Planning the implementation of Moodle eLearning system in some African instituitions

Thesis

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Dedication

This project is dedicated to my mum, Salomey Appiah and my siblings Alex Kesse, Micheal Kesse, Emmanuel Kesse and Daniel Kesse. Without their support this would not have been possible. This is also dedicated to the memory of my father, Daniel Kesse who passed on a love of reading and respect for education. This project is also dedicated to Zita Dogbe for her support and prayers during this project.

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Abstract

This thesis deals with creating a Moodle server for African higher institutions with the goal of strengthening the African continental cooperation for more international view in their eLearning studies.

The main objective of this partnership is to widen the cooperation of Savonia UAS with new African partners through the application of Moodle. This action increases their competitiveness and improves their position in the international educational market thereby enticing a higher caliber of students and increasing the number of student intake.

The result of this project was achieved by getting in contact with three institutions in Ghana with which bilateral cooperation is still ongoing.

A students' and teachers' manual was created after the installation of Moodle to serve as a training guide for both teachers and students to help them get acquainted with the use of Moodle when the needed resources are mobilized to start the project.

A qualitative research approach was used to gather information for the project. This included consultation with Heads of Departments of the selected African schools, discussions with Moodle users on Moodle website forum, review of related literature and Internet.

The implementation of this project has the potential of creating job for other African students in Savonia University of Applied Sciences after graduating in their various former institutions. Even though this project has not yet being implemented, it is believed based on the talks already started among participating schools that the project could be started in the near future.

Keywords

Moodle, eLearning, institutional cooperation

Confidentiality

Public

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1 Introduction

Students are required to embrace themselves with what is referred to as the Information Age, as the level of ICT increases in the developing countries there is the need for institutional cooperation among the third world countries and the developing world to increase their competiveness and improve their position in the international level.

However, since the use ICT in learning has a positive influence in promoting learner motivation and engagement by allowing students to learn at their own pace and share information. Teachers also benefit by reducing the amount of time needed to spend on administration and preparation, the ability to use it tools effectively and efficiently is thus seen as representing a competitive edge in an increasingly globalized job market. Therefore this thesis looks at the development of Moodle eLearning network for Ghanaian Polytechnics to develop teacher and students exchange with Savonia University of Applied Sciences, Finland, also to promote Research and Development through eLearning by the use of Moodle. This will help address the Government of Ghana's key strategy of revamping the educational system in Ghana to meet current technological trend.

On the other hand, this development cooperation will improve the position of Savonia UAS in the international education market and entice higher caliber of students to the university. The research does not only look at the benefit of Moodle but also look at the installation itself and how to create one for these Polytechnic to enhance distance learning.

Hence main objective of this project is to develop Moodle eLearning environment for Ghanaian polytechnics, develop cooperation network of the polytechnic, and develop teacher and student exchange between these polytechnics and Savonia University and to promote research and development through eLearning.

1.1Project

The main goal of this project was to promote higher education development and co-operation between some Ghanaian schools. This was to be achieved through eLearning system by installating a Moodle server unit .The project also aimed at creating exchange programs for the participating institutes as well as the teachers. It also aimed at promoting eLearning education system firstly in those participating institutes and also in the whole country in the near future.

1.2Objectives

The main objectives of the project are:

Is to Create Partnership between Finnish and Ghanaian schools, for effective education and improvement of higher education.

Expand the cooperation in the near future to some other African countries by exploring of eLearning through the application of Moodle.

Also students' manual and teachers manual will be created to serve as a training guide for both teachers and students to enable them easily adjust to the use of Moodle. Also to create an eLearning training system, where both teachers and students can get more insight into eLearning.

One major objective was also to create job for other African students in Savonia University of Applied Sciences after graduating through this project. Strengthen the African continental cooperation for more international view in their eLearning studies and widen the cooperation of Savonia to new African partners.

1.3 Participating institutions

The project started with three main institutions in Ghana namely Kumasi Polytechnic, Accra Polytechnic and Cape Coast Polytechnic. Savonia University of Applied Sciences will serve as the mother school. These three schools are all tertiary level institutions which have being accredited by the Ghana accreditation board. Also these schools have courses relating to Savonia University of Applied Sciences which is one of the main reasons why the establishment of this project. The project intends to help develop higher education in Ghana and other African countries in the near future.

Savonia University of Applied Sciences

Savonia University of Applied Sciences is one of the biggest institutions in Eastern Finland with approximately 5000 students. Savonia is a multidisciplinary Institution of higher education, which offers approximately 30 Bachelor level degree programmes in seven different study fields. The other forms of operation include adult education, service activities and research and development activities. Savonia University of Applied Sciences is an active innovator at the area of Pohjois-Savo. The central values of the operation are expertise, customer orientation and communality. A multidisciplinary Savonia can meet the challenges of a rapidly changing information society. Savonia University of Applied Sciences is also an international institution of higher education the international activities include student and teacher exchanges, common development projects, language and cross-cultural communication courses and international degree programmes. Savonia has partner institutions in approximately 30 countries all over the world. [5]

Location

Savonia University of Applied Sciences runs in three major areas in Pohjois-Savo towns: Iisalmi, Kuopio and Varkaus.

Kumasi Polytechnic

It was first established as Kumasi Technical Institute in 1954. The programmes of study at that time were craft courses. In October, 1963, the institution was turned into a Polytechnic under the control of the Ghana Education Service. The main programmes which were taught from that time included technician courses in Engineering, Catering, Fashion Design, Royal Society of Arts (R.S.A.) and Diploma in Business Studies (D. B. S.)

In the wake of the educational reforms in the early 1990`s the Polytechnic Law 1992 (P. N. D.C. Law 321) was passed to raise Kumasi Polytechnic, among others to a tertiary institution with a mission to:

(a) Provide tertiary education through full time courses in the field of manufacturing, commerce, science, technology, applied social science, applied arts and such other areas as may be determined by the authority for the time being responsible for higher education;

(b) Encourage study in technical subjects at tertiary level; and

(c) Provide opportunity for development, research and publication of research findings.

Kumasi Polytechnic currently runs eighteen (18) full-time Higher National Diploma programmes and twenty-four (24) part-time programmes, with a student population of about eight thousand (8000). [6]

Cape Coast Polytechnic

Cape Coast Polytechnic was established in 1984 as a second cycle institution. In 1986, it operated under the administration of Ghana Education Service to offer intermediate courses leading to the award of non-tertiary certificates.

In 1992, the Polytechnic was upgraded to tertiary level by PNDCL 321 to run programmes for the award of the Higher National Diplomas. The new Polytechnic Act of 2007, Act 745 has given the Polytechnic the mandate to run degree programmes.

Accra Polytechnic

Accra Polytechnic is Ghana's premier polytechnic. Situated in the heart of Accra, it is an ideal central location for higher educational pursuits.

It is a tertiary institution that is driven by excellence and the desire to achieve. The professionalism and diversity with which we run our educational programmes produces all-rounded, innovative, and disciplined graduates who continually, day after day, contribute immensely to the Ghanaian industry.

The goal of the Polytechnic system of which Accra Polytechnic forms a part, is to create high quality and diverse middle level management personnel who easily slide into the Ghanaian industrial environment and form the backbone for Ghana's development. [7]

1.4 Comparison of Programmes

Savonia UAS studies: The structure of studies is divided into basic studies, specialized studies, elective studies, work placement and final project. The fields of study are social sciences, business and administration, culture, natural resources and environment, tourism and catering, social services, health and sports, technology, communication and transport (Engineering) the major studies is industrial management.

Kumasi Polytechnic: The structure of studies usually is divided into major and minor studies. The fields of study are production, plant, metallurgy and foundry, automotive, chemical, electrical/electronics (engineering). The engineering sector is divided into chemical, electrical and mechanical. The Applied science department runs programmes which consist of math and science, dispensing technology. The school of business runs the following programmes: accounting, secretary ship and marketing. It also has the entrepreneurial and finance department. Kumasi polytechnic has created a computerized accounting center which has been accredited training center by SAGE Pastel to train users in pastel partner, Sage line 50 and other SAGE accounting software. The department has

also being authorized by institutions in UK to provide Training in QuickBooks Accounting Software.

Accra Polytechnic: The structure of studies usually is divided into major and minor studies. The fields of study for engineering are mechanical, building and civil engineering, electrical/electronic and furniture design. The school of management runs the following programmes: purchasing and supply, accountancy, secretary ship, marketing and liberal studies, and languages. Also at the school of applied sciences, the programmes include mathematics and statistics, science and laboratory technology, fashion and design, hotel, catering and institutional management.

Cape Coast polytechnic: The structure of studies is usually divided into major and minor studies. The fields of study for engineering are mechanical, building and civil engineering and electrical/electronic. The school of Business management runs the following programmes accountancy, secretary ship and management studies and marketing. Also at the school of applied sciences the programmes include mathematics/computer studies and statistics, fashion and design, hotel and catering and tourism.

These institutions are considering running Degree programmes in the near future which seek to bring the co-operation among them.

These three institutions are all running tertiary based programmes with high standard studies. Comparing the courses run by all these schools the interest of this co-operation will be on the engineering, tourism, applied sciences and business programmes. The cooperation will be based on these programmes by the application of Moodle and creating courses which are common to all these institutions. During the use of Moodle, various courses will be created which can be accessed by all these schools. Those courses will make it much easy for exchange programmes since the courses are going to be common for these schools. In so doing some of the students will have the opportunity to have degree programmes in Savonia University of Applied Sciences. Savonia University could also take advantage of the idea that some of these schools want to run degree in computerized accounting by creating this programme in the Moodle.

2 Need for co-operation

Savonia UAS has received yearly many students from Ghana, Nigeria, Kenya and Tanzania, studying in Varkaus in degree programs of Industrial Management and International Business Management. This has raised a need for closer cooperation of Savonia and the African institutes through eLearning.

In the mentioned African countries the utilization of eLearning methods and tools is minimal. The participating African HEI's[1] have expressed their interest in cooperation in order to launch open source based Moodle eLearning environment for their needs. Savonia UAS has knowhow in running Moodle based eLearning courses as well as installing servers needed. Therefore the main need for co-operation is help breach the gap of minimal utilization of eLearning.

The co-operation also seeks is to bring bilateral cooperation with Savonia and the African institutes, including teacher and student exchange and arrangement of Finnish UAS entrance exams in African countries.

The co-operation will start three Ghanaian polytechnics, selected on the basis that the most talented and eLearning devoted African students in Savonia come from these institutes. During the planning phase, the idea is to find suitable and interested institutes also from Kenya and Tanzania.

2.1 Methods

The various methods used to gather information included; Consultation with lecturers, review note on Moodle and discussion with Moodle users in Moodle site. The internet also served as a means of research and school library. The consultation aspect was not limited to one school all the various institutional heads where consulted to know their thoughts on this project as well as the importance to their institute. Also on the importance of Moodle, various questions was posted to Moodle users through the Moodle site and also by making use of various Moodle books in the library.

[1] HEI= Higher Education Institute

Also training guides were created which was used by some students to know how well it helped to enhance their skills in Moodle.

