Rudyk Oleksandr Yuhymovych
Vavrenyuk Vitalii Oleksandrovych
Nemesh Ivan Myhailovych
Pidgurnyak Vladyslav Olegovych

MOODLE AS AN INFORMATION AND EDUCATIONAL ENVIRONMENT OF AN EDUCATIONAL INSTITUTION

The basis of the educational process at the Khmelnytskyi National University (KhmNU – https://khmnu.edu.ua/en/) is the a modular learning environment (MLE – https://msn.khmnu.edu.ua/) [1], based on Moodle (an acronym for Modular Object-Oriented Dynamic Learning Environment) – an educational platform intended for to

unite teachers, administrators and students in one reliable, secure and integrated system to create a personalized learning environment [2].

Moodle is a free, open (Open Source) learning management system. It implements the philosophy of "social constructivism pedagogy" and is focused, first of all, on the organization of interaction between the teacher and students, although it is also suitable for the organization of traditional distance courses, as well as supporting face-to-face learning.

Moodle is written in PHP using a SQL database (MySQL, PostgreSQL or Microsoft SQL Server). Moodle can work with SCO objects and complies with the SCORM standard.

Moodle has a broad set of functionalities typical of e-learning platforms, course management systems (CMS), learning management systems (LMS) or virtual learning environments (VLE). Moodle enables educators to create effective online learning sites. Moodle can be used both in student training and in professional development and business training. By default, Moodle includes the TCPDF library, which allows you to generate PDF documents from pages. [2]. You can get more detailed information on the website [3].

In the Moodle environment, students receive:

– access to educational materials (texts of lectures, assignments for practical/laboratory and independent work; additional materials – books, handbooks, manuals, methodological developments and tools for communication and testing "24/7");

– tools for group work (Wiki, forum, chat, seminar, webinar);

– the possibility of reviewing the results of the distance learning course by the student;

– the possibility of communication with the teacher through personal messages, forum, chat;

– the ability to download files with completed tasks and use reminders about events in the course.

Teachers are given the opportunity to:

– use of tools for the development of author's distance courses;

– placement of educational materials (texts of lectures, tasks for practical/laboratory and independent work; additional materials – books, handbooks, manuals, methodological developments) in .doc, .odt, .html, .pdf formats, as well as video, audio and presentation materials in various formats and through additional plugins;

– adding various elements of the course;

– quick modification of educational materials;

– automation of the knowledge verification process, reports on students' completion of the course;

– adding various plug-ins to the course allows the teacher to use various third-party software tools for distance learning.

Let's take a closer look at the following Moodle options, such as the ability for students to view test results, and for teachers:

– use different types of tests (supported formats: GIFT, Aiken, Moodle XLS);

– автоматично формувати тести та звітів про їх проходження студентами.

Computer testing allows you to expand the possibilities of conducting individually adapted procedures for control and correction of knowledge of specific topics, to increase the objectivity of knowledge control, to increase the level of standardization of requirements for the volume and quality of knowledge and skills, to ensure the possibility of conducting preliminary self-control.

The environment in which pedagogical measuring materials are placed provides:

– formation and introduction of a bank of test tasks;

– authentication and identification of the tested person;

– input, correction and deletion of test tasks;

– formation of tests based on a bank of test tasks;

– flexible grading scale for each test;

– implementation of all possible parameters of the testing process: limitation of testing time (one task and the entire test as a whole), arrangement of different test options from available test tasks by the teacher or the system;

– implementation of the algorithms of the presented test tasks in a strict sequence, in a random order, according to increasing complexity or in accordance with the knowledge control algorithm;

– formation and storage of an administrative bank of test tasks, initial forms of test results; collection and processing of statistical information based on the results of testing.

The KhmNU website, in the MLE section, also contains a teaching methodology for the disciplines of the information block, which is based on the formulation of requirements for the level of training of students in a diagnostic form. One of the sections of the MLE is a system for computer interactive testing, which is built on client-server technology; an internet browser is used as a client. The client workplace can be any computer connected to a computer network with a browser installed on it. Installation of additional software on the client computer is not required.

The testing subsystem is an important part of MLE, as it partially takes over the functions performed by the teacher in the traditional system. The interactive system allows you to create one of the following types of test questions in the Word editor based on a special template:

– statement (Yes/No);

– on correspondence between the elements of two lists;

– a short answer (changing the status of the answer from correct to incorrect and vice versa);

– numerical question (answer in the form of a number);

– multiple choice (the question can allow both one and several correct answers);

– with a missing word (students see underscores on the screen; their task is to correctly enter the missing word in the phrase).

The editor of test tasks allows you to insert graphic objects and formulas into questions.

The main criteria for creating a test shell:

– a test containing questions on one or more pages;

– question bank, which stores copies of all questions, grouped into categories;

– random order of questions – a student receives different questions at each test attempt, different students may receive different questions.

