Erasmus+ - Key Action 2
Capacity Building within the Field of Higher Education

eACCESS Project

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EU-Asia Collaboration for aCcessible Education in Smart Power Systems

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EXECUTIVE SUMMARY

This document provides the strategy and high level specification to deliver the technical eLearning platform for eACCESS teaching and learning materials.

To develop this strategy, several needed eliciting activities were carried out between the partners. It was discovered that all partners institutions were either using Moodle or planning to use Moodle as a Virtual Learning environment. eACCESS will exploit these initiative, and support the development of the Virtual learning environment in the partner universities where it has not been deployed yet.

This document outlines the overall strategy for the deployment, as well as the partner specific plans to achive it. This is a working document, which will be updated till the end of the project with the detail (in-depth) implementation plan and specification from partners. So in that sense, this document will only serve as a preliminary report, which provides enough technical guidlines for the partners to start working on thier plan for the eLearning platform deployment.

Document Purpose

This document outlines the deployment strategy for the Virtual Learning Environment (VLE) at each partner institution. The document presents the overall strategy, in an effort to standardise the installation, the deployment and delivery of the VLE and tailor the approach for each partner.

Background

This document summarizes the project members discussion regarding the delivery of VLE platform. Requirement gathering for the VLE was conducted using teleconference meetings and was formalized by an e-survey. Answers from this survey were analysed to develop the guideline strategy outlined in this document.

How to use this document

This document is intended as a dissemination mechanism for eACCESS VLE strategy, and to enable partners to make plans for completing the necessary steps to deploy the Moodle VLE at each partner university.

Section 1 describes the rationale for selecting VLE as the delivery platform for eACCESS and presents an overview of Moodle as the VLE of choice .

Section 2 describes a roadmap that can be used to tailor deployment plans for each of the partners. Each Asian partner should follow the guidelines in this section to complete the "VLE-Deployment plan" (See Sections 5-9: VLE deployment plan of each partners).

Section 3 describes the high level features from Moodle that eACCESS is going to use.

Section 4 describes available Moodle`s resources and activities that can be choosen to form eACCESS learning platform.

Sections 5-9 describe the review of the exisiting situation in each asian partner, and thier startegy and plan for the learning platform deployment.

Section 1. Virtual Learning Environments in Context

This section provides a short overview on VLEs, their advantages and a summary of eACCESS chosen open source VLE (Moodle).

Context of Virtual Learning Environments

A Virtual Learning Environment (VLE) is an online classroom; it's a digital space where employers or education providers can host e-learning courses that they'd like their staff or students to complete. The VLE doesn't necessarily have to replace the physical classroom, as e-learning can complement more traditional approaches to teaching, creating what is known as a blended learning environment.

In a nutshell, VLE offers a simpler and more streamlined mechanism for the creation and publication of learning resources that are just as easy to access as conventional web-based content, with additional assessment, support and tracking functionalities.

VLE can help teachers and support staff manage and deliver a variety of daily tasks, including:

- general class administration and organisation
- the creation of lesson plans using existing resources
- assessment and monitoring of students
- allocation and marking of on-line assignments
- discussion and support with students online

The various interactive tools of VLE also support students catering for individual learning styles. For example, students can:

- submit and track their assignments online via a personal home page
- contribute to and participate in discussions with classmates and other schools via various tools
- work at their own pace within and out of campus
- complete their worksheets and tests online for final submission and grading
- attempt offline assignments with instructions and guides from the learning platform

eACCESS envisions designing, developing and validating an innovative teaching platform, which will open the partner universities to new students at remote locations, unable to physically attend the classes. The teaching platform or the VLE needs to be efficient, scalable, adaptable and cost-effective and should include innovative teaching mechanisms like video assisted pedagogy, teacher/student-led online forums, peer-to-peer studies, team-work, communication method, and new methods for students' progress assessment and feedback collection.

Moodle VLE

Modular Object-Oriented Dynamic Learning Environment (MOODLE) is one of the most widely used VLE. According to a recent report by *Capterra* [1], this VLE is used by more than 89 million people around the globe, higher than any other VLEs.

Some of the feature of Moodle are briefly discussed below

- *Open-source learning platform*: Moodle is an open-source VLE. The developers of Moodle provide full access to its code and do not charge users if they use their product for non-commercial purposes. This makes Moodle very cost-effective compared to proprietary VLEs. Even the cost of hiring third party providers to set up and customize Moodle turns out to be lower than a proprietary VLE.
- *Highly flexible in terms of scalability*: Moodle is highly scalable and can be used to meet the needs of organizations of all sizes, with user populations ranging from a few dozens to more than one million.
- *Good support to Web 2.0 tools*: Moodle supports a wide variety of social learning tools. Learners can collaborate using blogs, discussion forums, podcasts, social media, offline messaging, and email communications. The VLE also enables sharing of resources and comes with a collaborative assignment tool. Moodle also facilitates real-time collaboration through chat, live web conferencing, etc.
- *Easy integration with other enterprise systems*: Moodle can be integrated with various enterprise platforms such as SAP, Oracle, Workday, SalesForce, and SugarCRM and so on.

Moodle also supports cloud-hosting solution called MoodleCloud, for anyone who needs an online learning environment to teach a class or facilitate learning in any situation. MoodleCloud provides maintenance free support, itis scalable, mobile friendly, and simple to operate.

Moodle can be operated in two ways, installed on-site or deployed in MoodleCloud. On-site Moodle is free and open source, however, partners must assume the deployment costs that include a server, and the cost of human-resources that will monitor and maintain that server. In contrast, on-cloud Moodle comes at a cost, but the platform maintainenance is outsourced to the cloud provider.[2]

Requirements gathering and rationale for the recommendations for eACCESS

To gather the requirements from the partners, a consultation was carried out. This was a three stage process:

- Informal inquires: An informal consultation was carried out by UWS with the partners about their preferences and envisioned use of the VLE.

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[1] https://www.capterra.co.uk/software/176210/connect-vle

[2] For a review of the features and cost of MoodleCloud see: https://moodlecloud.com/app/en/

- Formal survey: To clarify the strategy with each partner and with a view to tailor the solution to each individual need, a survey was designed to complement the information procured in the previous stages[3].
- Clarification stage: One-to-one conferences and exchanges were used to clarify answer to the form while producing this document.

eACCESS strongly suggests partners to adopt an *on-site Moodle* as their VLE solution (within the scope of eACCESS). This recommendation is based on the following arguments:

1. Two of our partner universities are initiating the use Moodle (Atma Jaya Catholic University of Indonesia, and Royal University of Bhutan) as pilot for some of their course delivery.
2. Other partners do not have a VLE system[4] in place (Kantipur Engineering College, Soegijapranata Catholic University, Pokhara University).
3. All partners answered they either have internet access (or could provide it - College of Science and Technology, Royal University of Bhutan) in the classroom selected for the delivery of eACCESS Training.
4. Two out of five partners in Asia declared they can provide the technical and infrastructure support for hosting a VLE system.
5. Moodle is open source, maintained by a community of users, and provides extensive documentation.
6. Cost of the on-site Moodle for the envisioned number of users for eACCESS is lower than the on-cloud alternative and will provide more flexibility of growth for the partners.

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[3] Survey form an answers are available here:
https://forms.office.com/Pages/ResponsePage.aspx?id=t0SZ-E5Kp06RVjKZ80EWR3GEEXKt52xNlVfowOaNMZpUMkRSU0NLOEpRN1dPMDJOWTM2TVdPMVg4VS4u .

[4] At least within the scope of the organizational unit for eACCESS.