3 eLearning in general

eLearning can be defined as the use of technology to support learning; this means that even though the learning can be done face to face eLearning helps to enhance the activity. The European eLearning action plan also defines eLearning ‘the use of new multimedia technologies and internet to improve the quality of learning by facilitating access to resources as well as remote exchanges and collaboration. [1]

It must also be noted that eLearning thus not apply for only students but also various institutions as well. eLearning has come to enrich studies and also optimize teaching as well as learning for academic researchers, trainers and educators. At its best eLearning offers new opportunities for both the educator and the learner to enrich their teaching and learning experience through virtual environments that support not just delivery, but exploration and application of information. Usually the debate about eLearning is about the lack of face to face contact. There has also being mix of eLearning and more conventional learning - a process entitled blended learning. [1]

3.1 History of eLearning

eLearning is believed to be initiated at just about the time the first computer was developed. eLearning and distance learning are not quite the same, the difference is that distance education is a physical separation of the student from the teacher and the classroom. The early use of computer was to help the classroom teacher. As more and more computers became available with the time the idea of online learning then came into mind. Some people where against the idea of eLearning since they believed the philosophy of education was to demonstrate that the teacher was essential to the educational process. These resistances made people had in mind earlier that online degrees were inferior to traditional degree. In this era of technology this idea has changed drastically, with the improvements of eLearning technology and the ability to create virtual classroom and virtual learning environment (VLE) this has gradually broken down the resistance. It will not be a surprise

that in the future with the continuous improvement of eLearning online degree could be recognized has the best. [1]

3.2 Framework of eLearning Practice

eLearning framework follows no hierarchy since all the various components that come together to make up eLearning are all of equal importance. Traditionally books are not adequate channel for dealing with eLearning since it goes beyond that. eLearning requires different types of engagement, categorized in the framework of key practices as illustrated in the chart below:

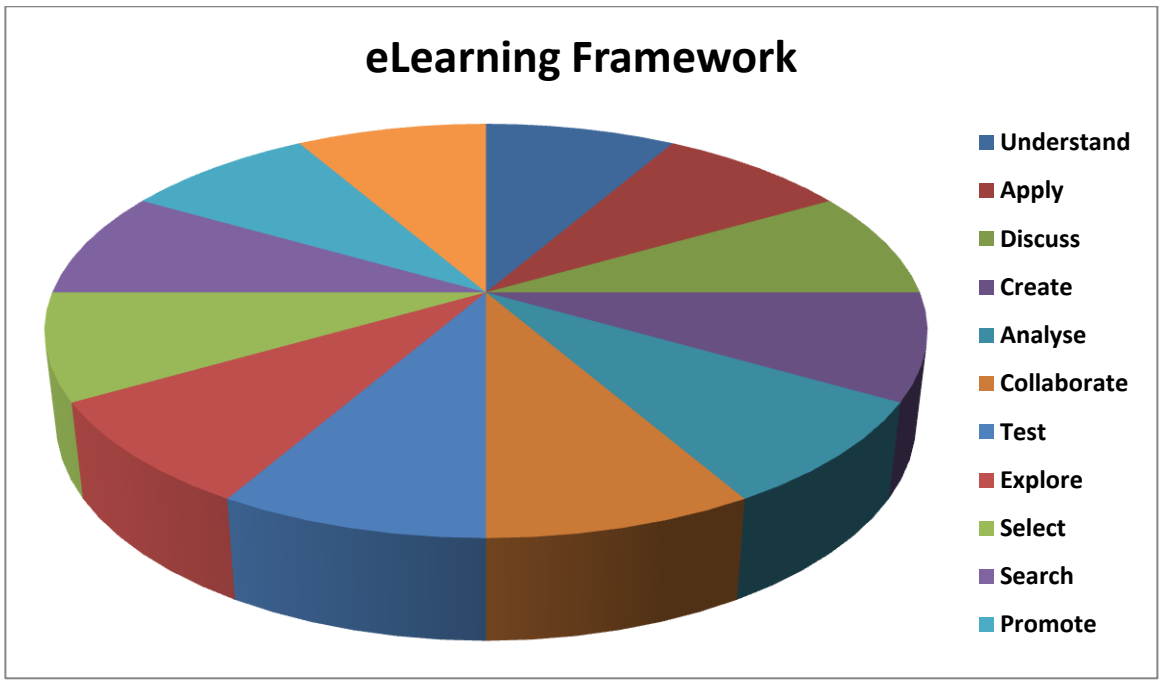


Chart 1. eLearning Framework

The chart shows the framework of eLearning.

3.2.1 Searching and selecting

Searching and selecting normally goes hand in hand as the saying says they are like ‘bread and butter’ of learners. Usually learners collect information, identifying where the information might be (searching) and choosing the most relevant sources mostly according to the criteria established by their learning needs (selection). [1]

With the use of modern technology information can be searched and selected via the use so many functions on the computer such as bookmark, favorites. [1]

3.2.2 Exploring

Exploring is similar to searching. However exploring implies to a more relaxed browsing, looking for information that usually matches our interest or meets our needs. Exploring is almost an everyday activity and can also be describe has enquiring more detailed into an activity. It can be realize that this is one important tool in eLearning.

3.2.3 Testing

After exploring information it is always good to test it. Exploring is always the discovery mode of eLearning; mostly learners try out ideas and test hypotheses. Normally web based information comes in many forms and simulations. Students of social science may model voting patterns or factors affecting levels of poverty in specific regions. All such work proceeds in an eLearning context without burdens of expensive resources, real time practicalities and even dangers that real conditions might impose. [1]

3.2.4 Analyze and synthesize

Analyzing and synthesizing aspect of eLearning deals with the deconstruction of complexity of the set of information. Deconstruction is called analyze and rebuilding it in their own knowledge is called synthesize. In analyzing and synthesizing helps to distinguished the importance attached to information. After all the information needed as being gathered, the one that fits our needs is then chosen. This idea is same for learning. [1]

3.2.5 Collaborating and discussing

After getting the necessary information needed, it is always good to share the information and new knowledge with others. By doing so it helps the individual to have more understanding on the information gathered since through explanation it helps the learner to know more. By hearing from others and articulating their ideas it helps in formulating and consolidating new knowledge. [1]

3.2.6 Understand and apply

After collaboration and discussions it is always good that each person really understand the whole information, but usually this is really one of the most difficult part and very challenging for learners to understand this knowledge and apply them. eLearning will in this way help improve the understanding on information gathered as well as to when to apply that knowledge rightly and not blindly.[1]

3.2.7 Creating and promoting

After a learner has had a grasp of learning context it is always their idea to transfer their knowledge in many ways. Sometimes some create learning objects to make it available to other learners in communal learning resource space in this way they promote the learning objects they have created. [1]

eLearning therefore offers unique opportunities to create new knowledge and to promote its use by others through the ease of communication and dissemination. eLearning has made learning more possible with new technologies than the older modes. Technical advances are making authoring and publishing tools easy to use and also enabling learners engage in complex communication and interaction between themselves as well as their audience. As new ways of looking at the knowledge gain the ease and freedom of publishing on the internet has resulted in excellent environment for teachers to guide students in creating their own online classes for other learners.

3.3 Need for eLearning

In this modern world with different kinds of technologies, most of our day to day activities are now technology based, for example electronic access to money or shopping. Information searching and electronic purchasing is something that is all around us now and is becoming more common to all. ‘Google’ for example is one of the major searching tools that is used by most people in searching for information. As demanded most educational policies have information technology related learning programmes as part of their curriculum. Whether it is learning in schools, universities or workplace eLearning can provide significant opportunities for learners to create and acquire knowledge for themselves.

3.4 Learning management system

Learning management is also called online, internet based learning management systems (LMS) this is mostly designed to be used as means of delivering teaching programmes. This also provides means for student to use as means of resource materials, interact with the lecturer and collaborate with peers. This learning management system serves as the epitome of what eLearning is about in today. There are many types of learning management system even though some of them are so complicated such as Blackboard and WebCT. These systems are however the market leaders in university online course delivery. Others, such as Moodle, offer eLearning environment for educational and training institutions, which can be easily downloaded and customized. [1]

3.5.1 Benefits of eLearning

eLearning has a lot of benefits for the entire education and these benefits can be realized after going through the following subjects areas:

- Subject areas of eLearning
- How learners can engage with eLearning process
- Getting use to eLearning
- Opportunity for all

In the next chapters these benefits are discussed in more detail.

3.5.1 Subjects areas of eLearning

The subject area of eLearning is a question that usually cannot have a specific answer. Usually any learning needs can be accommodated through eLearning but this normally depends on the individual learner needs. Acquiring knowledge is one thing that every individual needs to flourish as well as economies to expand. Normally is difficult to define

the subject areas of eLearning. As thinking of people in the society changes its flexible, thinkers can analyze and create more information needed. So it can be said that information which is needed in any form can be searched on the internet and therefore all information can be eLearned. [1]

3.5.2 How learners can engage in eLearning

eLearning can actually take place everywhere. This is because the main idea of eLearning was to make it more accessible for everyone everywhere through the application of technology. eLearning makes it possible to for everyone to select location needed for studies and the time that suits his/her need.

Through eLearning there will be improvement in the quality of education through: Opening out learning to student who might be restricted in some way, and providing good measures for learners to exploit the World Web. Also enriching and enhancing learning experience of students. Lastly contributing to evolution of theories of learning.

3.5.3 How to get use to eLearning

eLearning is actually a medium where learners can find information, evaluate and share these information. It also helps transform the information gathered into their knowledge. One of the major challenges of eLearning is to ensure that learners can access flexible method which will be much more informative than the tradition method of learning. It also focuses on how student can find opportunities.

3.5.4 Opportunity for all

eLearning actually did not come for specific people. The main idea is to ensure all are able to access information no matter where they are. At the moment the following categories of people are making use of eLearning students (learners), trainees, workers etc. eLearning seeks to ensure that no one is excluded from education no matter your location, physical or social circumstances.

4 Moodle eLearning environment

Moodle is a free, open source learning management system that enables you to create powerful, flexible and engaging online experiences. The online experiences make it wider than to say online courses since Moodle eLearning platform goes beyond that. It can also be said that Moodle is a course management system since it can be used to manage different courses. Moodle system creates the platform for a good teacher and student relationship. Moodle can be downloaded freely from the www.moodle.org [2].

4.1 History

Moodle was originally an acronym for **Modular object –oriented Dynamic Learning Environment,** which helps education theorists and programmers. It has also been described as a process of lazily meandering through something. As such this applies to the way the teacher or student approaches studying or teaching online. Anyone who uses Moodle is a **Moodler**. [2]

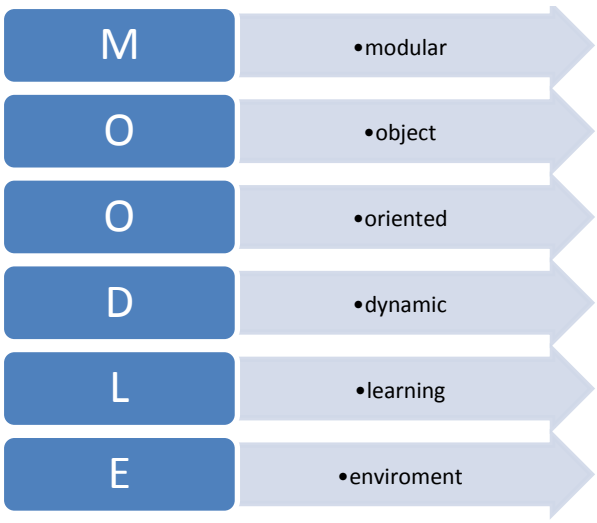


Chart 2.Moodle

The chart tells the meaning of the agronomy Moodle.

4.2 Moodle philosophy

Moodle main philosophy is to support a style of learning called *Social Constructionist Pedagogy*. This style is what is also called interactive. This is because this philosophy believes that people learn best when they interact with learning material, construct new material for others and interact with other students about material. The main difference between this constructionist philosophy and the traditional class can be compared to lecture and discussion. [2]

Moodle enables ones to add five kinds of static course material that is the kind of material a student reads but does not interact with:

- a text page
- a web page
- a link to anything on the web
- a label that displays any text or image
- a view of one course's directories

Moodle also enables addition of six types of course material which allows student to interact with:

- assignment (everyone can uploading files to be reviewed by teacher or student)
- choice
- journal
- lesson
- quiz (online)
- survey

Moodle also creates the platform for students to interact through:

- chat
- forum
- wiki
- workshop
- glossary

4.3 Moodle experience

The term Moodle experience actually describes the activities Moodle allows. Because Moodle encourages interaction and exploration, student learning is nonlinear. Moodle has few features for enforcing specific order upon the courses. For example, there is no feature in Moodle that will require a student to complete say course (A) before enrolling on course (B). Instead you will need to manually enroll in each student in each course. Also there is no feature in Moodle that requires a student to complete Topic 1 in a course before allowing the student to see Topic 2. Moodle has a linear flow where you would need to manually place students in a group that is authorized to view Topic 1, and the upon completion, place student into a group that is authorized to view Topic 1 and Topic 2.[2]

4.4 System Requirement

Moodle is primarily developed in Linux operating system using apache web server, MySQL database and PHP coding of web pages. This is also known as LAMP platform. It can also be tested with windows XP/2000/2003 which is called WAMP platform. [9]

4.4.1 Hardware

This requirement normally deals with the computer hardware that is the RAM and Hard Disk space. The Disk space of 160MB should be the minimum memory. A computer of memory of 256MB and1GB RAM is usually recommended. The general rule is that Moodle can support 50 users for every 1GB RAM. Normally the capacity can limit the number of users a Moodle server can handle. [9]

4.4.2 Software

Normally the web server comes under the software. Most web servers uses Apache as the software. Moodle should work well under any web server that supports PHP, such as an IIS on much platform. There are currently different version of PHP namely PHP4 and PHP5.[9]

5 Operating system

Moodle has got many operating systems but the emphasis will be on Windows operating system and the Linux operating system. These two are the most commonly used and most effective as well. In this project Linux operating system will be used not because of any added advantage but because Linux operating system is free and Moodle is also free. This will be more beneficial and meeting up to the goals of this project.

