu về môn LLDH Công nghệ” (Introduction to Technology Subjects in School of General Education) and “Môn Công nghệ ở trường phổ thông” (Technology Subjects in School of General Education). Afterward, click “Finish” to complete generation of the course interface and structure.



**Figure 3.13: Assign a name for a chapter**

### Step 6: Add information and finalize the learning course

Steps 1 to 5 only create the interface and structure by chapter and folder. Step 6 deals with the actual content of the learning course.

In this step, you can modify the interface and titles (if necessary); add pages into chapters and sections; insert information (text, image, video, sound, animation) into corresponding pages; and add tests into the learning course, etc.

### Step 7: Publish the learning course

After completing the design, Lectora allows you to publish the learning course in various ways, including:

**Publish to single Executable File:** Package learning course into a file with an extension “exe”, which can run independently on Windows operating system.

**Publish to CD-ROM:** Publish to CD disk, generate Autorun to open learning course.

**Publish to HTML:** Publish in the form of webpages linked to one another.

**Publish to SCORM/Web-Based:** Package in accordance with SCORM standard, post it on the content management system (CMS).

### 3.2.3 eXe software

#### 3.2.3.1 Introduction to eXe

eLearning XHTML editor (eXe) is a tool for developing training content (authoring) designed to run on the Internet. It can assist teachers and learners in designing, developing and publishing teaching and learning materials on the web without needing to be proficient in HTML, XML or any other web-publishing applications.

In the eXe environment, all information, content, and learning activities are formatted in form of default iDevices (instructional devices). When necessary, eXe allows users to develop their own new iDevices.

#### 3.2.3.2 The eXe Interface

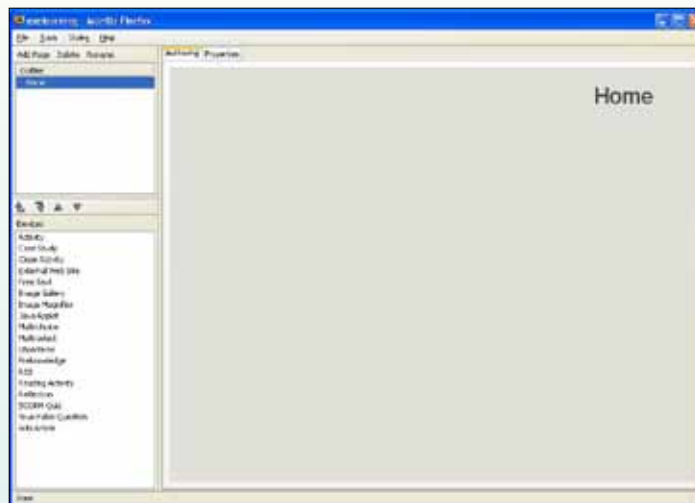


Figure 3.14: eXe Interface

The eXe Interface is quite simple. It consists of three separate zones with different purposes, as follows:

##### **Outline zone**

This is the working zone, allowing you to generate the structure of a learning course in accordance with your wishes. Upon publishing, the content will appear on the left hand side of the screen, allowing users to easily browse throughout the learning course.

##### **iDevice zone**

This zone comprises a set of elements with a predefined structure with the pedagogical intention of describing the learning content. These include: descriptions of the objectives and appraisal of pre-knowledge; learning activities (such as reading, case studies, reflection, and other activities); testing activities (e.g. cloze, multi-choice questions, multi-select questions); and information about the learning course (free text, image gallery, image magnifier, external web site, RSS, etc.). An information page may include one or more iDevices, depending on predefined scenarios.

### ***Authoring zone***

In this zone, the main eXe content is drafted for each page of the learning course. To move to the drafting page, click the mouse on the page in outline zone. Then, to insert content, click mouse on relevant iDevice, and the screen in Authoring zone will transform to predefined format for that iDevice ready for you to enter specific information.

