

Abstract

This paper illustrates the education methods at a part time University. The activities at the University of Technology Zurich, Switzerland consist of the following parts: Graduate studies in engineering branches, Master studies and applied research and development.

Moodle has been implemented as an open source learning management system (LMS) at the University of Technology Zurich . It has proven to be very stable, secure, and reliable. Moodle is based on PHP and MySQL so that it can be easily installed on a standard web server. Early implementation at the university was WebCT for many years. We illustrate a comparison between Moodle and WebCT after introducing the moodle basics.

Key Words: Part Time Education; Graduate Studies; Master Studies.

UNIVERSITY OF TECHNOLOGY ZURICH

The University of Technology includes the following branches:

- ! Mechanical Engineering
- ! Architecture
- ! Civil Engineering
- ! Electrical Engineering
- ! Informatics (Computer Sciences)

MAIN POINTS

The training objective is a general course of studies based on a theoretical and applicable knowledge and to achieve this purpose mathematics and natural sciences are primarily gone through as a basic training during the first year of study. The main training objective of the second year concentrates on preparing the students for their specialized study of two years in the rudiments of the technical subjects including informatics and also in economic subjects.

ACADEMIC STAFF

As a rule, the specialist teachers lecturing at our institute have a degree and are employed full-time by firms in industry, commerce or research. This fact enables them to teach in a manner, which is largely based on professional and practical experience aside from the theoretical knowledge, which they convey to the students. The professional experience facilitates a constant flow of technology as evident in the practical dissertations dealing with subjects and projects from industry and commerce, which are of topical interest.

EDUCATIONAL METHOD

By basing themselves on the technical and scientific data available, the students proceed in their studies step by step. Cases in point and seminars provide plenty of material for practical discussions. Encouraging the students to work, act and learn independently is likely to help them in their career. Working and studying as a team, is the prime concern. In most subjects teamwork is therefore part of our educational method.

GRADUATE COURSES, EXECUTIVE MASTER AND SEMINARS

As a means of further education, we are offering you at present the following graduate courses

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accompanying your professional activity:

- ! Economics engineer
- ! Informatics
- ! Logistics / process management
- ! Innovations
- ! Information Technology and Reliability
- ! Intellectual Property

Every year we offer in addition around 50 graduate courses and seminars in cooperation with the universities Rapperswil, Waedenswil and Winterthur under the heading:

- ! Technique of working / management
- ! Specialized technical knowledge
- ! Informatics

APPLIED RESEARCH AND DEVELOPMENT (AR&D)

One of our deputy rectors is heading various research teams and groups actively and successfully engaged in aR&D-projects. They are participating in these projects in every special branch of our institute particularly also with the assistance of students in advanced semesters. The results of these jobs are published in several individual publications and also in an annual statement. The project leader of the aR&D teams of our institute works closely together with various universities for applied sciences as well as research centers and associations in Switzerland and abroad.

The field of study engineering of our university is a services enterprise and accepts direct orders dealing with applied research and development as well as advisory service and projects. Experienced experts from all our special fields of study are glad to assist our customers in a competent manner.

MAIN RESEARCH AREAS

Electromagnetic Phenomena

- Consulting
- EMC-Projects
- Prototyping
- Standards
- EMC-Education
- EMC-Measurement

Digital signal Processing (DSP)

- Consulting
- (Industrial) Projects
- Education

INTRODUCTION INTO MOODLE

Moodle (**M**odular **O**bject-**O**riented **D**ynamic **L**earning **E**nvironment) is a course management system (CMS) to help educators create online learning communities. It is Open Source Software Package and can be downloaded from www.moodle.org

Moodle has a large and diverse user community with over 130 000 registered users, speaking over 75 languages in over 160 countries. There are a long list of developers who contribute towards the development of Moodle.

At many universities the open source learning management system (LMS) Moodle has been

implemented. It has proven to be very stable, secure, and reliable.

The system is based on PHP and MySQL so that it can be easily installed on a standard web server. The response of this activity within the University of Education is, rather than to radically change the way of training teachers, to find ways in which the adoption of Moodle in specific instances can improve upon the good practice that currently exists. Moodle offers a wide range of features, some of which will be attractive to some members of staff and students in some situations. In the near future it is likely that there will be a university requirement to have every module represented, in some way, on Moodle.

The ability to use Moodle and to support a module require academic staff to be given creation rights. The procedure for that is:

- ! Member of staff recognizes need and contacts the University Moodle Leader.
- ! University Moodle Leader arranges for the members of staff to enroll on the short course.
- ! On completion of the course, creation rights will be given and the member of staff meets the University Moodle Leader for tutorial on creating Moodle modules.
- ! The member of staff creates modules. The University Moodle Leader reviews these modules and gives start.

Installation of Moodle

The requirements for the installation are: Web server software (Apache), PHP scripting language and MySQL as a working database server. The necessary software packages can be downloaded from <http://moodle.org/download/>

And after unpacking the archive a directory called “moodle” containing a number of files and folders is created.

Moodle for Teachers

The teachers create online courses with Moodle. The University Moodle Leader as site administrator has set up Moodle and given new, blank course to start with. The teacher has logged in to system using teacher account. The teacher clicks on “Settings ...” under the “administration” on the course home page and chooses the “course format”. In the following a weekly format is illustrated:

Within the weekly format, each box covers exactly one week.