5.1 Windows Operating System

Windows operating normally has the internet information system (IIS) as the web server and MySQL as the database server. After installation IIS on the computer, Moodle can then be installed successfully. Installing Moodle on Windows server 2003 with IIS[2] and MSSQL 2005 is a 10 step process. They are the following:

1. Setup PHP on the web server
2. Install FastCGI on the web server
3. Configure the PHP script mapping IIS
4. Create a Moodle application in IIS
5. Configure PHP to work with Microsoft SQL server 2005
6. Create Moodle database and database login
7. Check PHP configuration this because if PHP is not working or has not being configured correctly Moodle will not install
8. Install Moodle at this point
9. Install and configure URL rewriting extension
10. Setup Moodle cron job, which allows automating routine and respective tasks on the server such as sending out email. Messages and unsubscribing inactive members from classes can be performed by cron.php script. [2]

[2] IIS= internet information system

5.2 Linux operating System

Linux originated in 1991 as a personal project of Linus Torvalds, a Finnish graduate student. This chapter will talk more on how to install Moodle on Linux using Ubuntu.

Before one can start with the Linux Operating system it is recommended one has already installed either Kubuntu or Ubuntu on computer already. Ubuntu and Kubuntu operating system for Linux follow the same steps. The following must be undertaken before the main installation process:

Install Ubuntu 8.04 LTS server from aCD and test x86 desktop computer, keyboard, monitor, mouse and firewalled internet connection. These checks should take at least one hour.

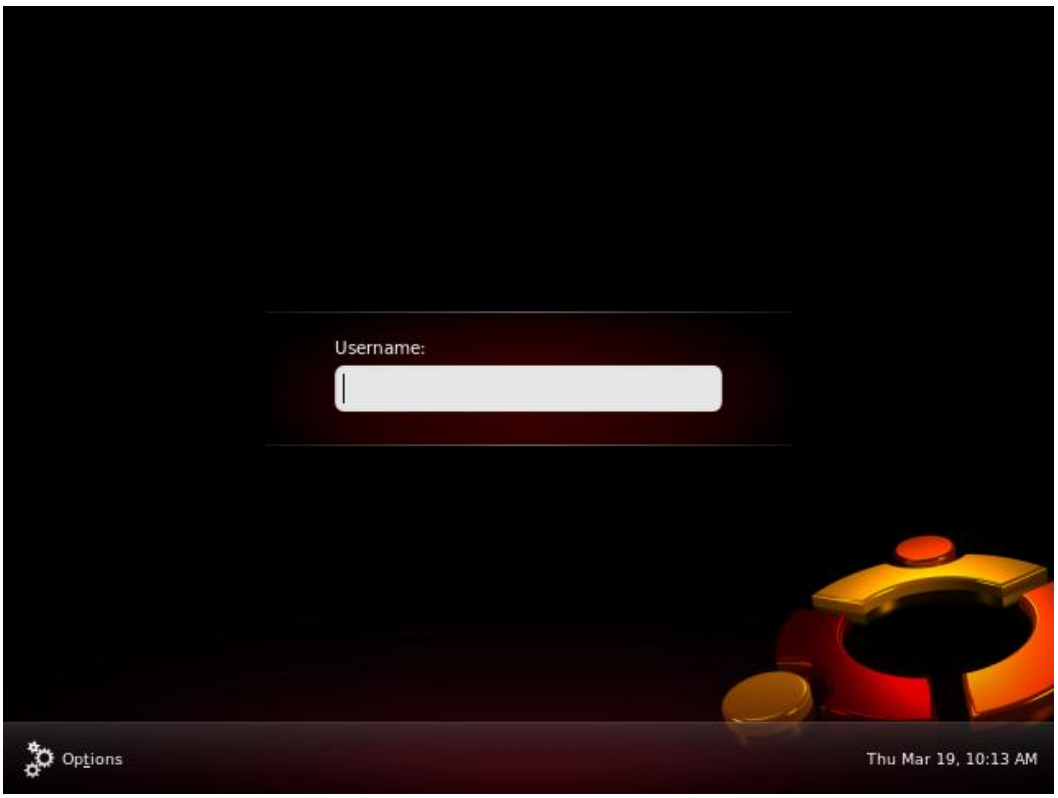
The following steps needs to be followed in Linux operating System during the installation of Moodle;

1. As mentioned earlier install Ubuntu
2. Install MySQL (skip Postgresql)
3. Install Postgresql (skip MySQL)
4. Install Apache
5. Install other software
6. Install Moodle
7. Configure Moodle website

5.2.1 Ubuntu

This is free software (open source) which is a Debian-based Linux operating system that is designed primarily for desktop. Ubuntu is and will be free of charge. Ubuntu Finland is one of the official local team. Usually Ubuntu publishes new version every six months. This is to ensure one has the latest of open source software. Each release is supported for at least 18 months and long term support (LTS) versions for 3-5 years.

Ubuntu is a South African ethical ideology focusing on people ´s relations with each other. The word comes from Zulu and Xhosa languages.



Picture 1. Ubuntu log in page.

5.2.2 Kubuntu

Kubuntu is KDE[3] equipped desktop version of Ubuntu. There are just small differences between the two. In practice it a question of different mounting media. For different user preferences it is good to use different desktop environments, therefore one can install Ubuntu Kubuntu desktop package or Kubuntu Ubuntu-desktop. This has some relationship with the following Ubuntu Finland, Xubuntu, Edubuntu and Debian. [12]

Picture 2.Kubuntu log in page.

[3] KDE= Software compilation

5.2.2 History of UNIX and LINUX

Linux originated in 1991 as a personal project of Linus Torvalds, a Finnish graduate student. He originally conceived the project as a modest offshoot of Minix, a model operating system written by Andrew S Tanenbaum. Linux later generated interest worldwide. Linux exploited the power of cooperative development; this enabled the development of Kernel version 1.0 in 1994. [4]

Because Linux owed much to his ancestors it was very difficult to locate the dawn of Linux era in 1991. The history of UNIX goes back to 1969, when UNIX originated as a research project AT&T Bell Labs. In 1976, UNIX was made available at no charge to universities and thus the basis of many operating systems classes and academic research projects. [4]

6 Moodle

Moodle is a free learning management system that enables one to create powerful, flexible and engaging online experiences. [2]

6.1 Moodle installation

Installing Moodle consists of the following steps:

1. Obtaining space and right on web server that has the capabilities needed to run Moodle

2. Creating the sub domains and /or directions for Moodle and its data

3. Getting and unpacking Moodle and uploading it to the server

4. Creating the data directory

5. Creating the Moodle database

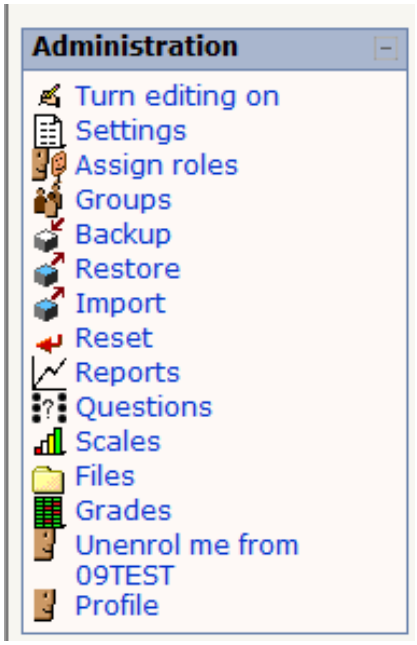
6. Setting up the cron job

7. Activating the installation routine and specifying settings for your Moodle site.

It must be noted that the official Moodle website, http://moodle.org/, contains detailed installation instructions. These instructions might change slightly with each version occasionally updated. [2]

6.2 Administration

The administration block for Moodle always displays when someone with administration or course creator privileges has logged in. These choices normally on this block change according to what privileges you have on viewing the front page or course. Several choices appear to be for site-wide functions, such as configuration, courses and site files. Clicking the administration link takes you to the administration menu for the entire site. This is shown in the next page.



Picture 3. Administration

The above picture shows the administrative section for a Moodle user.

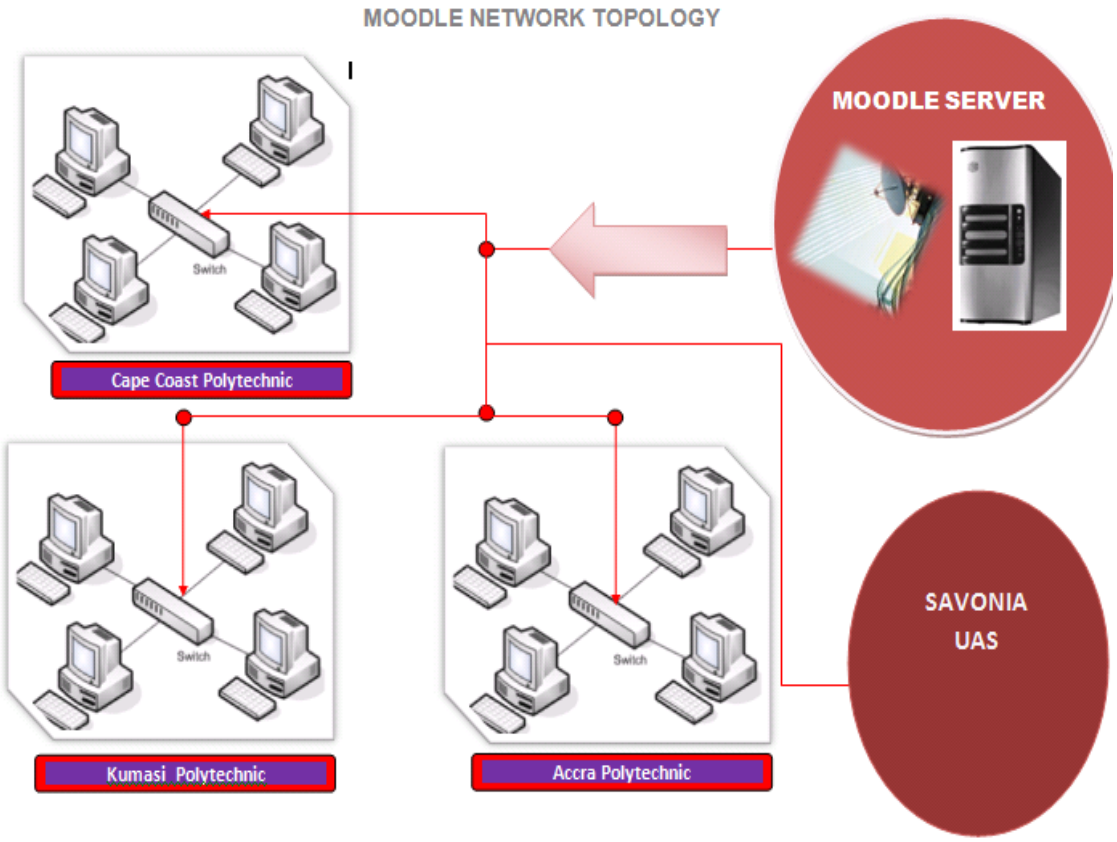
6.3.1 Moodle Network Topology

A network topology refers to either the physical or logical layout of a network installation. Physical topology, when in the context of networking, refers to the physical layout of the devices connected to the network, including the location and cable installation. Logical topology refers to the way it actually operates, thus transfers data as opposed to its layout.

The type of topology chosen for the Moodle server is star topology regarding the physical layout of how the computers of each school will be connected to the Main central server. This is because each school will not have its own Moodle server due to cost.

Also with a network connection which is connected via a centralized unit gives great fault tolerance as any device or cable failure will not affect the rest of the network unless the Moodle server itself fails. There could also be back up system and redundancy which is also parallel “space” server. One essential thing which was taken into consideration while choosing the type of topology to use is that, with star, physically adding new devices to the

network is very simple compared to any of the other topologies. A cable is run from the new device to the hub or switch as shown in the picture.



Picture 4. Moodle network topology

This system makes it easier to connect many users in future expansion. But as to where the main Moodle server will be located is left for the Polytechnics to decide but many things should be analyzed before choosing where the server will be. But wherever the server is located each school can be connected to the system either by satellite connection, or any other means to transfer the signal to the hub or switch in each of the polytechnic either by wireless or other means depending on the strength of the signal which also determines the money to incur in this connections.

6 Creating courses

Courses can be created in Moodle in three ways; creating a course as an administrator, modifying an existing course in Moodle and also by using teacher version. The various ways mentioned above follow almost same procedures with some slight differences. To create a course, first log in to Moodle, you then go to the category you would like the new course to appear and in the course categories section the `Add a new course` button is chosen. Usually this can be seen by the course creator.[2]

Secondly a teacher can change course settings in the Administration block. This can allow you to edit an already existing course. Date and time can also be selected to enable one to know when to start a date or access the course within that period of time or date.[2]

Also under *access control* it is possible to define group mode for all courses. Also the *enrolment key* is given to control access to courses. The enrollment key is a password given to students.[2]

7 Training

The idea of this project was to give training to all staffs of the schools, especially for those programme teachers who will be involved in the cooperation. The training will be in two sections that are those for the teachers has mentioned above and those students. Under the training plan the teachers will be given detailed training and the student basic training and all the various features of Moodle. Considering how Moodle has been developed it makes easy to give basic training to both the teachers and students. The basic knowledge of each trainee will just be basic computer idea.