#### ***3.2.3.3 Design structure***

The outline zone allows you to create the structure for the learning course using such functions as add page, delete page, rename page, change page order, and change the hierarchy of headings for the structure. The specifics are as follows:

##### ***To add page***

- Click on the location to insert page into the structure tree
- Click Add Page
- After clicking Add Page, a new page will appear on the structure tree.

##### ***To rename page***

- Double click on the branch for renaming. A message box will appear.
- Assign a new name for the branch (page) in the box Enter.
- Click OK to complete the renaming.

##### ***To delete a branch (page)***

- Choose the branch (page) to be deleted
- Choose Delete
- Click OK to confirm the delete.

##### ***To change the position of a branch (page) in the structure***

- To change the level of depth of a branch (page), use left and right buttons
- To change position of branches (pages) in the same level, use up and down buttons

#### ***3.2.3.4 Summary of iDevice terms***

The page content can be built totally on an iDevice (built-in or newly-generated). Entering information based on iDevice formats is quite simple. This section focuses only on describing iDevices in terms of pedagogical functions when designing a learning course.



### ***Activity***

This allows a learning activity to be created. The activity is not planned in advance but built by entering content into the text drafting environment by clicking this iDevice.

### ***Attachment***

This allows a file to be attached to the content of the page. It is usually used when the teacher wants learners to refer to a particular file (or provide information, examples, simulations, etc.) on content which can't be done in the eXe environment.

### ***Case Study***

This allows a relevant story (also known as a case) to be included in the lesson. A learning task can then be undertaken, based on the case study. This iDevice is mostly used in content that requires solving real-life problems.

### ***Cloze Activity***

This allows a cloze test to be carried out. It can be used as a preamble, for leading or acquiring knowledge, or simply as an activity to check comprehension.

### ***External Website***

This allows a particular webpage to open within the drafting page, for reference. This iDevice will be used frequently when a course is designed with content from other web pages. It only operates when the computer is connected to the Internet.

### ***Free Text***

This allows text (containing text alone or possibly adding images and links) to be created. It is used to create notifications, plans, guides, and textual content that do not coincide with other iDevices.

### ***Image Gallery***

This allows an image gallery to be created on the page. It is used to illustrate learning content, comparisons, examples or learning situations, etc.

### ***Image Magnifier***

This allows an image to be inserted into the page, using a built-in magnifier for viewing and zooming in to different parts of the image. It is usually used to look at a picture with complex content or with tiny, important yet unobservable graphical elements.

### ***Image with text***

This allows image and text to be inserted into a content page.

### ***Multi-choice question***

This allows multiple-choice questions to be created. Depending on text content, this iDevice will allow different functions such as illustrations, examples, situations, learning tasks, etc.

### ***Objective***

This allows the objective of the learning course to be described.

### ***Pre-knowledge***

This allows questions to be raised to test knowledge of learners prior to the learning course.

### ***Reading Activity***

This allows a reading activity to be created. It involves reading content; tasks to complete after the reading; summary of main points in the reading, and setting questions for more in-depth analysis of the reading.

### ***Reflection***

This allows questions to be set so learners can reflect upon what they have achieved in a learning activity or a particular content. It also allows teachers to remind themselves what learners have achieved to act as a comparison for the cognition of learners.

### ***Quiz***

This allows quizzes to be created

### ***True - False Question***

This allows true-false questions to be created

### ***Wikipedia Article***

This allows various terminologies defined in Wikipedia to be looked up for relevant content. This iDevice only operates when the computer is connected to the Internet.

## **3.3 PRACTICE**

Download and install Lectora for trial usage and create a learning course using the following link:

<http://www.trivantis.com/uk/lectora-publisher>

Download and install eXe software to create a learning course using the following link:

<http://exelearning.org>



## 3.4 REVIEW

### 3.4.1 Fill in missing words in the gaps:

Courseware is an information technology application used as a learning tool or for assisting the teaching process through providing ..... along with pedagogical instructions that ..... designed to ensure learners can ..... most easily and efficiently with the assistance of information technology.