Section 2: eACCESS RoadMap for Deploying Moodle VLE

Moodle VLE deployment strategy is presented in Figure 2.1, which each partner institution need to follow. Technical specifications and relevant information were gathered from partners to formulate the following strategy. The breakdown of each partners' VLE deplyoment roadmap is presented in Sections 5 to 9.
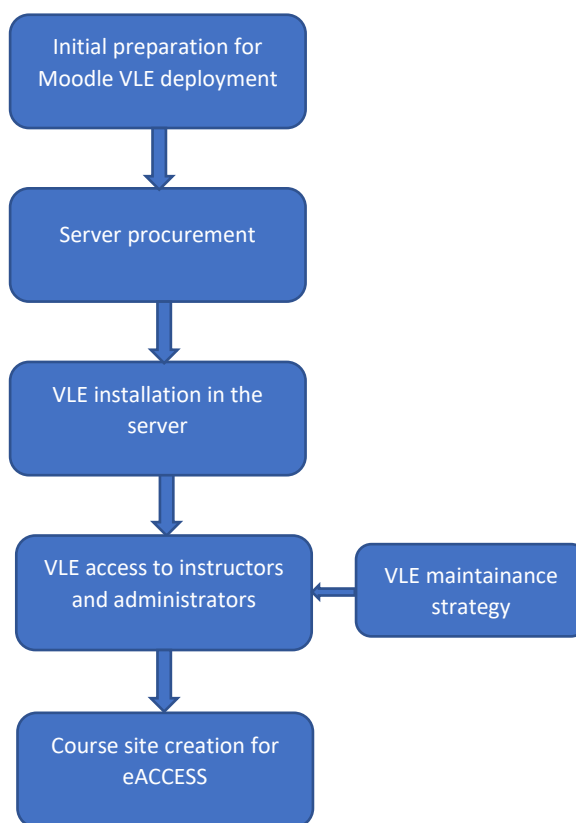

Figure 2.1 VLE deployment scheme

The following table presents a Roadmap to deploy the VLE system in the partner institutions. The table is intended to cater all identified needs of the partner institutions, so that each can plan their needed resources to complete the tasks within the project deadlines.

The requirement gathering phase identified two realities within our partners. Those who were already using Moodle (labelled as "Reuse") and those requiring a fresh installation (labelled as "New"). Partners were encouraged to read this section and complete the VLE deployment plan template, using the information in this section for help and guidance to complete the technical tasks related to the deployment of Moodle in their institution. For each relevant Activity in the following table, entry must be completed in the section "Milestones and project Schedule" in the each partner's instance of the "Moodle Deployment plan Template".

Scope	Activity	Tasks to complete the activity	Deadline
New/Reuse	Instantiate your institution plan	Create a version of the document	Before 31/03/2020

		"Moodle Deployment plan Template" and complete section 1.	
New/Reuse	Procure the server	Complete section Project Hardware from the template	Before 30/06/2020
New	Deploy Moodle in your server	Go to section: Prepare a server and install Moodle	Before 31/08/2020
New	Give access to Moodle to instructors and administrators	Go to section: Add users to Moodle	Before 30/09/2020
New/Reuse	Establish Moodle Maintenance strategy		Before 30/10/2020
New/Reuse	Create a course site for eACCESS	Go to section: Creating a course site	Ongoing from 30/09/2020 to the end of the project
New/Reuse	Create eACCESS templates for each course delivery mechanisms (Lecture, Laboratory, Tutorial, Assessment, Feedback, discssion forum etc.)	Go to section: Creating a course site	Ongoing from 01/10/2020 to the end of the project
New/Reuse	Deployment of learning materials of eACCESS course units into the eACCESS eLearning platform	Go to section: Creating a course site	Ongoing from 01/12/2020 to the end of the project
New/Reuse	Train the instructors and administrators on how to use and maintain the eACCESS platform effectively.	Go to section: Creating a course site	Ongoing from 30/09/2020 to the end of the project
Optional Activities			
New/Reuse	Change Moodle Look-and-Feel to your institution identity	Go to section: Changing the Look-and-Feel to create and institutional identity	

Prepare a server and install Moodle

Detailed documentation for installing Moodle is available in this link:
https://docs.moodle.org/38/en/Installing_Moodle.

For selecting the best sever set up consider reviewing the information in: https://docs.moodle.org/38/en/Performance_recommendations . Considering eACCESS project requirement a single server (Application plus Database) should be enough[5].

Add users to Moodle

Users to Moodle can be created manually or Moodle can be connected to external names directories.

Information on creating users and roles is available here: https://docs.moodle.org/38/en/Add_users

Creating a course site

In Moodle, the main unit of delivery is "a course". To create courses in Moodle follow the steps in: https://docs.moodle.org/38/en/Adding_a_new_course.

Changing the Look-and-Feel to create and institutional identity

You can change Moodle default look and feel to integrate it seamlessly to your institutional identity. Information can be found here: https://docs.moodle.org/38/en/Site_appearance.

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[5] Only College of Science and Technology, Royal University of Bhutan declared a number of potential users that might exceed the capacity of a modern desktop server.

Section 3. Moodle use

Moodle is highly flexible an adaptable. Therefore, in the interest of maintaining some degree of standardization among eACCESS modules, this section provides suggestions for organising module contents in a Moodle Class.[6]

1. Use **Section** to organise units of delivery
   a. The first section should only contain a Forum
   b. The second section should provide a description to the course.
2. Use **Labels** to convey static information

Figure 3.1 Example. Blended learning module. Guidelines 1 and 2.

3. Divide your module into units.

   a. For each unit.
      If your unit has several topics, Use **Books** to organize the contents.

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[6] Appendix I. Contains expanded information of Moodle's features. We have included lessons learned and best practices form our experience delivering from online and blended learning modules at the University of the West of Scotland.
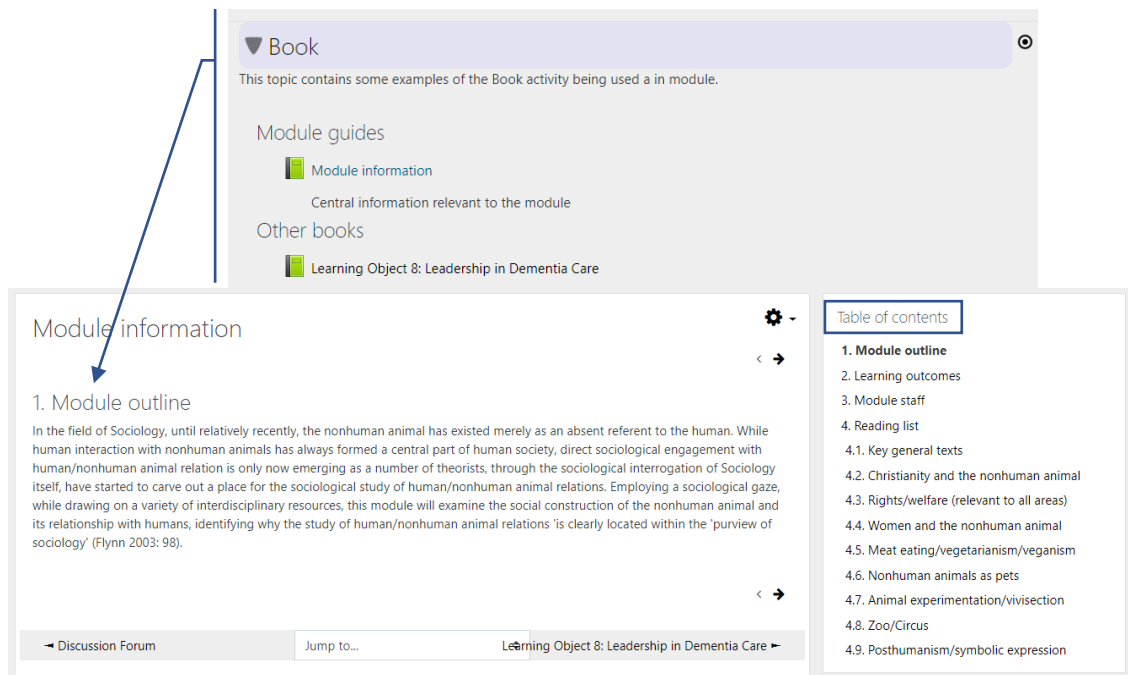
Figure 3.2 Example of a book with sections

    b.   If your unit is self-contained, a combination of **Labels** and other resources (like **files** and **videos**), is enough.
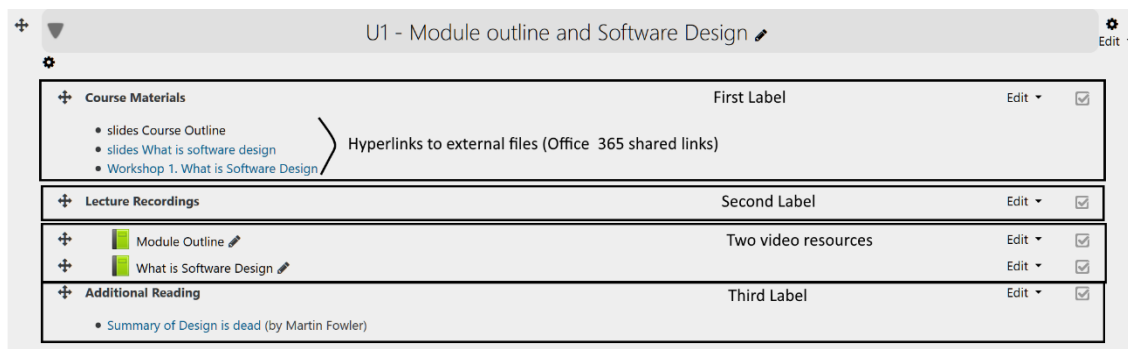

Figure 3.3 Delivery unit organized in Labels and resources (highlighted for reference)

4.   Assessments
    a.   Grade-baring assessment should have their own section.
    b.   Use **assignments** for student's evaluation that require the instructor feedback.