7.1 Training Documents

A training document was created during the training programme. This document is going to be used as a reference book to help both the teachers and student to enable them enhance their skills on Moodle environment. The training document is going to be made available in the library of the participating schools. The training documents will be divided into teacher's guide and students guide.

8 Conclusion

The benefits of eLearning and how to achieve that through Moodle eLearning environment were discussed in this thesis. With high demand of education throughout the whole universe, it has become important that everyone gets access to learning no matter the time, distance and place.

Therefore one of the main objectives of this thesis was to facilitate partnership between Finnish and some Ghanaian schools and in the near future expand to some other African higher institutions. Even though it has not yet being realized but with bilateral talks already started among these institutions it is expected that the project will take off soon in the near future.

Although the use of eLearning has been on the minimal usage in Ghana and Africa in general it is believed that this project will be developed in the near future to help promote studies in Ghana as well as Africa, through eLearning most of the participating institutions will be able to adjust their programmes to suit the standard of their European counterparts.

Also it is recommended that Savonia University, Varkaus should see this project as means of expanding its educational vision and as such most of the higher authorities should get themselves involve to help push this project to higher heights.

This project is expected to create popularity for the Savonia University of Applied Sciences as well as those participating institutions.

Lastly it is recommended that Savonia University of Applied Sciences should have more cooperation with more African schools to enable them learn more from different cultures which is believed to be a turning point in Finnish education to help know more about the African educational system.

References

Books

1. Bryn, Holmes and John, Gardner (2006). eLearning concepts and practice
London: SAGE Publications Ltd.

2. William H. rice IV (2006). Moodle eLearning course development
London: Packt Publishing Ltd.

3. Marc J. Rosenberg (2006). Beyond eLearning.
USA: Pfeiffer an Imprint of Wiley.

4. Linux Administration Handbook(library demanded for the book but hope to put the author before I finally present to the student office)

Internet

5. Kumasi polytechnic: www.kpoly.edu.gh date visited 01.10.2009

6. Cape Coast Polytechnic: www.cpoly.edu.gh date visited 1.10.2009

7. Accra Polytechnic: http://www.accrapolytechnic.edu.gh date visited 1.10.2009

8. Moodle.org (1):www.moodle.org date visited 11.9.2009

9. Moodle.org (2):www.moodle.org date visited 14.10.2009

10. Wiki.ubuntu: www.wiki.ubuntu-fi.org/Esittely date visited 15.11.2009

11. Linux.fi: www.linux.fi/wiki/kubuntu date visited 15.11.2009

12. Moodle.kyamk.fi: http://moodle.kyamk.fi date visited 20.09.2009

6.1.2 Teacher's guide

About Moodle

Moodle is a web based learning environment that is useful both for teachers and students:

you can access study materials without time and place limitations. Assignments, such as written reports, can be returned via Moodle, without e-mail. Teachers can also grade assignments in Moodle, and once a teacher has graded an assignment, students will see their results right away. In the picture 1 you see Moodle's front page.
Picture 1.

How to

- Log in to Moodle?
- Make changes to my own profile?
- Change course settings?
- Add new content to a course?
- Add data to a course?
- Upload files to Moodle?
- Create a new assignment?
- Grade the assignment student has returned?
- Utilize forums?
- Rate messages sent to forums?
- Create a new scale?

- Manage users?
- Add teachers or students to a course?
- Use Moodle's Rich Text Editor?
- Backup my course?
- Remove student entries from my course?

How to log in to Moodle?

Open web browser and type in address http://moodle.savonia.fi. Log in to the site using the same username and password as you use when you log in to workstations (picture 2).

How to make changes to my own profile?

Click the link (your name) on the upper right corner of the page, and you will see your user details. Edit your details on "*Edit profile"* tab (picture 3). Please check the following

parts:
• City/town
• Select a country
• Description
• Preferred language
Picture 3.

How to change course settings?

1. Click the name of the course, whose settings you want to change, in *My courses* menu.

2. Click "*Settings"* in "*Administration"* box on the left.

3. Adjust the settings to be suitable to your course. For more information about course settings please look at the appendix in the end of this manual.

How to add new content to a course?

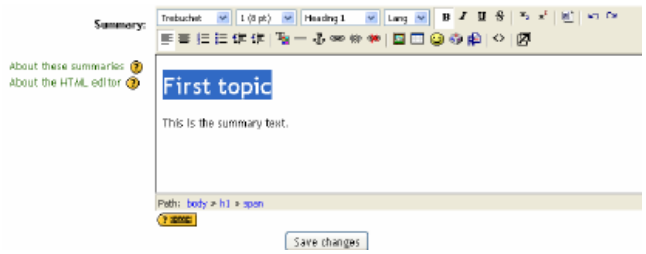
1. Navigate to the course and press "*Turn editing on"*, if you have not already done it (picture 4).

Picture 4.

2. Click the small hand symbol in the topic box (picture 5).

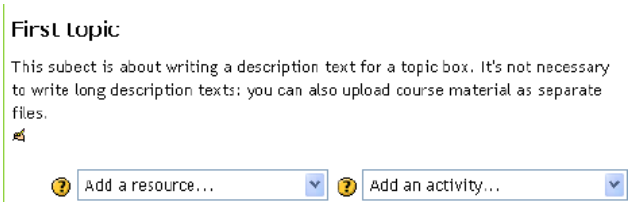
Picture 5.

3. Write a summary using the Rich Text Editor (picture 6). You can format the text in many ways, you can for example make bold-styled headings by choosing *Heading 1* from the style list. When you have finished writing the "*Save changes*".



Picture 6.

4. Now the lesson should look like the following one (picture 7):



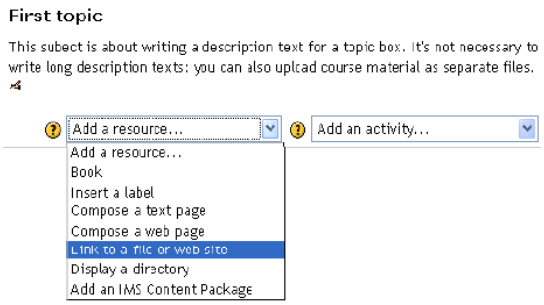
Picture 7.

How to add data to a course?

Content as a file (for example Word document)

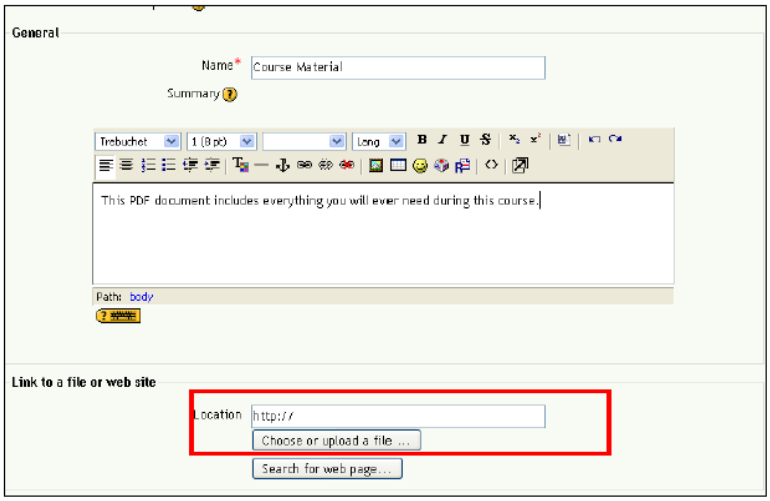
You can add a file (for example text document and PowerPoint presentation) that you
want to use as course content. Remember the file size: You may be unable to upload the file if you have selected a too small file size in course settings.

1. Open "*Add resource"* dropdown menu in the topic summary box and select "*Link to a file or web site"* (picture 8).



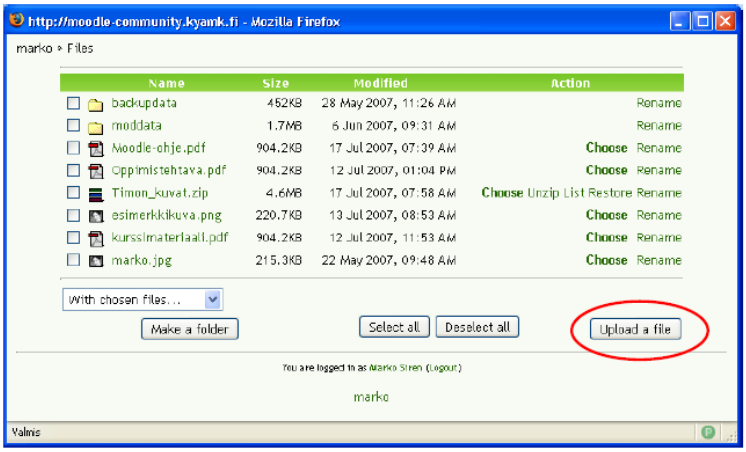
Picture 8.

2. Type name and summary for the material to identify it (picture 9). Now choose the file by clicking "*Choose or upload a file"*.



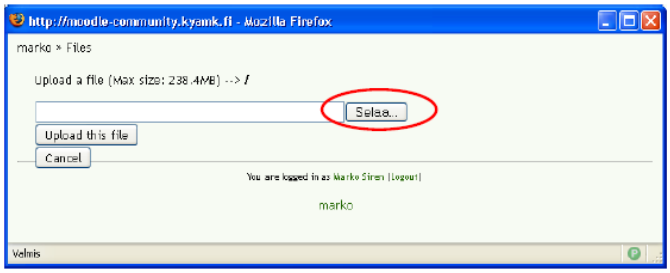
Picture 9.

3. The files window will open (picture 10). If you have already sent a file to Moodle you can see it in the list, where you can choose it by clicking "*Choose*". Otherwise press "*Upload a file"*.



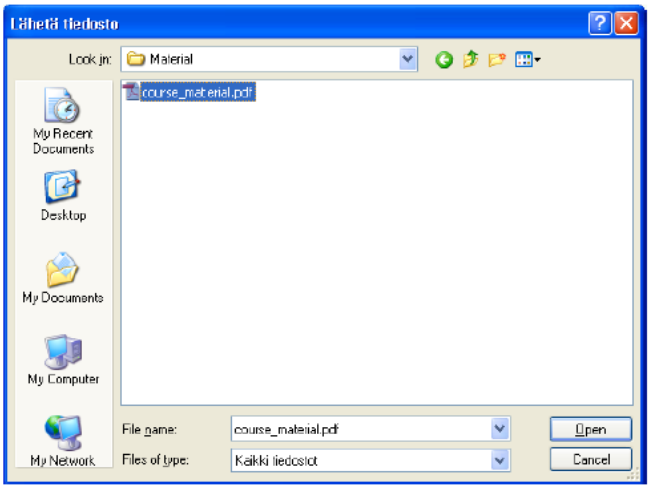
Picture 10.

4. Locate the file from your computer by pressing *Browse (or Selaa)* (picture 11).



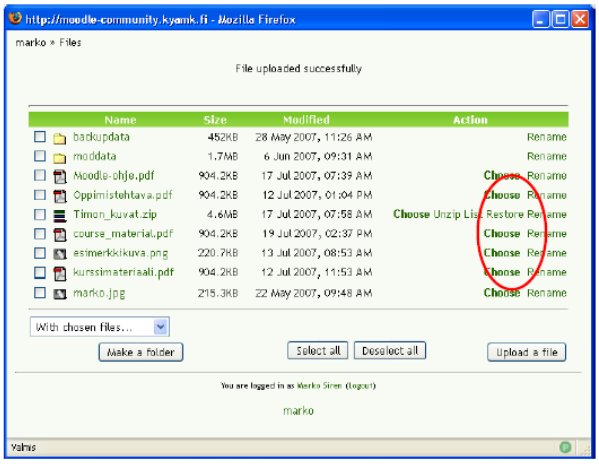
Picture 11.

5. Choose the file (picture 12).



Picture 12.

6. Click "*Choose*" of the file you just sent (picture 13).



Picture 13.

7. Now navigate to the end of the page and press "*Save changes"* (picture 14).

Picture 14.

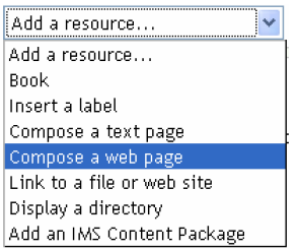
8. The content is now added into the topic box (picture 15).

Picture 15.

Content as a web page

To add content to your course you can also create a web page instead of uploading a file. In this case, the content can be opened straight in Moodle without using any external applications.

1. Open "*Add a resource"* dropdown menu in the topic box and choose "*Compose a web page*" resource (picture 16).



Picture 16.

2. Write a text using the built-in text editor (More information about the text editor will be provided later on in this manual). Write a name, a short summary and the content for the web page.

How to upload files to Moodle?

You can upload many kinds of files to Moodle: documents, PowerPoint presentations, Excel spreadsheets etc. You can use these files for example in *Link to a file or web site* activity.