### 3.4.2. When inserting an image into a part, according to the “inheritance” principle, that image will appear by default in:

- a. All pages of the learning course
- a. All sections of the learning course
- a. In that section and inner pages

### 3.4.3. Assign the correct number to each description of command buttons embedded in Lectora software



- ..... Add Text Block: Add text passage
- .....Add Chapter: Add a new chapter
- .....Add Section: Add a new section
- .....Add Page: Add a new page
- .....Add Test: Add a test
- .....Add Test Section: Add a section in a test
- .....Add Question: Add a question
- ..... Add Image: Insert image
- ..... Add Animation: Insert animation
- ..... Add Video: Insert video
- ..... Add APIX: Insert picture
- ..... Add Audio: Insert sound
- ..... Add Button: Insert command buttons
- ..... Add Table of Content: Add a table of contents
- ..... Add Reference List: Add an index of references
- ..... Add Document: Insert a document file
- ..... Add External HTML: Insert HTML
- ..... Add Menu: Insert a menu
- ..... Add Equation: Insert equations
- ..... Add Action: Insert actions

### 3.4.5 Assign an English title for relevant iDevices using these descriptions:

This iDevice allows a cloze test to be carried out. It can be used as a preamble, for leading or acquiring knowledge, or simply as an activity to check comprehension.

This iDevice allows a particular webpage to open within the drafting page, for reference. This iDevice will be used frequently when a course is designed with content from other web pages. It only operates when the computer is connected to the Internet.

This iDevice allows text (containing text alone or possibly adding images and links) to be created. It is used to create notifications, plans, guides, and textual content that do not coincide with other iDevices.

This iDevice allows an image gallery to be created on the page. It is used to illustrate learning content, comparisons, examples or learning situations, etc.

## 3.5 REFERENCES

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2. Guide to Course Development at  
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3. Instructional Design for Online Learning at  
[http://www.ibritt.com/resources/dc\\_instructionaldesign.htm](http://www.ibritt.com/resources/dc_instructionaldesign.htm)
4. <http://www.trivantis.org>
5. <http://exelearning.org>

# PART 4

## E-LEARNING GLOSSARY

### **Analog**

A signal that's received in the same form in which it is transmitted, although the amplitude and frequency may vary.

### **Applet**

A tiny software program that runs in conjunction with a web browser. Applets are generally written using Java programming language.

### **Application Software**

Computer software; also called a program. There are many types of software that fit into the category of application. Application software is distinct from other forms of software, such as operating system and utility software.

### **Asynchronous Learning**

Learning in which interaction between instructors and students occurs intermittently with a time delay. Examples are self-paced courses taken via the Internet or CD-ROM, Q&A mentoring, online discussion groups, and email.

### **Bandwidth**

The information-carrying capacity of a communication channel.

### **BBS (bulletin board system)**

BBS (bulletin board system): An online community run on a host computer that users can dial or log into in order to post messages on public discussion boards, send and receive email, chat with other users, and upload and download files. BBSs are text-based and often related to the specific hobbies or interests of their creators.

### **Blended Learning**

Learning events that combine aspects of online and face-to-face instruction.

### **Blog (Weblog)**

An extension of a personal website consisting of regular journal-like entries posted on a webpage for public viewing. Blogs usually contain links to other websites along with the thoughts, comments, and personal experiences of the blog's creator.

### **Broadband**

Transmission over a network in which more than one signal is carried at a time. Broadband technology can transmit data, audio, and video all at once over long distances.

### **Browser**

A software application that displays World Wide Web pages originally written in the text-based HTML language in a user-friendly graphical format.

### **CBT (Computer-Based Training)**

An umbrella term for the use of computers in both instruction and management of the teaching and learning process. CAI (computer-assisted instruction) and CMI (computer-managed instruction) are included under the heading of CBT.

### **CD-ROM (compact disk read-only memory)**

CD-ROM (compact disc read-only memory or compact disc read-only media): A computer storage medium similar to the audio CD that can hold more than 600 megabytes of read-only digital information.