Section 4. Summary of available Moodle's resources and activities

This section provides a review of different resources and activities available within Moodle VLE. These resource and activities will be exploited within eACCESS platform, customised as required for various teaching and learning setups and corresponding needs. Comprehensive review and configuration procedure can be found in online Moodle Documentation; however introductory text has been extracted from Moodle Documentation within this section in order to provide an abstract view of the Moodle capabilities.

1. Student engagement with eACCESS Moodle-based platform

This section provides a Moodle-based templates for student engagement and assessments. Various activities, which can be configured using Moodle are described in this section. These activities can be used for:

i)   engaging students in undertaking learning of the course
ii)   deploying and supporting various assessment methods
iii)   making teaching and learning resources available outside university/contact time
iv)   tracking and monitoring usefulness for various teaching resources and methods by gathering student engagement data.

The resources and activities available in model are shown in Figure 4.1. An Activity is a general name for a group of features in a Moodle course. Usually an activity is something that a student will do, and that interacts with other students or the teacher. In Moodle terminology, an Activity, such as Forums or Quizzes, properly means something students can contribute to directly, and is often contrasted to a Resource such as a File or Page, which is presented by the teacher to them (Moodle Doc 2019). However, the term activity is sometimes for convenience also used to refer to both Activities and Resources as a group.
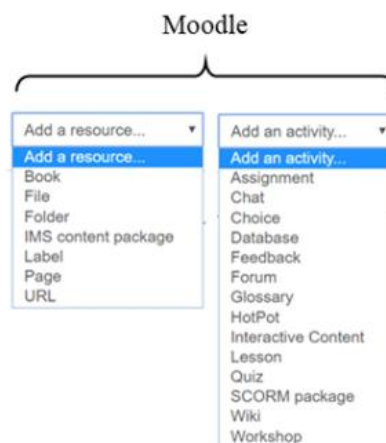
Figure 4.1 Different resources and activities available in Moodle

A resource is an item that a teacher can use to support learning, such as a file or link. Moodle supports a range of resource types which teachers can add to their courses. In edit mode, a teacher can add resources via the 'Add an activity or resource' link. Resources appear as a single link with an icon in front of it that represents the type of resource (Moodle Doc 2019).

eACCESS platform will provide comprehensive use of these resources and activities for different teaching and learning needs in offering various Power Engineering and Smart Grid related modules. As

highlighted in eAccess project, the main challenge is to use and deploy the VLE based eAccess platform in a specific Higher Education sector which has little exposure in using VLE environment.

The initial survey has been conducted, which highlights various requirements from partner universities in order to offer VLE based Power Engineering programmes. As outlined in the eAccess proposal, significant teaching will be delivered through various lab infrastructures. Thus, various Moodle activities and resources will be configured for facilitating teaching, learning and assessments for classroom as well as lab activities. In addition, eAccess platform will support student engagement on multi-levels such as before classroom/Lab session, during classroom/Lab session and after classroom/Lab session as shown in Figure 4.2.
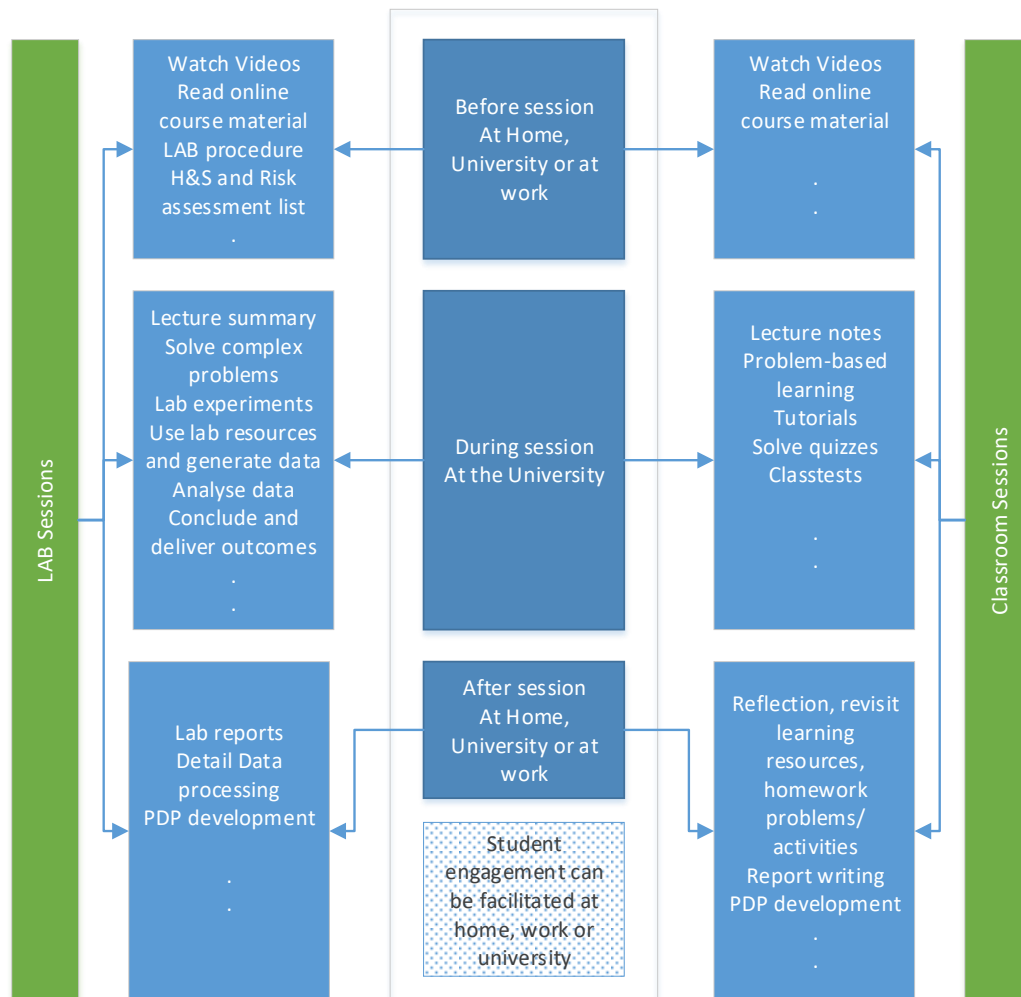

Figure 4.2 Different student engagement scenarios and associated resources/activities

In order to support different levels of student engagement in delivering Power Engineering related programmes following resources and activities will be designed within eAccess platform using Moodle VLE.