1. Open a course.
2. Click "*Files"* link in "*Administration"* menu (picture 17).

Picture 17.

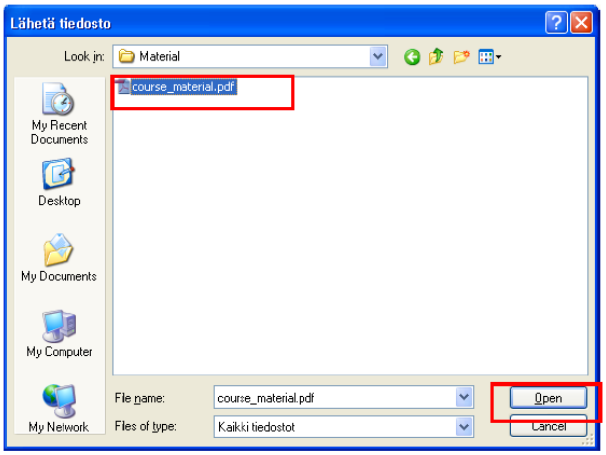
3. Upload the file using the built-in file uploading system (picture 18).

Picture 18.

4. Locate the file on your computer (picture 19).

Picture 19.

Locate the file on your computer (picture 20).



Picture 20.

5. Press "*Upload this file"* (picture 21).

Picture 21.

How to create a new assignment?

Students can return their assignments in Moodle either by sending them as files or writing an answer online using Moodle's online editor.

Upload a single file

A student will return an assignment as a single file using Moodle.

Advanced uploading of files

A student will return an assignment by Moodle as a single file or as a group of several files.

Online text

A student will write his or her answer straight in Moodle using the built-in text editor.

Offline activity

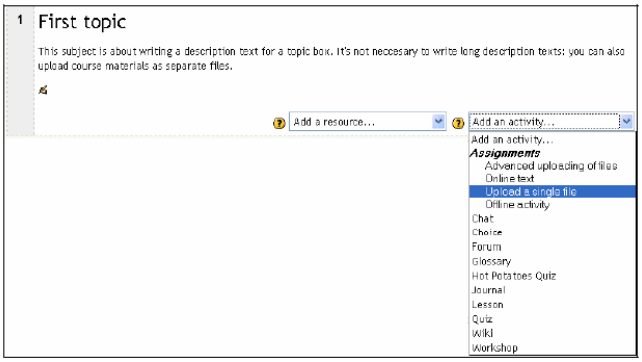
A student returns an assignment for example on the paper instead of using Moodle. This type of assignments is mainly used when teacher wants to grade an assignment, done by some typical way, in Moodle.

How to create a new assignment?

With the following instructions you can make an assignment where students must return a file.

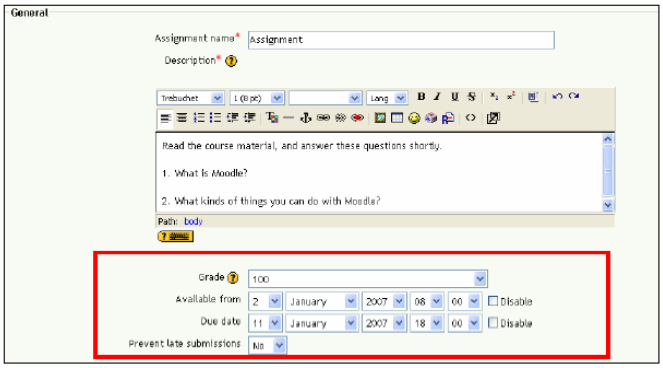
1. Navigate to the course on which you want the assignment to be created, and turn on the editing mode.

2. Open "*Add a resource"* dropdown menu and choose "*Upload a single file"* (picture 22).



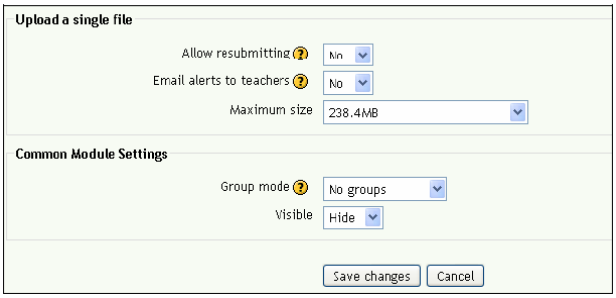
Picture 22.

3. Write a heading and the text to the assignment. If you want to grade students' assignments choose the scale. Choose also the dates when this assignment will be opened, and when it will be closed (picture 23).



Picture 23.

4. Change other settings if needed (picture 24).



Picture 24.

5. Save the assignment by pressing "*Save changes"* (picture 25).

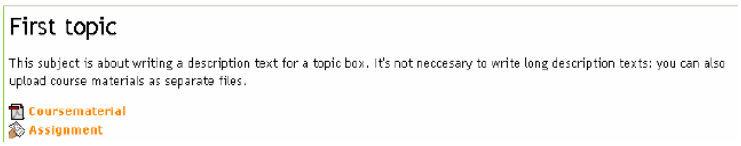
Picture 25.

6. The assignment is now ready. You can still edit the assignment by choosing it in the course view, and pressing "*Update this Assignment"* on the upper right corner of the page (picture 26).

Picture 26.

How to grade the assignment student has returned?

1. Click the assignment created earlier (picture 27).



Picture 27.

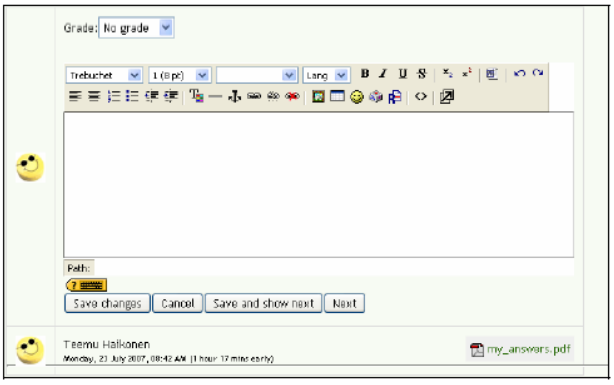
Should students have returned assignments, you could see details of submitted files close to the upper right corner (picture 28). Click this link.

Picture 28.

2. On the next page you can see who have returned their assignments (picture 29). In the "*Last modified (Student)"* field you can see the name of the returned file. By clicking the filename you can either open or save it on to your computer. By clicking "*First name* or *Surname"* you can order the list either by students' first name or by surname. You can grade a returned assignment by pressing "*Grade"* on the right side of the page.

Picture 29.

3. Pressing "*Grade"* will open a new window (picture 30). Select a grade for the returned assignment by opening "*Grade"* dropdown menu. Pay attention: You can only grade assignments if you have enabled this funtion in the settings. If you want you can also write feedback on the assignment in the big textarea, and this feedback will be shown to the student. Finally press "*Save changes"* and the window will be closed.



Picture 30.

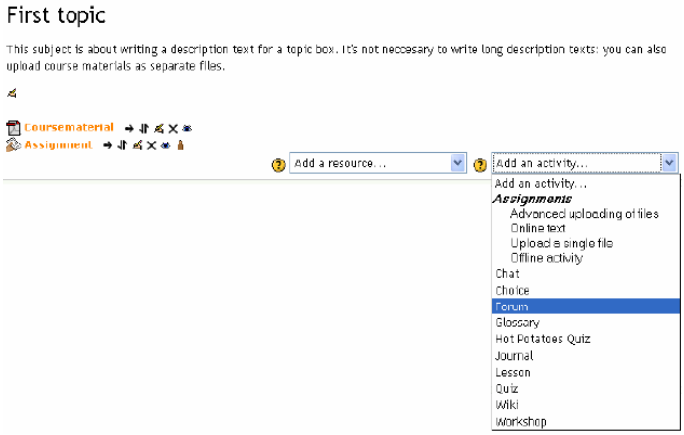
How to utilize forums?

In the course forums students can communicate with each others, and talk about the possible issues and events of the course. You can make use of the forums by using it as a tool to return assignments, thus giving the possibility to other students to discuss and leave comments concerning the assignment. Just like using e-mail, one can leave assignments as an attachment of the message.

Adding a forum to the course

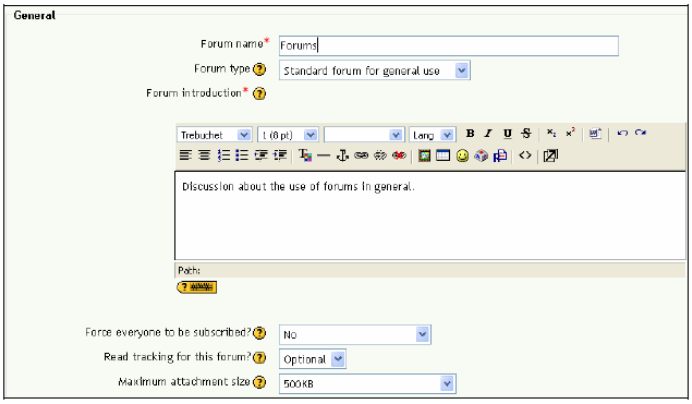
1. Move to the course you want to add the forum to. Be sure to have the editing turned on!

2. Choose the lesson/subject you want to add the forum to, from "*Add resource"* drop down menu activity called "*Forum"* (picture 31).



Picture 31.

3. Write a name and description to the forum (picture 32).

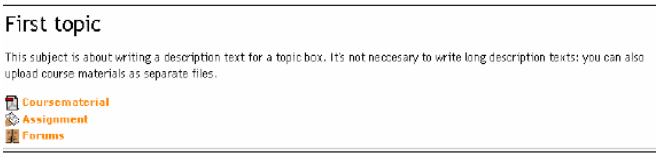


Picture 32.

4. Change the type of the forum, if needed:
   a. Each person posts one discussion
   b. Standard forum for general use
   c. Q and A forum
   d. A single simple discussion

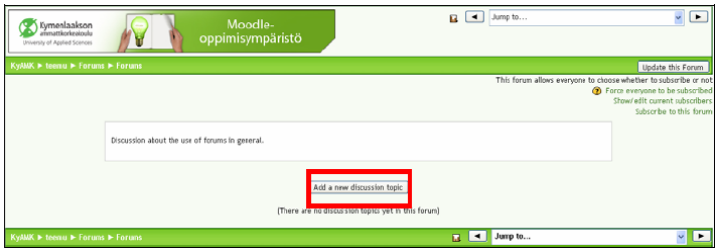
Sending a message

1. Open forum in the course view (picture 33).



Picture 33.

2. Should the forum be empty, start a new discussion by clicking "*Add a new discussion topic"* (picture 34).



Picture 34.

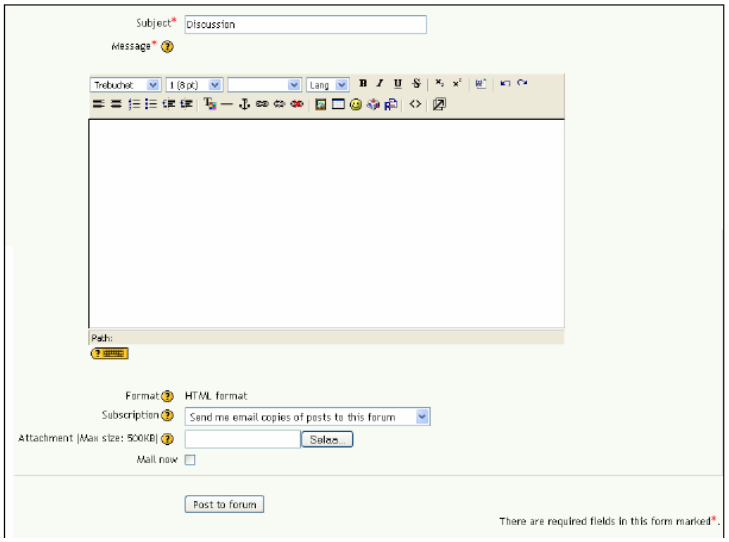
3. If you can find a suitable topic, choose it from the list (picture 35). Attention: Click the name of the discussion, not the name of the writer.

Picture 35.

4. You can answer to a message by clicking "*Reply*" (picture 36).

Picture 36.

5. Write your answer using the text editor. If you want you can add an attachment to the message (picture 37): you can attach for example a power point assignment.



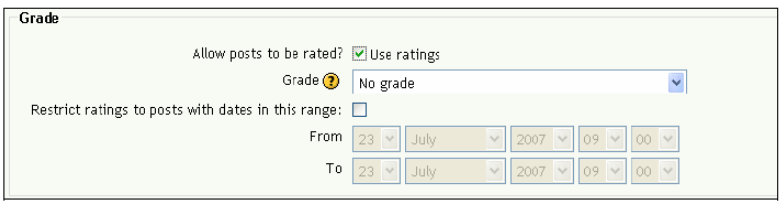
Picture 37.