Web pages, audio files, video files, word documents, or flash animations can be added to the course. They can be uploaded and stored on the server. All file operations such as move, rename, edit or delete are possible.

Building a course involves adding course activity modules to the main page in the order that the students will be using them. Some of these activities are: Assignment (where the tasks are set), Choice (ask question and specify a choice of response), Forum (for discussions), Resource (content of course), Quiz (for tests), and survey (predefined survey instruments).

Moodle for Students

MyMoodle page will open for students using username and password (see Fig. 2). The course name can be opened using click under MyCourses.

The course content area resides in the center of the course main page. It is in this area that the teacher will place the material which makes up the online elements of the course. The course homepage may vary in appearance depending on how teacher has designed the course.

Moodle offers three course formats: Topics, Weekly and Social format. Topics format is identified

by numbers. Weekly format is identified by numbers and from/to dates.

For the first two types of topic above, it is possible to focus on one topic only and to access the other topics by selecting from a drop down list. This can make navigation more convenient where there are many topics in a course. To achieve this click on the squares at the right edge of the topic area you want to display.

This will “collapse” the topics leaving just one in view. The process can be reversed by clicking one of the two squares now displayed at the right of the topic area. When clicked, the “Jump to ...” menu allows you select other topics to view.

Blocks (see Fig. 3)

Blocks are on screen areas which are placed at the side of the main course page. They fulfill a range of functions as described below.

People block

The People block provides links to a list of all participants in the course by clicking “Participants” and your own user profile by clicking “Edit profile”.

Activities block (see Fig. 4)

This block displays all of the available activity types in the course.

Administration block

This block contains a link to the Grade book where you can monitor your achievement against each graded activity.

Search block

This block can be used to search for text among the forum entries in the course. To search simply enter the text sought in the field and click the “Search forums” button.

My courses block

This block displays the courses in which you are enrolled and provides a link to a list of all courses on the site.

Calendar block

As the name suggests this block provides a calendar function for the course.

Upcoming events block

This block displays upcoming events together with links to view the calendar and to create a new event in the calendar. The number of upcoming events and the period covered is set by the teacher and may vary between courses.

Other Features

Moodle has a large variety of tools:

Content of the “Moodle Features” is:

Topic 1: General features

Topic 2: Assignments

Assignments allow students to submit online assignments. Instructors can grade electronically submitted material or 'offline' submissions such as paper-based assignments or class presentations.

Topic 3: Chats

The Chat module allows participants to have a real-time synchronous discussion via the web. This is a useful way to get a different understanding of each other and the topic being discussed.

Topic 4: Choices

Here a teacher asks a question and specifies a choice of multiple responses. This can be useful as a quick poll to stimulate thinking about a topic; to allow the class to vote on a direction for the course; or to gather research consent.

Topic 5: Forums

It is in forums that most discussion takes place. Forums can be structured in different ways, and can include peer rating of each posting. The postings can be viewed in a variety of formats, and can include attachments

Topic 6: Lessons

A lesson delivers content in an interesting and flexible way. It consists of a number of pages. Each page normally ends with a multiple choice question. Navigation through the lesson can be straight forward or complex.

Topic 7: Resources

Resources include: files uploaded to the course server; pages edited directly in Moodle; or external web pages made to appear part of this course.



Fig. 1 Weekly format



Fig. 2 Login Page

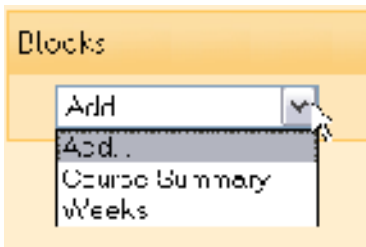


Fig. 3 Blocks



Fig. 4 Recent Activity

Comparison between Moodle and WebCT

Moodle and WebCT are two Learning Management Systems with lots in common, but there are some key differences which make each one special in its own way. In the following table, some of these differences are listed.

	<i>Subject</i>	<i>Moodle</i>	<i>WebCT</i>
1	<i>Course Format</i>	Three different formats: Topics, Weekly, Social	Single format
2	<i>Email</i>	All user	Only students
3	<i>Chat</i>	All user	Use in online
4	<i>Forum</i>	Three types: No discussions, but replies are allowed; Discussions and replies are allowed; No discussions, no replies	One type of discussion forums

5	Whiteboard	No	Use in real time drawings and images
6	Adding Students to Course	Automatically added	Student list must be uploaded
7	Scales	To create own scale(Poor, Fair, Good, Excellent....)	no
8	Adding Grade to a not graded tool	Use Offline activity	Use Offline activity
9	Announcements and Recent Activities	Automatically added to the course calendar	Not automatically
10	Assignments	Three types: Offline Activity; Online Text; Upload a single File	One type
11	Wiki	No	There exists: Participants can work together.
12	Tracking students	Exists	Exists
13	Hide/Reveal	It is possible to hide/reveal a specific and single file (Lecture or PowerPoint.....)	Hide/reveal only like content module, and not a specific file or lecture inside a tool

References

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