2. Resource categories for facilitating teaching and configuring contents of teaching materials

2.1 Book

The Moodle book tool enables you to create a series of web pages with a content menu and back and forward navigation buttons at the top and bottom right of each page. The web pages can be organised into multi-page resources which can include content copied from HTML or Word files. The book is not interactive but you can add text, images, links to URLs, links to discussion forums or quizzes and even multimedia objects like Flash movies. You can also insert links to individual files into a book. The books are organised into chapters and subchapters but have no further levels. A chapter can have several subchapters but subchapters cannot have further subchapters. Books can be printed in their entirety or chapter by chapter.
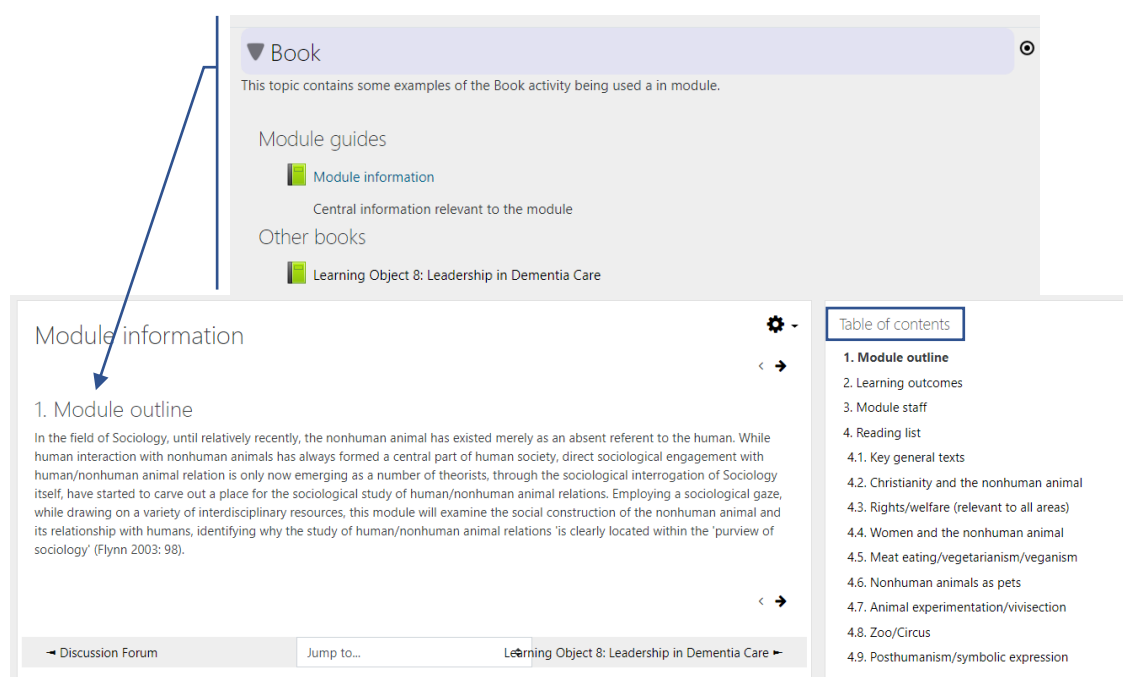
Figure 4.3 Moodle resource Book

2.2 File

Moodle provides an easy way for a teacher to present materials to their students. These materials may take the form of files such as word-processed documents or slideshow presentations. The materials can be displayed on the page either as individual items or bundled together inside folders. One teacher might for instance wish to share a single research document in pdf format; another might have a folder of sample past examination papers for students to download. Most types of files can be uploaded and accessed through Moodle but the student needs to have the correct software to be able to open them.

An administrator can add new file types and view, edit and delete existing file types from Site administration > Server > File types. This means that, for example, if teachers and students on your site use a lot of files specific to a particular program, such files can now be recognised by Moodle, and,

when downloaded, they will open in the correct program, rather than presenting themselves as a generic zip file.

Figure 4.4 Selecting a file or folder in the activity chooser and types of files
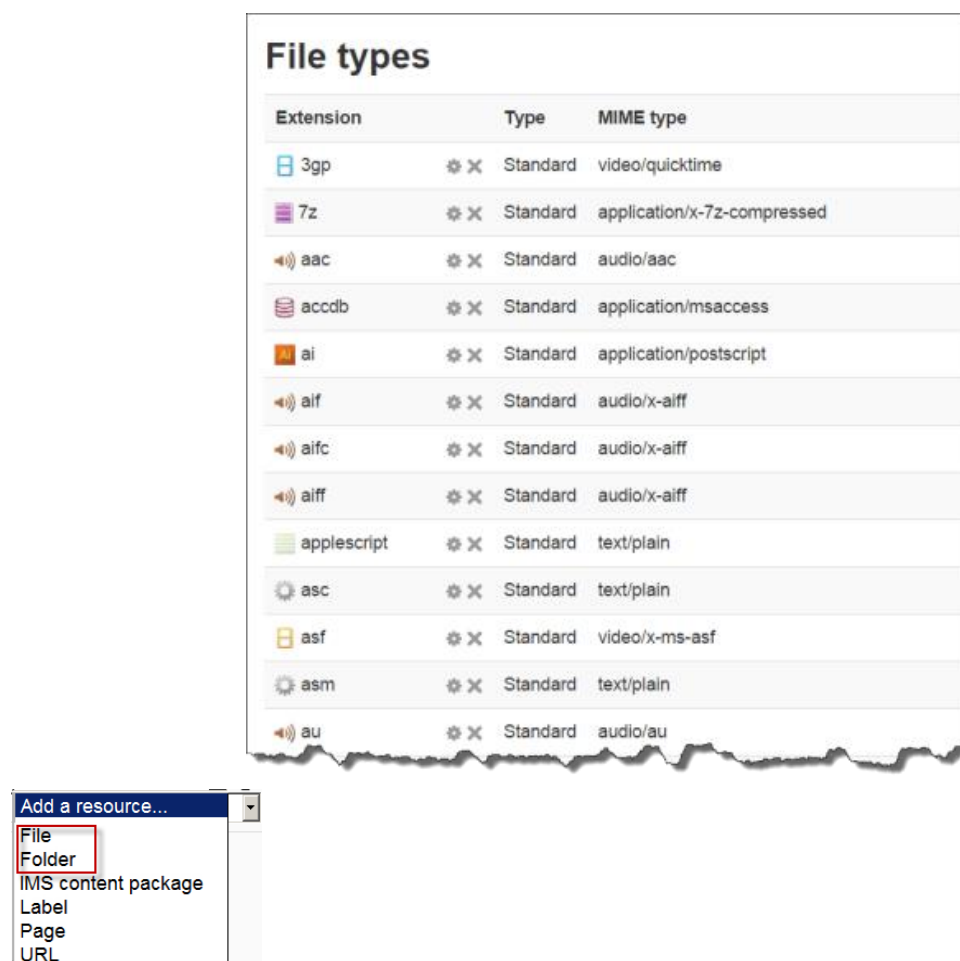
2.3 Folder

A folder allows a teacher to display several course files together. The files may be of different types and they may be uploaded in one go, as a zipped folder which is then unzipped, or they may be added one at a time to an empty folder on the course page.
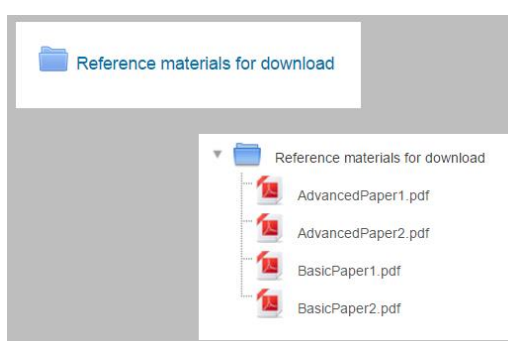

Figure 4.5 Adding folder to the Moodle site

Using a folder to display files is neater than displaying files one by one in a list. It takes up less space on the course page. (However, the folder settings allow for the files to be displayed on the course page if required.) Note that Moodle folders are for files (documents, images, presentations) only and not for containing other Moodle resources or activities such as URLs or assignments. An optional setting allows the teacher to show a download button in the folder so students may download the files as a zipped folder for viewing offline.

2.4 Label

A label serves as a spacer on a Moodle course page. It can be used to add text, images, multimedia or code in between other resources in the different sections. It is a very versatile resource and can help to improve the appearance of a course if used thoughtfully. Banners or descriptions may be added to labels to distinguish between and highlight different areas. On the other hand, over-use of multimedia (sound, video) in labels can slow down the loading of a course page.

Figure 4.6 A Moodle Label with video

2.5 Page

A page resource creates a link to a screen that displays the content created by the teacher. The Text editor allows the page to display many different kinds of content such as plain text, images, audio, video, embedded code or a combination of all these. In certain cases it might be preferable to use the page resource instead of uploading a word-processed document, particularly if the document contains text that is just to be read and not downloaded.