6. You can send your message to the forum by clicking "*Post to forum"*.

How to rate messages sent to forums?

1. Add a new forum, or update an existing one by clicking "*Hand and pen"* symbol.

2. You need to check from the settings of the forum that "*Allow posts to be rated?"* option have been enabled (picture 38). Below the previous setting you can choose the scaling used. At the end: click "*Save changes"*.

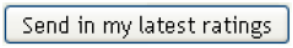


Picture 38.

3. You can rate messages sent to forums by clicking the "*Rate…"* dropdown menu in the down-right corner of the message, where you choose the exact grade wanted (picture 39).

Picture 39.

4. When you have picked the wanted rating to the message you should also remember to send the latest message grading by clicking "*Send in my latest ratings"*(picture 40).



Picture 40.

How to create a new scale?

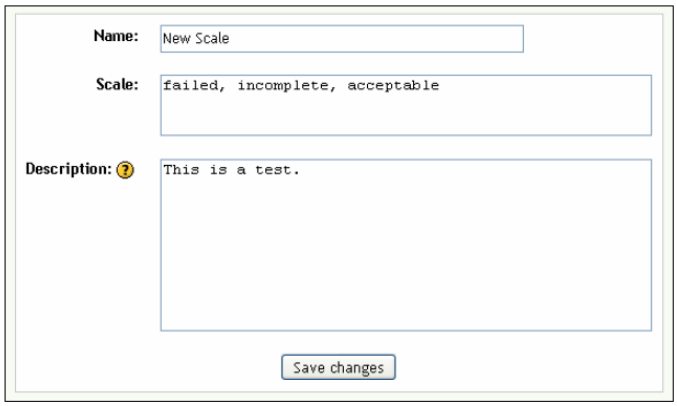
1. Choose *"Scales"* from "*Administration"* menu situated on the left corner of the page (picture 41).

Picture 41.

2. Click "*Add new scale"* in the up-left corner of the page (picture 42).

Picture 42.

3. Give a name to the scaling, and define it. Ratings must be separated with commas like this: failed, incomplete, acceptable (picture 43).



Picture 43.

4. Finally write a description to the scaling and click "*Save changes"*.

How to manage users?

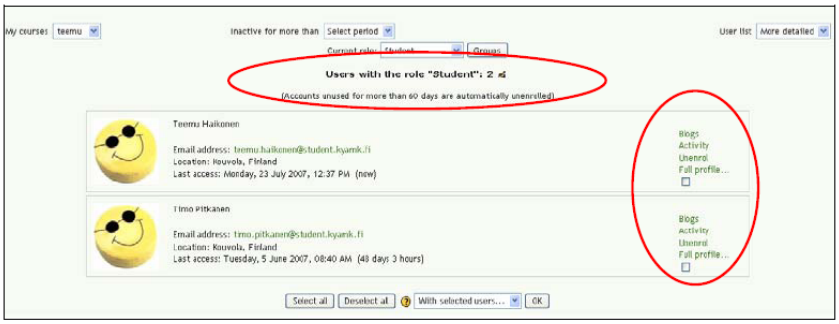
1. Move to the course which users you want to manage. Click "*Participants"* in the "*People*" menu on the left side of the page (picture 44).

Picture 44.

2. In this page you can see the list of the participants of the course (picture 45). Choose "*More detailed"* option from "*User list"* drop down menu to see more detailed information. You can also search people from this list by activity and role: "*Teacher/student"*.

Picture 45.

3. You can see all writings, activity and detailed user information in the right column. There you can also remove a user from the course (picture 46).



Picture 46.

How to add teachers or students to a course?

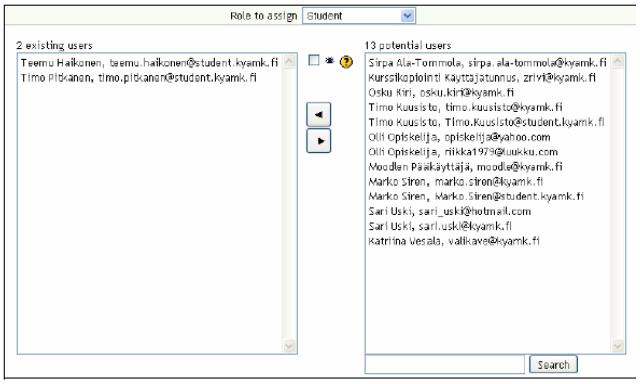
1. Choose "*Assign roles"* from "*Administration"* menu on the left (picture 47).

Picture 47.

2. Choose the role you want to add participant by clicking the name of the role in the left column (picture 48). Description of the role can be found from the middle column. You can give students "*Student"* role and teachers "*Nonediting teacher"* role (teachers who cannot edit course). Guests visiting the course can have "*Guest"* role.

Picture 48.

3. At the field on the left you can choose the person you want to add to a role. Then you need to click the arrow in the middle pointing left to get the person to move to this role. You can remove a person out of his role by choosing him at the box in the left, then clicking the arrow in the middle pointing right. At "*Assigned role"* drop down menu you can change the role you want to add people (picture 49).



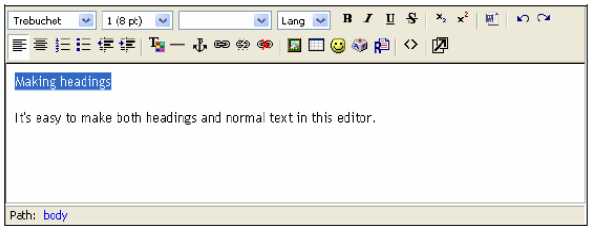
Picture 49.

How to use Moodle's Rich Text Editor?

Messages sent to a forum, returned assignments etc. are mostly made with text editor in Moodle. This editor is quite similar to text editors used as applications. You can bold, italic, and underline text, change the font-size, insert images and add hyperlinks leading to other web-pages.

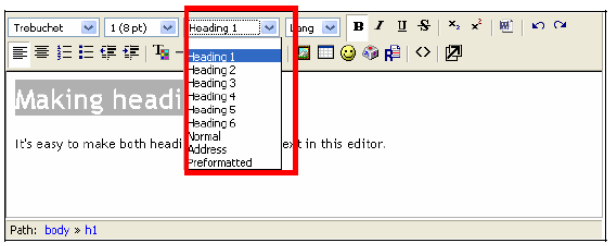
Making headings

1. Choose the text you want to use as a heading (picture 50).



Picture 50.

Choose from the toolbar formatting called *Heading 1* (picture 51).

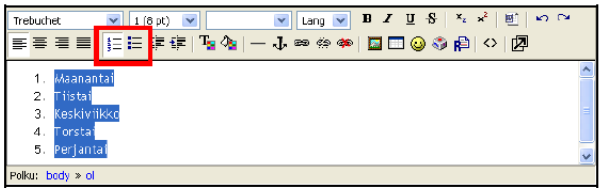


Picture 51.

Making a list

1. Write some words to the list, put them one on the other.

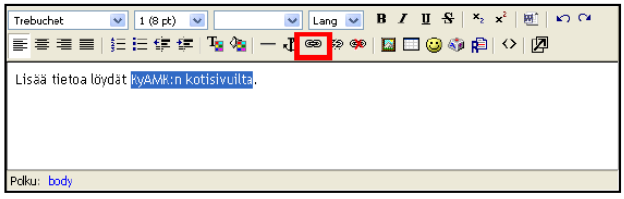
2. Paint the list with your mouse and click either "*ordered list"* or "*bulleted list"* tool (picture 52).



Picture 52.

Making a link to a web-site

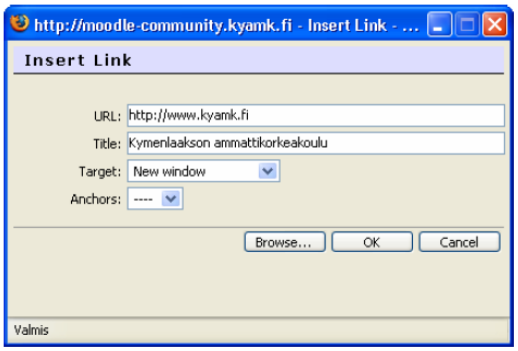
1. Choose the part of the text you want to act as a link, and click "chain" symbol on the toolbar (picture 53).



Picture 53.

2. Write the address and the heading of the site to the popup window (picture

54). Choose from the "*Target"* dropdown menu option: "*New window"*. Click *OK* to proceed.

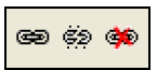


Picture 54.

3. Later on you can still update the link: Choose the link-text with mouse and click the same "chain" symbol you just used (picture 55).

Picture 55.

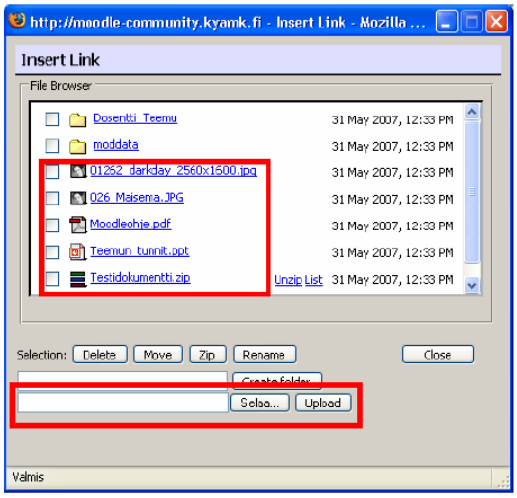
You can remove the link by painting it with mouse and clicking the "broken chain" symbol next to the previous "chain" symbol (picture 56).


Picture 56.

Making a link to a file

1. When making a link to a file located in Moodle you need to leave URL-part empty, and click "*Browse*".

2. If you have already uploaded a file to Moodle you need only to click the name of this file (picture 57).



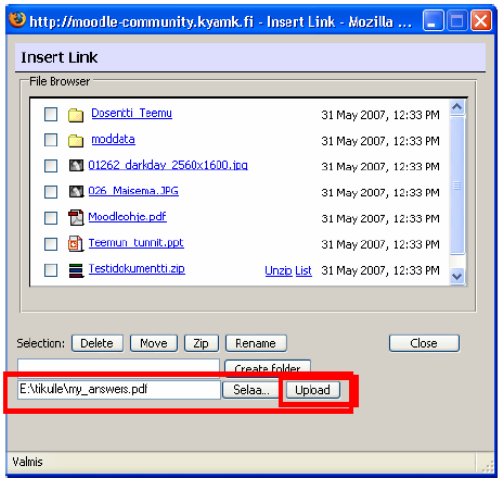
Picture 57.

3. If you haven't already uploaded the file you need to Moodle:

a. Click "*Browse*" (or "*selaa*") (picture 57).

b. Find the wanted file at your computer.

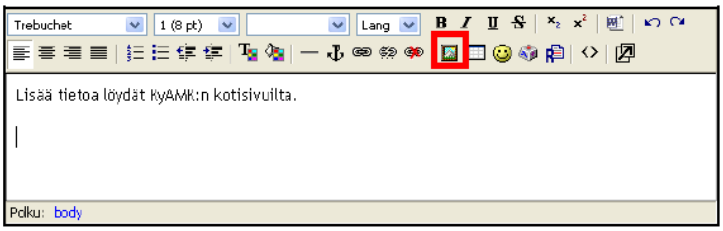
4. Click "*Upload*" (picture 58).



Picture 58.

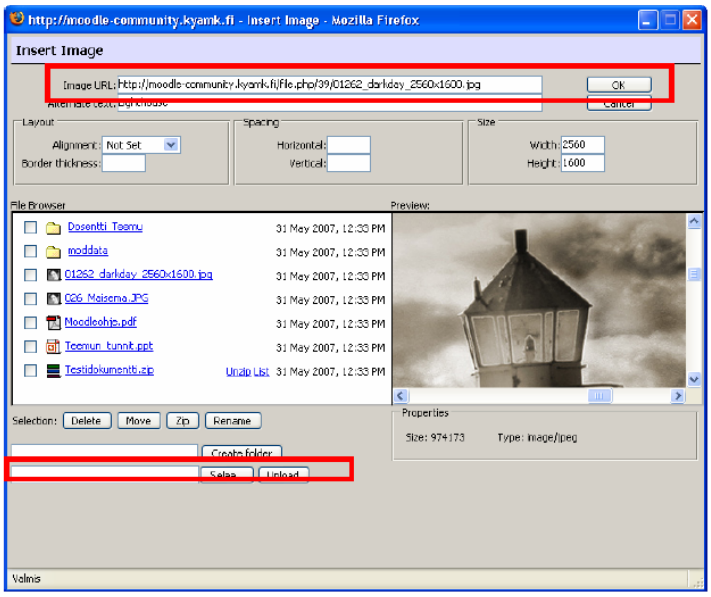
Inserting picture

1. Click the picture symbol in the toolbar of the text editor (picture 59).



Picture 59.