### **Chat**

Real-time text-based communication in a virtual environment. Chat can be used in e-Learning for student questions, instructor feedback, or even group discussion.

### **Courseware**

Any type of instructional or educational course delivered via a software program or over the Internet.

### **Delivery**

Any method of transferring content to learners, including instructor-led training, Web-based training, CD-ROM, books etc.

### **Discussion Forums**

Where you can leave and expect to see responses to messages you have left on a topic of common interest.

### **Distance Education**

Educational situation in which the instructor and students are separated by time, location, or both.

### **DSL (digital subscriber line)**

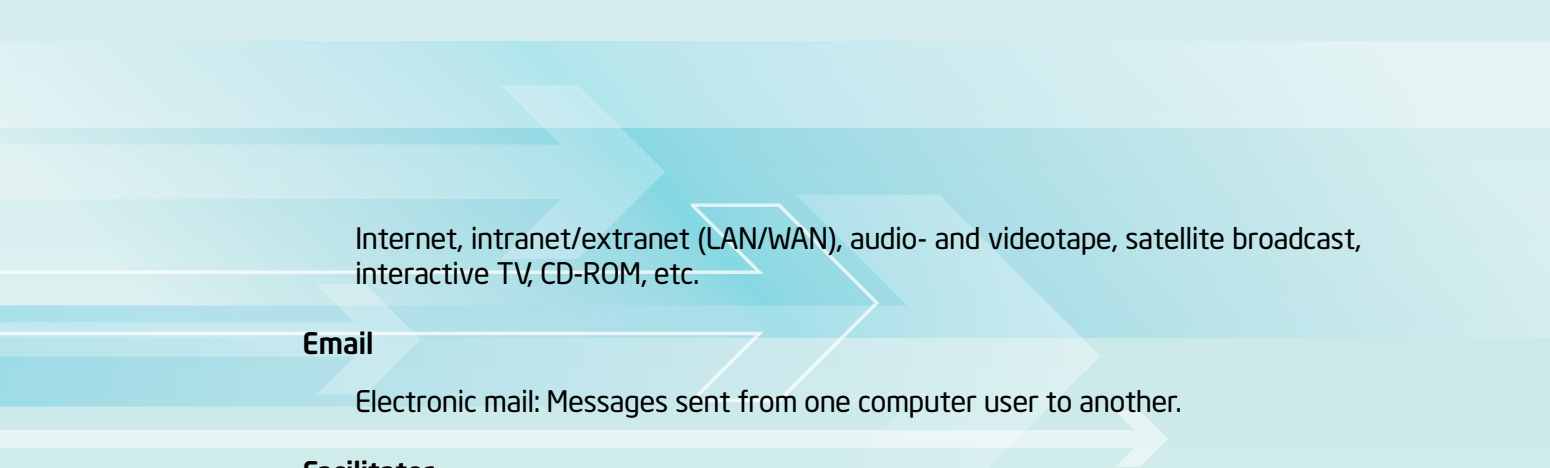
A broadband Internet access method that sends data over standard phone lines at speeds up to 7 Mbps. DSL is available to subscribers who live within a certain distance of the necessary router.

### **DVD (digital versatile disk)**

Optical disks that are the same size as CDs but are double-sided and have larger storage capacities.

### **e-Learning**

E-Learning (electronic learning): Term covering a wide set of applications and processes, such as web-based learning, computer-based learning, virtual classrooms, and digital collaboration. It includes the delivery of content via the



Internet, intranet/extranet (LAN/WAN), audio- and videotape, satellite broadcast, interactive TV, CD-ROM, etc.

### **Email**

Electronic mail: Messages sent from one computer user to another.

### **Facilitator**

The online course instructor who aids learning in the online, student-centred environment.

### **FAQ (frequently asked questions)**

An informational list, in question and answer format, of common inquiries from users about a topic or application and standard responses. FAQs appear on websites and discussion boards and within desktop applications.