The text editor (sometimes referred to as the 'HTML editor') has many icons to assist the user in entering content. Many of these icons and functions should be familiar to anyone who uses a word

processor. Some examples of where you will see the text editor include: Editing Section headings, description of an activity, writing an answer to a quiz question or editing the content of many blocks. The default text editor in Moodle is the Atto editor, built specifically for Moodle. There is also a version of the TinyMCE editor and a plain text editor. Text editors can be enabled, disabled or a different one set to default from Administration > Site administration > Plugins > Text editors > Manage editors. The order of priority may also be specified here. If more than one text editor is enabled, users can select their preferred editor via their preferences page in the user menu (top right).
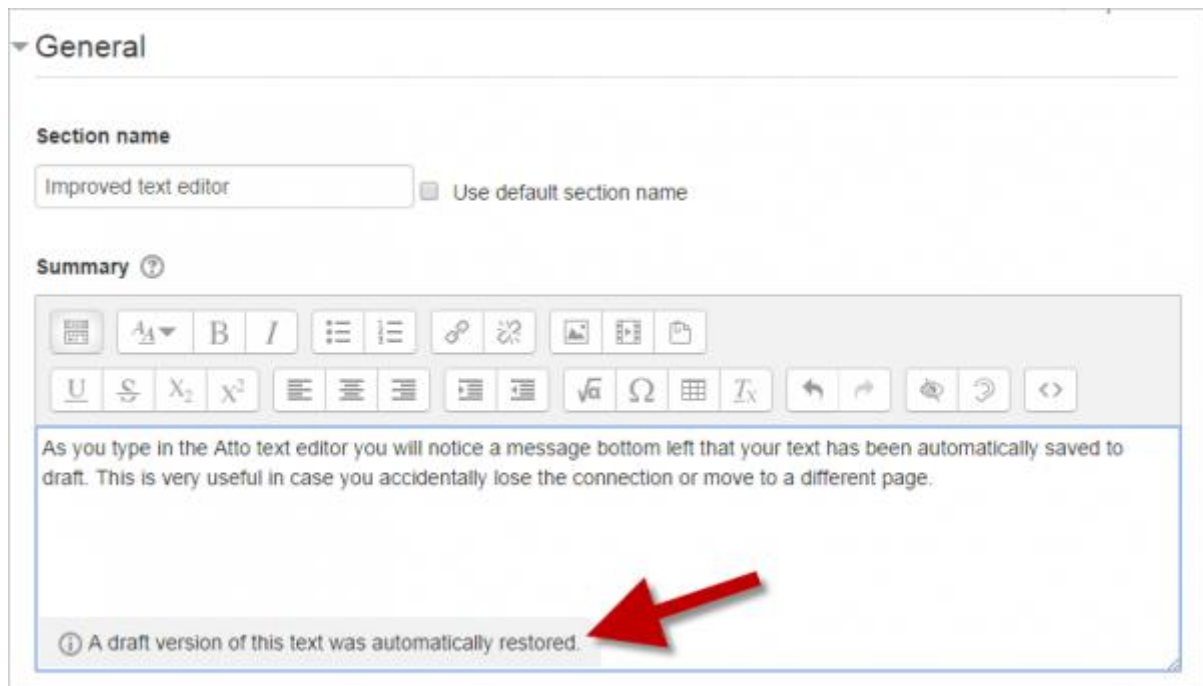
Figure 4.7 A typical text editor

2.6 URL

A URL (Uniform or Universal Resource Locator) is a link on the internet to a website or online file. Teachers can use the URL resource to provide their students with web links for research, saving the student time and effort in manually typing out the address. The URLS can be displayed in various ways, opening in a new window so a student can access and use the URL, close it and return easily to their original Moodle course page.

3. Activities for facilitating teaching and configuring contents of assessment material

3.1 Assignments

The assignment activity in Moodle provides a space for students to submit work for marking and feedback. This has a tree structure and is more efficient than email as all submissions are grouped together in one place. It can also be used to remind students of offline assignments, such as art work that does require an online submission.

Student submissions are located in a Moodle dropbox. You can ask students to submit one or multiple files and/or to type text directly into a text box. It is possible to have students submit work as a group and you can also choose to mark their work anonymously. Assignments can have deadlines and cut off dates - which you can also extend if necessary.

Assignments allow students to submit work for marking and feedback. The work can be typed online or uploaded as a file (of any type the marker's device can read). Grading can be by simple percentages or custom scales, or more complex rubrics can be used. Students may submit as individuals or in groups and marking can be undertaken anonymously if required.

First name / Surname	Grade	Edit	Last modified (grade)	Feedback comments	Feedback files	Final grade
David Beckham	50.00 / 100.00		Tuesday, 20 November 2012, 6:18 PM	A valiant effort		50.00 / 100.00
Victoria Beckham	46.00 / 100.00		Tuesday, 20 November 2012, 6:18 PM	A bit thin on content		46.00 / 100.00
Cheryl Cole	34.00 / 100.00		Tuesday, 20 November 2012, 6:18 PM	Watch your style		34.00 / 100.00
Matt Baker	88.00 / 100.00		Tuesday, 20 November 2012, 6:18 PM	Excellent attitude		88.00 / 100.00
David Cameron	10.00 / 100.00		Tuesday, 20 November 2012, 6:18 PM	Limited relevance		10.00 / 100.00
Nick Clegg	5.00 / 100.00		Tuesday, 20 November 2012, 6:18 PM	Concerned about plagiarism		5.00 / 100.00

Figure 4.8 Moodle activity Assignment

3.2 Choice

The Choice activity allows you to ask a question and set up radio buttons which learners can click to make a selection from a number of possible responses. They can choose one or more options and they can update their selection if you allow them. Choices can be useful as quick poll to stimulate thinking about a topic; to allow the class to vote on a direction for the course, or to gauge progress.

As a teacher you can always see the results, but you can also choose whether or not to allow learners to see each others' choices and whether or not to allow them to see the names or merely the percentage of votes. You can download their reponses in a variety of formats. Responses may be 'published', ie made visible once the learner has made a selection, or visible once the choice is closed. Choice options may be restricted so only a certain number may make a particular selection, and you can also opt to display a column showing who have not made their selection.

Figure 4.9 Moodle choice

3.3 Feedback

Apart from the obvious use of evaluating a course, feedback surveys have a variety of uses, both within a course and for non-logged in users on the front page. The ability to set them as "anonymous" means also those sensitive issues can be surveyed without students worrying who might see their responses. The available question types are:

i. Captcha: A test to make sure a real person is filling in the form and not an automatic spamming program of some sort. Asks a person to write out some distorted text which is displayed on screen. You normally won't need this unless you find you are getting spammed a lot.

ii. Information: This allows you to choose to display one of three types of information: the time of responding; the course and/ or the category where the feedback is located.

iii. Label: Like a standard Moodle label, this allows you to add arbitrary text between questions allowing for extra explanation or to divide the Feedback into sections.

iv. Longer Text Answer: This option is for creating a text box (you specify how big it will appear in rows and columns) which people can write a long answer into.

v. Multiple choice - multiple answers: This will give you a series of options with a checkbox next to each one. The respondents can check as many as they want and there is currently no way to specify a limit to how many they can choose which is lower than the total.

vi. Multiple choice - single answer allowed (dropdown list): This will give you a dropdown list from which only one answer can be selected.

vii. Dropdown list (rated): This is like the dropdown list option, except that each option has a numerical value associated with it.

viii. Numeric answer: Here, you ask a question which must have a number as an answer and specify the acceptable range e.g. "How many arms would you like, if more than 2 were possible? (please specify 0-10)" with a range of 0-10 set in the options. It helps if you specify the acceptable range in the question text.

ix. Multiple choice - single answer: This will give you a series of radio buttons, which starts on 'Not selected' and then has your options afterwards. Only one can be chosen and 'Not selected' is a valid answer if the question is not set to 'required'.
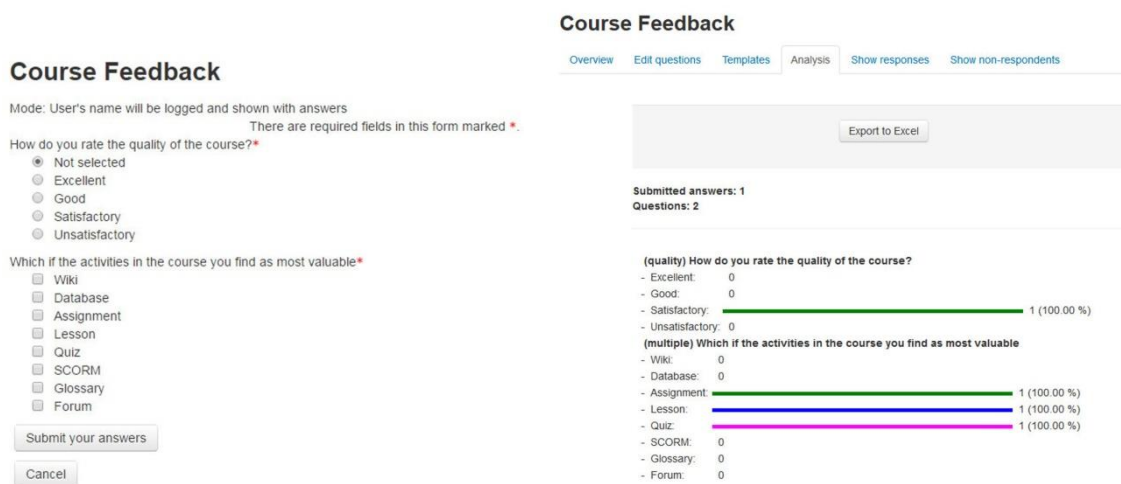
Figure 4.10 Moodle feedback