2. Click the filename of the picture you want to choose. Write a short description to the file to "*Alternate text*" field, and click *OK*. Download a picture from your computer if needed (picture 60).



Picture 60.

How to backup my course?

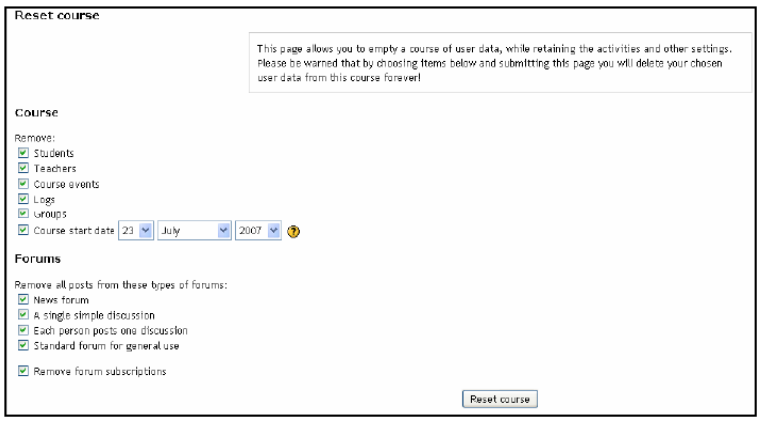
Back-ups are done by Moodle administrator who can be contacted by sending e-mail to this address: moodle@savonia.fi.

How to remove student entries from my course?

1. Choose "*Reset"* from "*Administration"* menu left side of the page (picture 61).

Picture 61.

2. Let the mark to be in all of the options (picture 62). Caution: If you have many teachers in the course, unmark the option "*Teachers"* in the list. Click "*Reset course*".



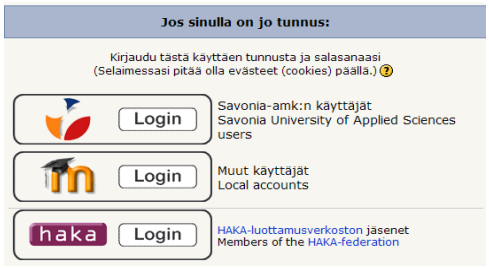
Picture 62.

APPENDIX 1: Student´s guide

- What is Moodle?
- Where can I find Moodle?
- How do I update my profile on Moodle?
- How to enroll on a course?
- Enrolling in to a course
- Using Moodle's Rich Text Editor?
- Making headings
- How to make a list
- Making a link to a web site
- How do I use forums?
- Writing a message
- How do I hand in an assignment?
- Sending a file/files
- Writing an answer with the web editor
- How do I see my assignments graded?
- What to do when troubleshooting

What is Moodle?

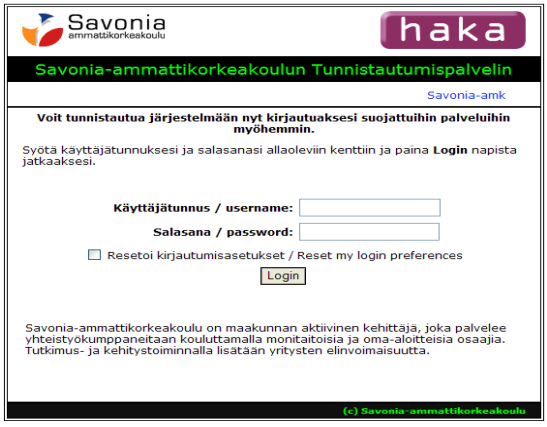
Moodle is a web based learning environment that is useful both for teachers and students: you can access study materials without time and place limitations. Assignments, such as written reports, can be returned via Moodle, without e-mail. Teachers can also grade assignments in Moodle, and once a teacher has graded an assignment, students can see their results right away. In Picture 1 you can see how Moodle looks.



Picture 1.

Where can I find Moodle?

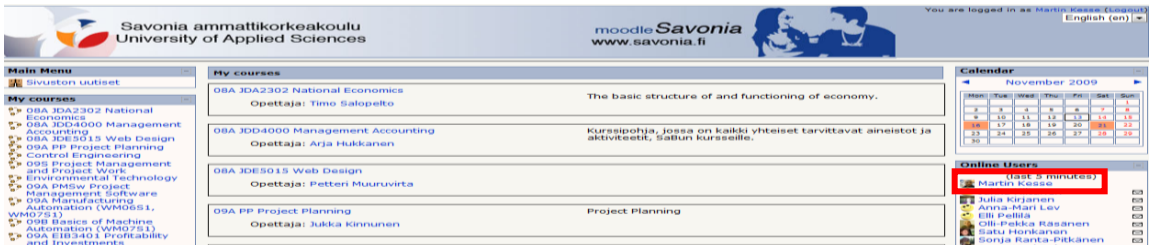
Open web browser and type in address http://moodle.savonia.fi. Log in to the site using the same username and password as you use when you log in to workstations (Picture 2).



Picture 2.

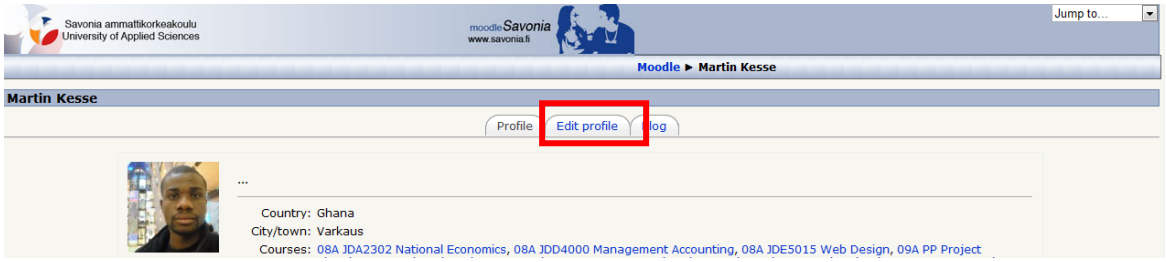
How do I update my profile on Moodle?

1. Click the link that has your name in it, on the top right corner of the page (Picture 3).

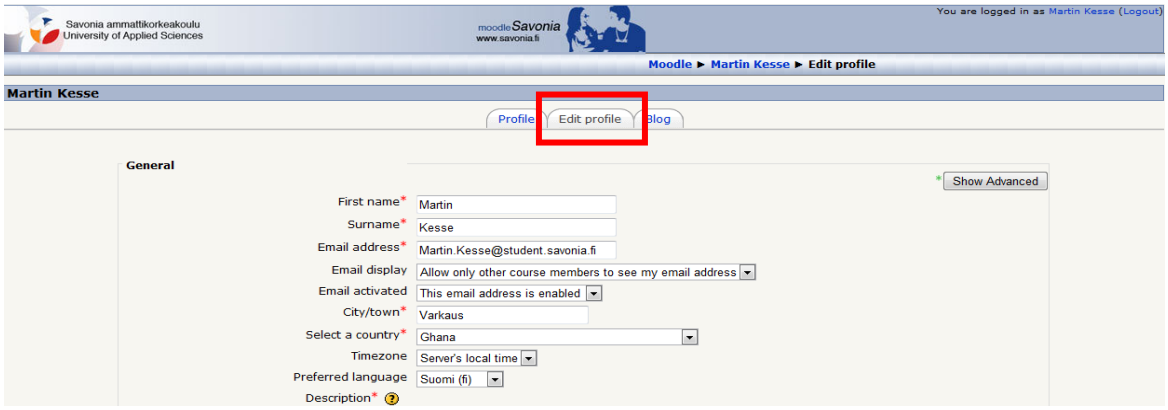


Picture 3.

2. Click "*Edit profile"* (Picture 4). Please check the following details: *City/town*, *Select a country*, *Description*.



Picture 4.

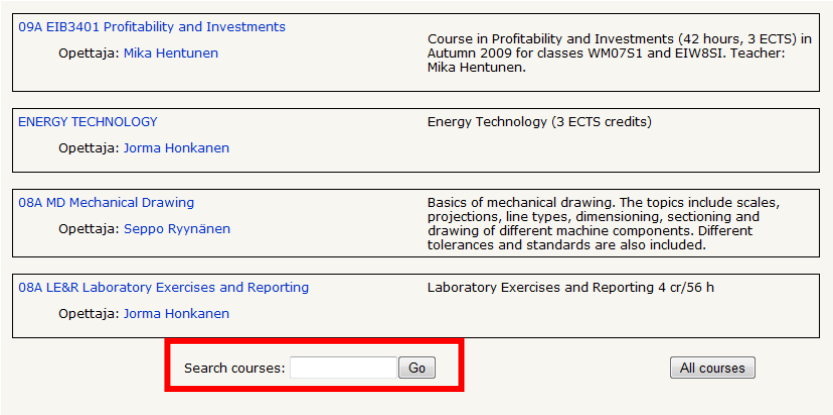


Picture 4.1

How to enroll on a course?

Searching the course

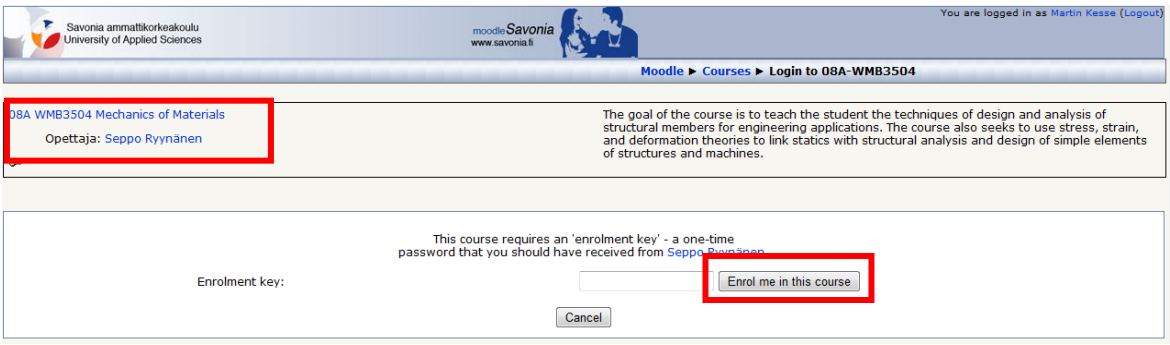
1. Click "*Search courses*" below the page (Picture 5).



Picture 5.

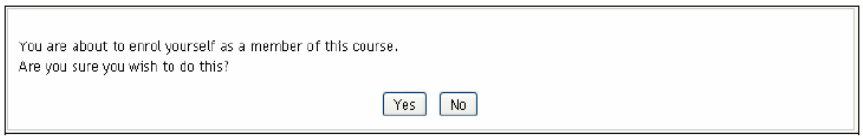
Enrolling in to a course

1. Once you have found the course you are looking for, click the name of the course. Moodle will probably ask you to give an *enrolment key*, which should be given to you by the teacher of the course. Fill in the key and click "*Enrol me in this course*" (Picture 7).



Picture 7.

If the course does not require a key, choose "*Yes"* when Moodle asks if you want to enroll on the course (Picture 8).



Picture 8.

3. Once you have enrolled on the course you will see it listed in "*My courses"* section (Picture 9).

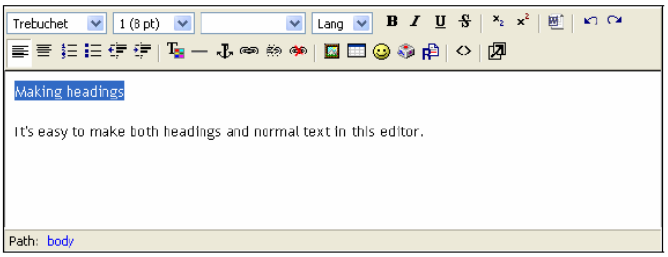
Picture 9.

Using Moodle's Rich Text Editor?

Forum posts, certain assignments etc. are usually written in Moodle's Rich Text Editor that is similar to the regular word processor applications. You can format text making it bold, italic and underlined; even change the font size and much more.

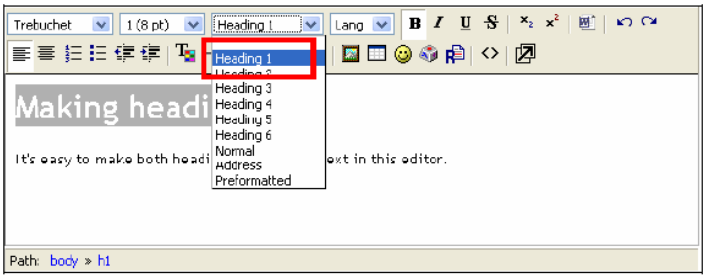
Making headings

1. Choose the text you want to use as a heading (Picture 10).



Picture 10.