### **File Server**

A computer on a network with the primary task of storing files that can be shared by network users.

### **Firewall**

A technology that gives users access to the Internet while retaining internal network security.

### **FTP (file transfer protocol)**

A protocol that enables a user to move files from a distant computer to a local computer using a network like the Internet.

### **Home page**

A document that has an address (URL) on the World Wide Web, is maintained by a person or an organization, and contains pointers to other pieces of information.

### **Host**

A computer connected to a network. It stores and manage another company's technology and/or content on its own servers.

### **HTML (Hypertext Markup Language)**

The programming language used to create documents for display on the World Wide Web.

### **HTTP (Hypertext Transfer Protocol)**

The set of rules and standards that govern how information is transmitted on the World Wide Web.

### **Instructional Designer**

An individual who applies a systematic methodology based on instructional theory to create content for learning.

### **Interactive multimedia**

Allows for two-way interaction or exchange of information.

### **Internet**

An international network first used to connect education and research networks, begun by the US government. The Internet now provides communication and application services to an international base of businesses, consumers, educational institutions, governments, and research organizations.

### **Intranet**

A LAN or WAN that's owned by a company and is only accessible to people working internally. It is protected from outside intrusion by a combination of firewalls and other security measures.

### **LAN (local area network)**

A group of personal computers and/or other devices, such as printers or servers, that are located in a relatively limited area, such as an office, and can communicate and share information with each other.

### **Link**

The result of HTML markup signifying to a browser that data within a document will automatically connect with either nested data or an outside source. Used in the design of hypertext.

### **Multimedia**

Encompasses interactive text, images, sound, and colour. Multimedia can be anything from a simple PowerPoint slide show to a complex interactive simulation.

### **Network**

Two or more computers that are connected so users can share files and devices (for example, printers, servers, and storage devices).

### **Newsgroup**

An online discussion hosted on the Usenet network. Sometimes also called a forum.

### **Online**

The state in which a computer is connected to another computer or server via a network. A computer communicating with another computer.

### **Online learning**

Learning delivered by web-based or Internet-based technologies.

### **Plug-in**

An accessory program that adds capabilities to the main program. Used on webpages to display multimedia content.

### **Portal**

A website that acts as a doorway to the Internet or a portion of the Internet, targeted towards one particular subject.

### **Real-time communication**

Communication in which information is received at (or nearly at) the instant it's sent. Real-time communication is a characteristic of synchronous learning.

### **Rich content**

High quality course or web page material, often presented using advanced or sophisticated design techniques employed to enrich the learning experience.

### **Self-paced learning**

An offering in which the learner determines the pace and timing of content delivery.

### **Server**

A computer with a special service function on a network, generally to receive and connect incoming information traffic.

### **Simulations**

Highly interactive applications that allow the learner to model or role-play in a scenario. Simulations enable the learner to practice skills or behaviour in a risk-free environment.

### **Software**

A set of instructions that tell a computer what to do; a program.

### **Teleconferencing**

Two-way electronic communication between two or more groups in separate locations via audio, video, and/or computer systems.

### **URL (uniform resource locator)**

The address of a page on the World Wide Web.



**User interface**

The components of a computer system that the operator uses to interact with the computer: the screen display, keyboard, mouse, touch controls, etc.

**Video Conferencing**

Using video and audio signals to link participants at different and remote locations.

**Virtual classroom**

The online learning space where students and instructors interact.

**Virtual community**

A meeting place on the Internet for people who share common interests and needs. Online communities can be open to all or be by membership only and may or may not be moderated.

**WBT (web-based training)**

Delivery of educational content via a web browser over the public Internet, a private intranet, or an extranet.

**Web page**

A document on the World Wide Web that's viewed with a browser such as Internet Explorer or Netscape Navigator.