3.4 Forum

The forum module is an Activity where participants can exchange ideas by posting comments. There are five basic forum types which have slightly different functions. Forum posts can be graded by the teacher or other students. There are five different types of discussion forum available in Moodle each with slightly different functionality:

i)   A single simple discussion – this allows tutors to post one single message that everyone can then reply to. Students are not able to start new messages with this type of forum. This type of forum is not suitable for group work.

ii)   Each person posts one discussion – this allows each student to post only one new message that everyone can then reply to. Once they have posted their new message, they will only be able to reply to other messages. This is useful for peer work if you want your students to post a piece of work for the rest of the group to comment upon.

iii)   Q and A forum – the tutors pose a question that the students have to reply to. The documentation states that students can only see other replies once they have submitted a response which avoids the 'me too' type forum responses that you can get with this type of activity. However, there does seem to be mixed feedback about whether this functionality works so this type of forum should be used carefully .

iv)   Standard forum displayed in a blog-like format – this is an open forum where anyone can start a new message at any time. New messages are added onto one page with students having to click on a Discuss this topic link in an individual message to post a reply to it.

v)   Standard forum for general use – another open forum where anyone can start a new message at any time. Each new message appears as a row in a table. Replies show as a clickable number. This forum type is recommended, as it gives staff and students the most flexibility.

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Course Help Forum

Figure 4.11 Moodle Forum

The technical term for this type of communication is asynchronous, meaning "not at the same time." Asynchronous communications are contrasted with synchronous forms such as chat rooms, instant messaging, or face-to-face conversations.

3.5 Quiz

The quiz activity enables you to design and build quizzes using a wide range of question types, including multiple choice, true-false, short answer and drag and drop images and text. These questions are kept in the question bank associated with your Moodle space and can be reused in different quizzes and exported to different Moodle spaces.

A quiz is made up of two parts: (1) a set up page or 'front cover' where you add the criteria for the quiz, such as grading and time limits, and (2) the questions themselves. The questions are stored separately from your quiz in a course Question bank. This means you can reuse your questions in a later quiz. By default, in new installations of Moodle, the most common question types will appear as shown in Figure 4.12 and described as following:

i) Calculated questions: offer a way to create individual numerical questions by the use of wildcards that are substituted with individual values when the quiz is taken.

ii) Calculated multichoice questions: are like multichoice questions with the additional property that the elements to select can include formula results from numeric values that are selected randomly from a set when the quiz is taken. They use the same wildcards as Calculated questions and their wildcards can be shared with other Calculated multichoice or regular Calculated questions.

iii) Simple calculated questions: offer a way to create individual numerical questions whose response is the result of a numerical formula which contain variable numerical values by the use of wildcards (i.e $\{x\}$, $\{y\}$) that are substituted with random values when the quiz is taken. The simple calculated questions offer the most used features of the calculated question with a much simpler creation interface.

iv) Drag and drop into text: Students select missing words or phrases and add them to text by dragging boxes to the correct location. Items may be grouped and used more than once.

v)   Drag and drop markers: Students drop markers onto a selected area on a background image. Unlike the Drag and drop onto image question type, there are no predefined areas on the underlying image that are visible to the student.

vi)   Drag and drop onto image: Students make selections by dragging text, images or both to predefined boxes on a background image. Items may be grouped.

vii)   Description: This question type is not actually a question. It just prints some text (and possibly graphics) without requiring an answer. This can be used to provide some information to be used by a subsequent group of questions, for example.

viii)   Essay: This allows students to write at length on a particular subject and must be manually graded. It is possible for a teacher to create a template to scaffold the student's answer in order to give them extra support. The template is then reproduced in the text editor when the student starts to answer the question. See YouTube video Essay scaffold with the Moodle quiz It is also possible to include grading information for teachers marking the essay to refer to as they assess the essays.

ix)   Matching: A list of sub-questions is provided, along with a list of answers. The respondent must "match" the correct answers with each question.

x)   Embedded Answers (Cloze Test / Gap Fill): These very flexible questions consist of a passage of text (in Moodle format) that has various answers embedded within it, including multiple choice, short answers and numerical answers.

xi)   Multiple choice: With the Multiple-Choice question type you can create single-answer and multiple-answer questions, include pictures, sound or other media in the question and/or answer options (by inserting HTML) and weight individual answers.

xii)   Short Answer: In response to a question (that may include an image), the respondent types a word or phrase. There may be several possible correct answers, with different grades. Answers may or may not be sensitive to case.

xiii)   Numerical: From the student perspective, a numerical question looks just like a short-answer question. The difference is that numerical answers are allowed to have an accepted error. This allows a continuous range of answers to be set.

xiv)   Random short-answer matching: From the student perspective, this looks just like a Matching question. The difference is that the sub-questions are drawn randomly from Short Answer questions in the current category.

xv)   Select missing words: Students select a missing word or phrase from a dropdown menu. Items may be grouped and used more than once.

xvi)   True/False: In response to a question (that may include an image), the respondent selects from two options: True or False.
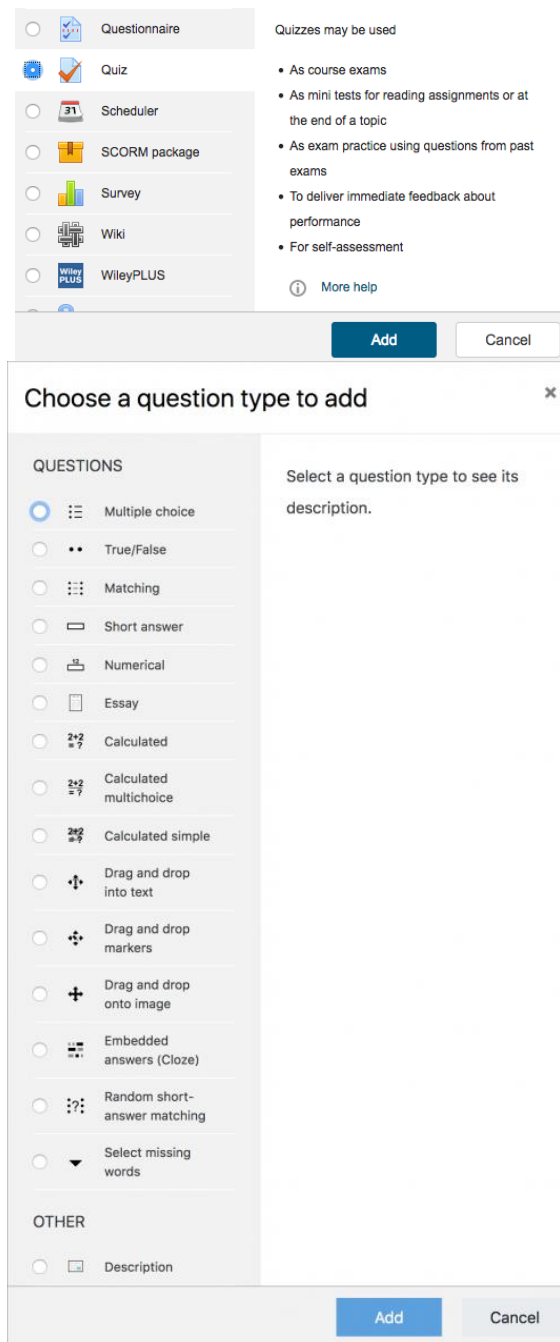
Figure 4.12 Moodle activity Quiz and its types

3.6 Turnitin

Turnitin is a commercial plagiarism detection system which requires a paid subscription to use. This Plugin integrates with the existing Moodle Assignment module. Turnitin helps instructors assess the originality of student work and ensure the proper citation of references by comparing students' electronic documents to a variety of online sources and to the Turnitin database. The software then creates an "originality report" that rates submitted assignments and highlights text that appears in its databases or elsewhere on the Internet as follows:

    i)   internet sources (both archived and live where permission has been given)

ii)   assignments from other educational institutions that have been added to the Turnitin database

iii)   journal articles (increasingly publishers are giving Turnitin access to their journal articles to protect their copyright)

iv)   foreign language databases

In general, online submission allows for assignments to be submitted, managed and accessed from one place. Submissions are stored electronically reducing the risk of work being misplaced and saves on physical storage requirements. The student receives a receipt of submission by email confirming the date and time of submission. Students have the flexibility of submitting work from any device with an internet connection saving them the time and cost of travelling for the sole purpose of handing in work.