2. Open the formatting dropdown menu and select *Heading 1* (Picture 11).

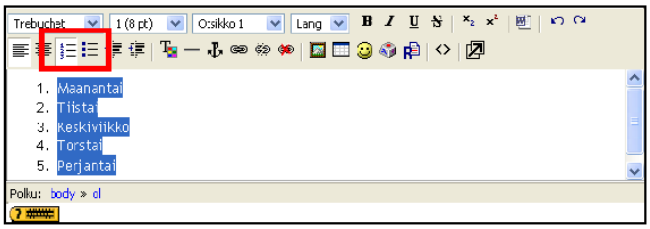


Picture 11.

How to make a list

1. Write the list items and separate them using line breaks.

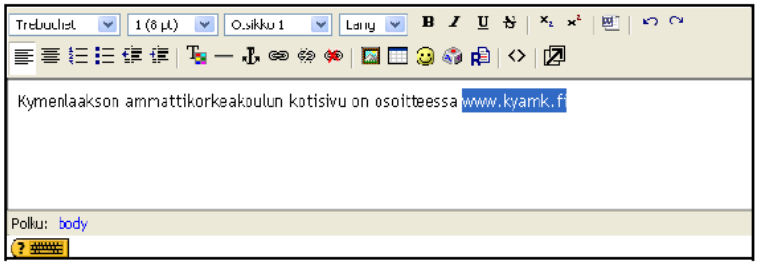
2. Select the list with your mouse and click either *ordered list* or *bulleted list* tool (Picture 12).



Picture 12

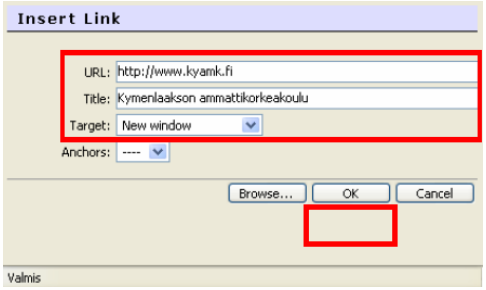
Making a link to a web site

1. Choose the part of the text you want to act as a link, and click ”*chain*” button on the toolbar (Picture 13).



Picture 13.

2. Write the URL and a short description of the link (Picture 14). Open *Target* dropdown menu and choose “*New window”*. Click “*OK”* to proceed.



Picture 14.

3. In order to modify a link you have previously created select the link text with mouse and click the same "*chain*" symbol you used earlier (Picture 15).

Picture 15.

You can remove the link by selecting it with mouse and clicking the "*broken chain*" symbol next to the previous "*chain*" symbol (Picture 16).

Picture 16.

How do I use forums?

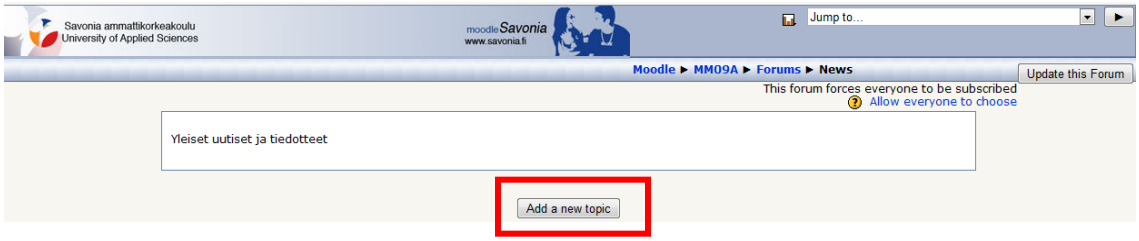
Forum is a very effective and useful tool in both discussing the course matters and handing in assignments. Teachers may use forums as a tool for students to hand in assignments, thus giving the possibility to other students to discuss and leave comments concerning the assignments. Forum posts are written in Moodle's Rich Text Editor that is quite similar to regular word processing applications. You can answer to the existing messages, and depending of the settings of the forums you might be able to start your own topic. You can also attach files to messages such as pictures, text documents and PowerPoint presentations.

Writing a message

1. Click "*Forums"* in the course view (Picture 17).

Picture 17.

2. If the forum is empty you can start a new discussion by clicking "*Add a new discussion topic*" (Picture 18).

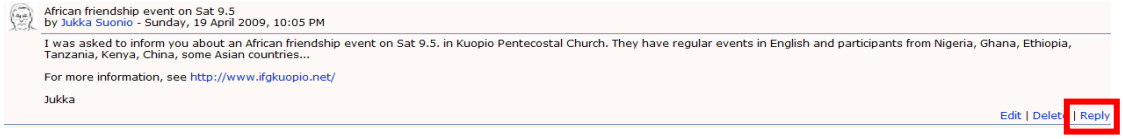


Picture 18.

3. If you find a suitable topic, choose it from the list (Picture 19). Notice: Click on the name of the discussion, not on the name of the writer.

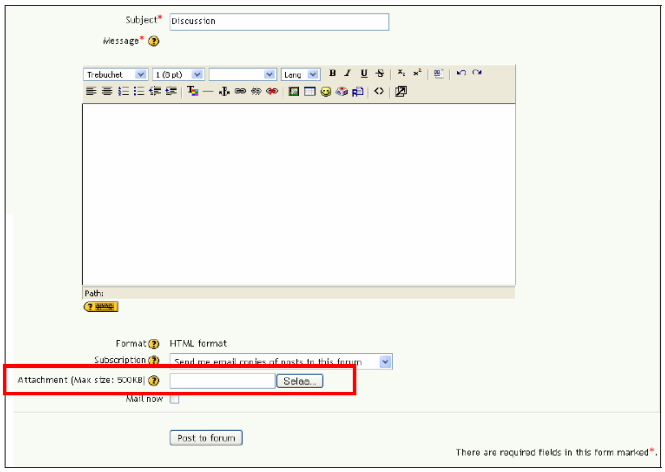
Picture 19.

4. You can reply to a message by clicking "*Reply*" (Picture 20).



Picture 20.

5. Write your reply using the text editor. If you want you can attach a file to the message, for example a PowerPoint presentation. (Picture 21).



Picture 21.

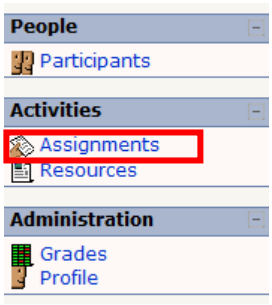
6. Click "*Post to forum*" to send your message.

How do I hand in an assignment?

You can return your assignment in Moodle either by sending it as a file (text document, PowerPoint presentation, etc.) to the teacher, or by writing your answer using Moodle's online text editor. Mostly it depends on the teacher how and in which form the assignment should be returned.

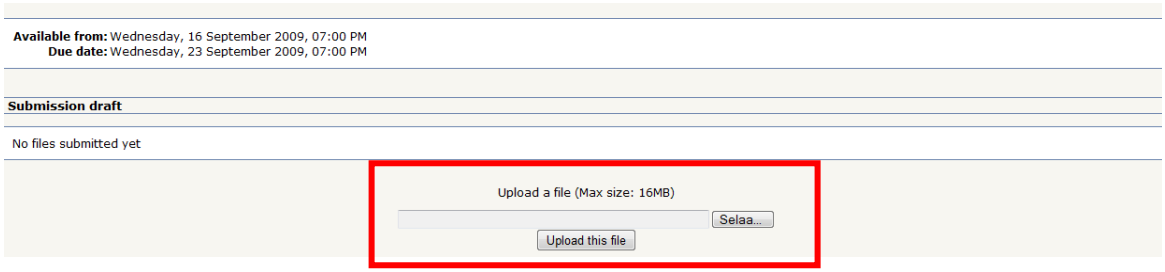
Sending a file/files

1. Click the name of the assignment in the course view (Picture 22).



Picture 22.

2. Read the instructions and complete the assignment. When you have saved the file, you need to locate it on your computer by using "*Browse*" (Picture 23). When you have found the file, remember to click "*Upload this file*".

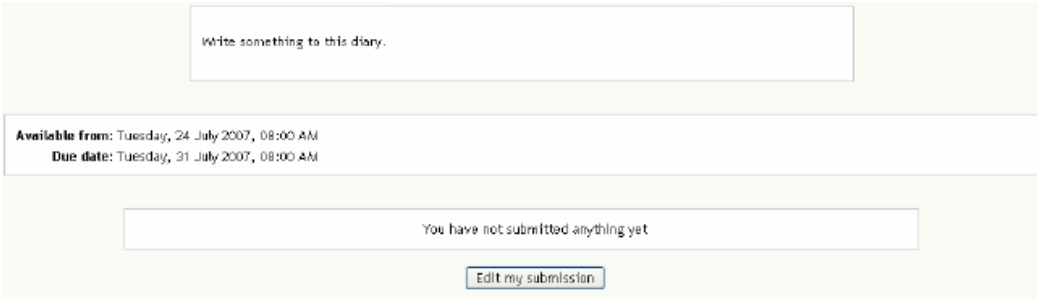


Picture 23.

Writing an answer with the web editor

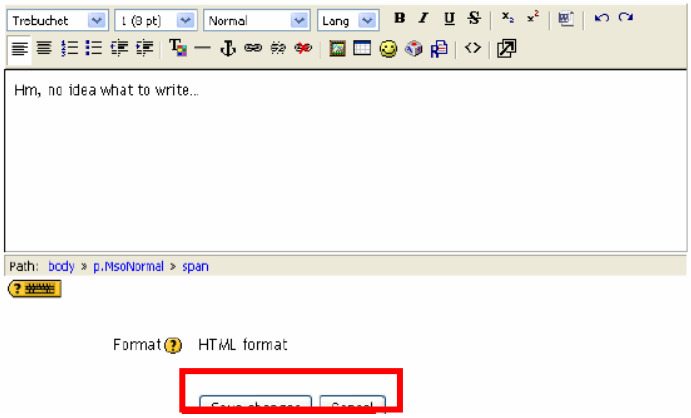
1. Click the name of the assignment in the course view (check Picture 22).

2. Read the instructions, and then click "*Edit my submission"* (Picture 24).



Picture 24.

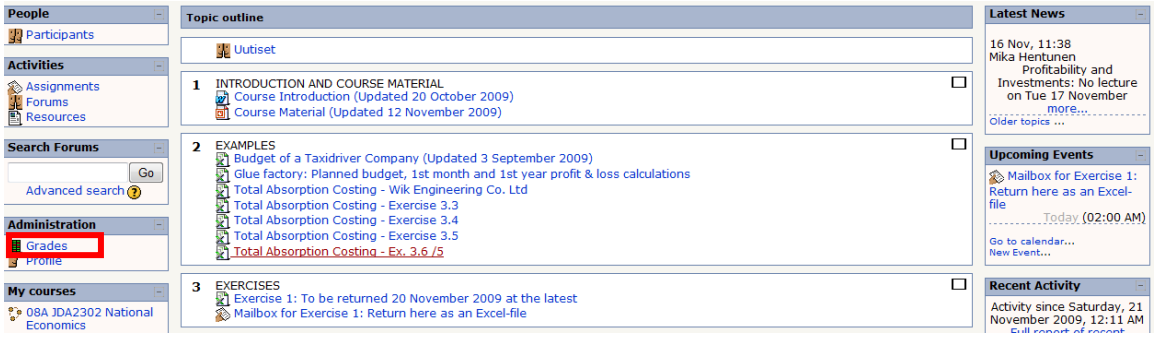
3. Write your answer with the text editor. Remember to save your answer by clicking "*Save changes*" (Picture 25)!



Picture 25.

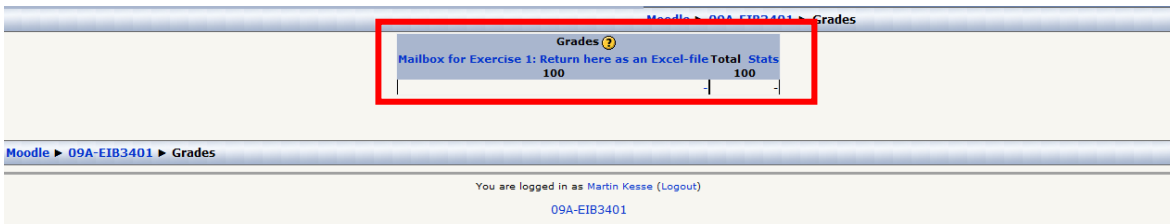
How do I see my assignments graded?

1. Click the assignment in the course view (Picture 26).



Picture 26.

2. You can see your grade below the assignment description (Picture 27).



Picture 27.

What to do when troubleshooting

If you have problems with Moodle, you should try the following tips:

1. The problem might be caused by the web browser used. Please try other browsers to avoid the problem. It is recommended to use either Firefox or Internet Explorer.

2. Update your browser to the newest version available.

3. The problem may be caused by the firewall used in your workstation, thus preventing the use of Moodle. Please try to close your firewall temporarily, and then test the Moodle again. If the problem does not occur anymore, it was caused by the firewall.