**Web site**

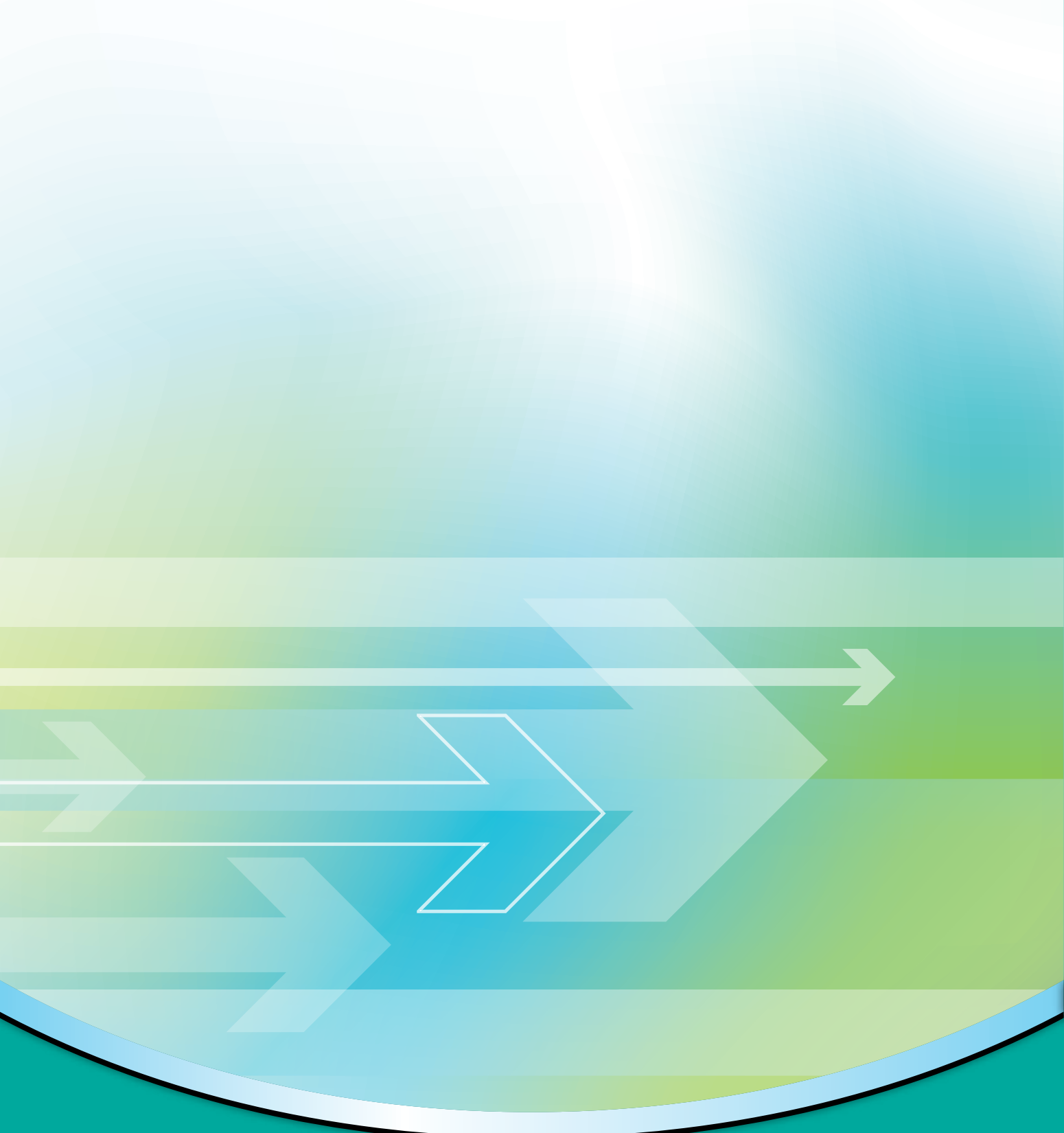
A set of files stored on the World Wide Web and viewed with a browser such as Internet Explorer or Firefox.

**WWW (World Wide Web)**

A graphical hypertext-based Internet tool that provides access to webpages created by individuals, businesses, and other organizations.







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