Following table provides a snapshot of the functionalities within moodle and Turnitin

	Moodle	**Turnitin (Feedback Studio)**
Recommended use	For a variety of assessment where originality matching (of text) is not essential; Can be set up to allow one submission only before due date or as many as wish before due date	For text-based assessment where originality checking is essential; Can be set up to allow one submission only before due date or as many as wish before due date
Recommended file size	Up to 100Mb	Up to 40 Mb
Format restrictions	Accepts a wide range of formats but no zipped files	Some format restrictions e.g. no scanned material or files created in e.g. photoshop and saved as PDF, no spreadsheets, must have content containing 25+ words
Number of submissions per student	Set up allows for up to 20 files	Set up allows for up to 5 parts (five files) per submission area.
Recommended file type	Word or PDF	Word or PDF
Copyright/plagiarism declarations	Staff can set up a check box that requires that students accept the submission statement for all submissions to this assignment.	Students have to check a box to state the submission is their own work before they can submit anything
Originality checking	Moodle does not check text for originality	Turnitin checks text for originality and produces a report

Confirmation of successful submission	Confirmation is shown online once submitted	Confirmation is shown online once submitted
Receipting	Student is sent a simple receipt	Student is sent a detailed receipt
Late submission notification	Late submission is flagged when the submission has been successfully submitted	Late submission is flagged online when the submission has been successfully submitted and on the receipt
Feedback options	Feedback is recommended through OAT, accessible in Moodle. Text and audio files can also be uploaded in Moodle Gradecentre	Feedback is recommended through OAT, but text can also be annotated in Turnitin Grademark and shared with students

Source: https://elearningsupport-turnitin.myblog.arts.ac.uk/

Section 5. Atma Jaya Catholic university. Moodle deployment plan

This section describes the project plan that AJCU has developed to deploy the Virtual Learning Environment within the scope of EACESS. It describes resources, dates and decisions taken to achieve this goal.

Background information

Atma Jaya Catholic University of Indonesia was established on June 1st, 1960. In 2020, it has about 11.000 students spread over 8 faculties, 21 bachelor degree programs, 11 master degree programs and 2 doctoral programs. Its campus are located in 3 locations: Semanggi Campus, Pluit Campus and BSD Campus

The VLE is implemented for the first time in 2002 by the Faculty of Psychology. After that several faculties follow the use of VLE in their curriculum:

2004: several course in Faculty of Engineering (Bachelor degree) and Faculty of Economics (Master Degree).

2007: The Department of Education for Primary School's Teaches launched long distance program through full online courses.

2016: Microsoft Campus Agreement: Microsoft 365 with cloud server

At present, several VLE platforms are available at its campus: Moodle, Microsoft Teams, Panopto Online Platform and Atma Zeds. Each lecturer is free to choose the best suited platform for each of them, there is nostandard eLearning platform as such. THE VLE system is coordinated by the Centre for Instructional Activities Development.

Project scope

AJCU already has a Moodle installation and will use the existing instance to deliver the contents within the EACESS Scope.

Project plan

This section documents the activities, resources to deploy the Moodle VLE system that will cater to eACCESS needs in Atma Jaya Catholic University of Indonesia

Project hardware

 Option 2. Reuse of a previous installation.

AJCU will use the following existing hardware and infrastructure.

Server name: elearning.atmajaya.ac.id

IP Address: 110.35.80.204

The Moodle still uses local server. The server is placed at the BSD campus

Milestones and project schedule

AJCU will follow the eACCESS RoadMap for Deploying Moodle VLE as described in Section 2. The following table describes additional specific key project milestones, with their completion date and responsible.

Milestone	Estimated completion date	Responsible
Create a course for eACCESS	October 2020	Budi Kartadinata
Create 2 additional course	July 2021	Anisa Sarah

Section 6. College of Science and Technology, Royal University of Bhutan. Moodle deployment plan.

This section describes the project plan that CST, RUB has developed to deploy the Virtual Learning Environment within the scope of eACCESS. It describes resources, dates and decisions taken to achieve this goal.

Background information

The Royal University of Bhutan (RUB) is one of the two Universities in the Kingdom of Bhutan with more than 10000 students spread over eight colleges. It was set up in 2003 to look after the management of tertiary education in the country. The University is set up on a federated system with member Colleges spread all over the country. Its vision is to be a highly recognized seat of excellence for tertiary educational provision that advances knowledge, improves quality of life, enhances socioeconomic development and promotes national happiness, and the mission to continue to enhance access to tertiary education and its quality through advancement of research, modes of teaching and learning, innovative pedagogy and creative use of technology.

The College of Science and Technology (CST), located in Phuentsholing is one of the two engineering colleges in Bhutan offering Bachelors programme in Civil, Electrical, Electronics and Communication, Information Technology, Architecture, Engineering Geology, Instrumentation and Control Engineering, and Master of Engineering in Renewable Energy. Masters in Construction Management will be launched in July 2020. CST is one of the founding members of the Royal University and currently has around 1000 students. The provision of quality education to its youth is given highest priority by the government and the citizens of the country in the pursuit of becoming a knowledge-based economy. The Royal University of Bhutan being the only University, has the responsibility to make this vision come true and seeks to learn from well-established institutions/universities.

Internationalization is a key component of university's aspiration. In this regard, the college has excellent collaborations and linkages with industries, academic institutes and professional bodies. It has signed 28 memorandum of understanding (MOUs) (18 international and 10 national) with several esteemed relevant stakeholders. The College has been able to build its academic and research capacity through collaborative activities mostly with European Union universities. The college has hosted 15 EU faculty members and 10 students on exchange programmes so far. The college target to enrol at least 3% international students in 2020 and gradually increase to 10% by 2025.

The expected outcomes from the VLE when related to eACCESS for CST is conducting online teaching, conducting examination and evaluation.

Project scope

CST, RUB already has a Moodle installation and will use the existing instance to deliver the contents within the EACESS Scope.

Project plan

This section documents the activities, resources to deploy the Moodle VLE system that will cater to eACCESS needs in CST, RUB.

Project hardware

Option 2. Reuse of a previous installation.

CST, RUB will use the following existing hardware.

Server name: <vle.cst.edu.bt>

IP Address: <103.133.216.197>

Milestones and project schedule

CST at RUB will follow the eACCESS RoadMap for Deploying Moodle VLE as described in Section 2. The following table describes key specific project milestones, with their completion date and responsible.

Milestone	Estimated completion date	Responsible
Create a course for eACCESS	October 2020	
Upload to server	Jan 2021	Jiwan Gurung
Operational and maintenance of server	July 2021	Jiwan Gurung and Mahindra Rai
Pay Monthly lease line fee	June 2021	Sangay Choden
Sort and update resources	June 2021	Roshan Chhetri

Section 7. Kantipur Engineering CollegeDocument purpose. Moodle deployent plan

This section describes the project plan that KANTIPUR ENGINEERING COLLEGE has developed to deploy the Virtual Learning Environment within the scope of EACESS. It describes resources, dates and decisions taken to achieve this goal.

Background information

Kantipur Engineering College, under the affiliation of Tribhuvan University, has been imparting engineering education since 1998 with the objective to produce qualified and proficient engineers capable of facing the engineering challenges of this modern era, where science and technology is dominating every fields of our life. At the time, engineering subjects were revolutionary—today, they're more important than ever. In these years, we put enormous efforts and spent a lot of resources to pursue excellence in engineering education. At present, KEC is one of the largest and among the few colleges having its own physical infrastructure. To date, we have produced thirty six batches of engineers in the field of Civil, Computer and Electronics & Communication Engineering. Most of our graduates are performing well both nationally and internationally.

Expected outcome from VLE:

With the implementation of MOODLE as a VLE, we expect to enhance the teaching-learning process for EACCESS and the college as a whole. The learning process shall be more technology oriented as teachers and students starts interacting through virtual platform. The interaction with students through the moodle shall include and not limit to- study materials sharing, assignment submissions, attendance records, circulating notices, teacher-student communication, discussion forums, examination, student evaluation, feedback collection etc. Monitoring and managing the teaching-learning process shall be more effective and efficient with the implementation of VLE.

Project scope

Frist time installation in a new server.

This project will deliver a fresh installation of Moodle in a server that is going to be procured for these purposes. This document describes task and activities to procure the server, deploy model, and assure the correct maintenance of the server.

Project plan

For the implementation of VLE atKANTIPUR ENGINEERING COLLEGE, a Moodle implementation team has been formed. The team members of Moodle Implementation team are:

1. Er. Dipesh Shrestha
2. Er. Nischal Khadka
3. Er. Rubash Mali

In the first phase of moodle implementation, separate server will be procured and initial setups and instillations will be done. The VLE will be tested over College Intranet with involvement of limited number of teachers with prior knowledge of the VLE.

In the next phase, training to all the teachers, staffs and students will be conducted regarding the usage of Moodle. And finally, the VLE will be launched online. The feedback will be collected frequently for further improvement and maintenance.

Project hardware

Fresh installation in a new server.

The project will require a new hardware and services. That will include the following:

For implementation of MOODLE VLE system, there is requirement for 50 users

MOODLE server
Requirements - 2.66 ghz multicore Processor
                256 GB SSD DRIVE
                10 GB RAM

Dedicated Router

Server Security- Firewall

Software Setup/Configuration, Maintenance and consultation(For 1 Year) [Includes trainings for teachers, students and staffs)

Bandwidth may need to add up if required during implementation

Milestones and project schedule

KEC will follow the eACCESS RoadMap for Deploying Moodle VLE as described in Section 2. The following table describes key specfic project milestones, with their completion date and responsible.

Milestone	Estimated completion date**	Responsible
Procure the server	30/04/2020**	KEC Management
Server Setup and Moodle Installation	31/05/2020**	Moodle Implementation Team
Test launch	30/06/2020**	Moodle Implementation Team
Create Site for EACESS	31/07/2020**	Moodle Implementation Team
Moodle training to teachers, staffs and students	31/08/2020**	Moodle Implementation Team
Final Launch	30/09/2020**	

** Estimated completion date may be affected by **global corona virus effect.**

Section 8. Pokhara University. Moodle deployment plan

This section describes the project plan that POKHARA UNIVERSITY has developed to deploy the Virtual Learning Environment within the scope of EACESS.This describes resources, dates and decisions taken to achieve this goal.

Background

Pokhara University was established in 1997 as public university and it is working in the field of higher education. It is serving through four faculties and 68 colleges which are situated all around Nepal. The university has the following mission to enhance the quality of higher education in Nepal.

- ➢ Develop the institution into a Center of Excellence for Higher Education by enhancing teaching, learning and research activities; to accelerate the national development process by producing job market-driven, responsible, productive, welfare focused and committed human resources; to link the university system with community services
- ➢ Unfold the potential and creativity of learners, advocating humanism, reason, innovation, and search for truth

Quality education should necessarily not be limited to rhetoric. It has to be in reality and action, so that the university students imbibe critical thinking skills, develop positive attitude to work, and enhance competitiveness. Pokhara University, the youngest university system operating full-fledged programs in the country, aims at producing human resources capable of working for the nation as well as the global community. In this regards, Pokhara University has participated in the following Capacity Building Project of Erasmus+ Prograam of European Union.

- ➢ Supporting the Professionalisation of Health Engineering studies and Related areas in Asia (SPHERA)/ Project Number:573909-EPP-1-201-ES-EPPKA2-CBHE-JP
- ➢ Enhancing Green Economy in 3 Countries in Asia (EGEA)/ Project Number:598470-EPP-1-2018-DE-EPPKA2-CBHE-JP
- ➢ EU-Asia Collaboration for aCcessible Education in Smart Power Systems (eACCESS)/Project Number: 610041-EPP-1-2019-1-PL-EPPKA2-CBHE-JP

The one of the implementation WP of the Capacity Building Project is to establish and deployment of the virtual learning environment (VLE) plateform. In this regards, Pokhara University is going to establish the VLE platform for staff and students.

Project scope

In the first phase of Moodle implementation, separate existing server will utilized and initial setups and instillations will be done. The VLE will be tested over University (Information Access Center) Intranet with involvement of limited number of teachers with prior knowledge of the VLE.

In the next phase, training to all the teachers, staffs and students will be conducted regarding the usage of the moodle platform. And finally, the VLE will be launched online. The feedback will be collected frequently for further improvement and maintenance.

This document describes task and activities to procure the server, deploy model, and assure the correct maintenance of the server.

Project plan

For the implementation of VLE at POKHARA UNIVERSITY, a Moodle implementation team has been formed. The team members of Moodle Implementation team are:

4. <Prof. Dr. Binay Kumar Mishra>
5. <Lalit Bickrum Rana>
6. <Dr. Rajib Pokhrel>
7. <Dr. Madhav Prasad Koirala>
8. <Dr. Hem Chandra Chaulagain>
9. <Ram Chandra Aryal>

In the first phase of Moodle implementation, separate existing server will utilized and initial setups and instillations will be done. The VLE will be tested over University (Information Access Center) Intranet with involvement of limited number of teachers with prior knowledge of the VLE.

In the next phase, training to all the teachers, staffs and students will be conducted regarding the usage of the moodle platform. And finally, the VLE will be launched online. The feedback will be collected frequently for further improvement and maintenance.

Project hardware

Pokhara University has the training center (Information Access Center-IAC) with sofesticated Server system with video conferencing system. There is the training laboratory class room for more than 30 capacities. For eACCESS project require a hardware that include the installation of MOODLE VLE system a server complying with Moodle hardware requirements.

Milestones and project schedule

PU will follow the eACCESS RoadMap for Deploying Moodle VLE as described in Section 2. The following table describes key specfic project milestones, with their completion date and responsible.

Milestone	Estimated completion date	Responsible
Procure the server	30/04/2020	Faculty of Science and Technology, Pokhara University
Server Setup and Moodle Installation	31/05/2020	Moodle Implementation Team
Create Site for EACESS	31/07/2020	Moodle Implementation Team
Final Launch	30/09/2020	School of Engineering, PU

Section 9. Soegijapranata Catholic University. Moodle Deployment plan.

This section describes the project plan that SCU has developed to deploy the Virtual Learning Environment within the scope of EACESS. It describes resources, dates and decisions taken to achieve this goal.

Background information

Catholic University of Soegijapranata is based on Jalan Pawiyatan Luhur IV/1, Bendan Duwur, Semarang. The organizing body that manages Soegijapranata Catholic University is the Sandjojo Foundation, based in Jalan Imam Bonjol 186 A, Semarang.

Catholic University Soegijapranata develops higher education with the aim of helping students specializing in science, technology and art by providing state-of-the-art knowledge. Students are provided with skills needed by the community, reaching a level of personal and moral maturity, be humanistic, critical thinking and broad-minded. SCU develop and disseminate technology and strive to use them to improve people's lives and enrich national culture.

Soegijapranata's Unika developed Cyber Learning which was a development of the previous E-Learning platform to be able to answer these needs. E-Learning Unika Soegijapranata can be utilized for the sake of Hybrid Learning because it automatically connects with the KRS system and comes with a variety of tools that can align with face-to-face lectures, such as discussion rooms, presences, or prevention of plagiarism. That way, the learning process through the planned E- Learning can be balanced with face-to-facial (class room, instructor lead) learning. The Soegijapranata Cyber Leraning Unika corresponds to its function as learning through an Internet connection accessible via the address http://cyber.unika.ac.id

Project scope

SCU already has a Moodle installation and will use the existing instance to deliver the contents within the EACESS Scope.

Project plan

This section documents the activities, resources to deploy the Moodle VLE system that will cater to eACCESS needs in SCU.

Project hardware
 Option 2. Reuse of a previous installation.

SCU will use the following existing hardware.

Server name: http://cyber.unika.ac.id

Milestones and project schedule

SCU will follow the eACCESS RoadMap for Deploying Moodle VLE as described in Section 2. The following table describes key specfic project milestones, with their completion date and responsible.

Milestone	Estimated completion date	Responsible
Create a course for eACCESS and final launch	September 2020	Dr Florentinus Setiawan