The test package consists of several software modules:

1. Editing test parameters:

a) general parameters of the test (name of the test; description);

b) time selection:

– selection of the start and end time of testing (possibility of testing in a certain period of time, for example, after studying this section of the curriculum);

– time limit (test duration and countdown timer are displayed) – s., min., h., days, weeks;

– when the time is running out (this parameter determines what will happen if the student does not meet the allotted time for passing the test);

– the answers must be sent by the user before the end of the time, otherwise they will not be counted;

– ready answers are sent automatically;

– a grace period is provided, when ready answers can be sent without the possibility of answering other questions.

c) assessment:

– assessment category (current or credit);

– number of allowed attempts (unlimited, 1-10);

d) assessment method (if students are allowed to take the test several times, the resulting assessment for the test can be calculated differently):

– the best grade (the best grade from all attempts is considered the final grade);

– average grade (the average grade of all attempts is calculated);

– the first attempt (the first attempt is taken into account, other attempts are ignored);

– the last attempt (the final grade is the grade of the last attempt).

e) format:

– order of questions (random or specific order);

– a new page (for long tests, it is better to stretch the test to several pages by setting a limit on the number of questions per page; when adding questions to the test, page breaks will be inserted automatically, according to the settings; the page break can then be moved manually on the editing page) – all questions on one or more pages;

– navigation method (when sequential navigation is enabled, the student will be forced to answer questions sequentially and will not be able to return to the previous page or skip a page with the possibility of returning) – free, sequential.

f) presentation of a separate issue:

– random order of answers (questions are shuffled randomly on each test attempt) – yes or no;

g) obtaining the result:

– adaptive mode (learning mode – hint of correct answers-comments);

– adaptive mode without penalty points;

– interactively after several attempts (after an incorrect answer, you get the right to retry with a lower grade;

– immediately after the answer;

– immediately after the answer with a mark of the degree of confidence;

– after sending the entire test;

– after sending the entire test with a mark of the degree of confidence;

– manual assessment;

– each attempt depends on the previous attempt (indication of the result of the previous attempt – allows you to complete the test within several attempts) – yes or no;

g) options for viewing the test result (during the attempt; immediately after the attempt; while the test is still open; after the test is closed):

– the entire test (if the student can consider the attempts);

– whether the answer is correct ("correct", "partially correct" or "incorrect" with color highlighting);

– points for the test (for each question and for the entire attempt);

– comments for individual questions (feedback that depends on the student's answer);

– summary of the correct answer (explanation of the correct solution for feedback);

– comment on the result (feedback is given at the end of the test).

h) show:

– student's photo and name (if the checkbox is checked, the student's name and image will be shown on the screen during the test, which allows you to check the student's identification) – yes or no;

– the number of decimal places in the assessment for the test – 0-5;

– the number of decimal places in the evaluations for individual questions – 0-5;

– blocks when trying to pass the test – yes or no.

2. Editing of the test (possibility of changing the name of the test; the number of points; the maximum score; bank and category of questions; random questions from the category and subcategories, etc.).

3. Viewing the test (possibility of changing the category, title and text of each question; number of correct answers; answer numbering and answer options; settings for multiple attempts; penalties for each incorrect attempt; text hints; tags; locally assigned roles; rights in the test, etc.).

4. Management of grades (grades log; resulting report; user scale – ECTS, passed/failed, domestic – unsatisfactory, satisfactory, good, excellent; setting of course

grades); the course grade setting options determine how the grade log will look for all course participants.

5. Additional parameters:

– import of CSV files, XML files;

– export of OpenDocument spreadsheets, Excel, XML files, text files;

– the possibility of creating backup copies, importing data from other courses, restoring parameters.

The use of computer testing allows you to test the knowledge of large groups of students in the shortest possible time, to identify shortcomings in the presentation of educational material, and to apply methods of mathematical statistics to assess the degree of its assimilation. Often, students prefer testing to other methods of knowledge control, considering it more objective.

The purpose of tests and testing systems is to act as a learning process management tool, an element of feedback that makes it possible to analyze the learning process, make adjustments to it, that is, to fully manage the learning process. In this case, the educational process can be defined as a system of continuous monitoring and self-monitoring of students, which, together with the modular approach to the construction of the educational course, makes it possible to improve the quality of education as a whole.

References

1. Psyol S. V., Rudyk O. Yu., Tokarchuk M. M. Methods and means for intensifying the assimilation of educational material from technical and military disciplines. *Collection of scientific works of the National Academy of the State Border Service of Ukraine. Series: pedagogical sciences* / head. ed. O. V. Didenko. Khmelnytskyi: NADPSU Publishing House, 2021. No. 1(24). P. 366-392.

2. Moodle. URL: https://uk.wikipedia.org/wiki/Moodle

3. Materials for developers on creating electronic educational resources. URL: https://msn.khmnu.edu.ua/course/view.php?id=131

Soloshych Iryna

THE MODEL OF FORMATION OF DIGITAL COMPETENCE OF FUTURE ELECTRICAL SPECIALISTS AS A DIRECTION OF DEVELOPMENT OF THE INFORMATION AND EDUCATIONAL ENVIRONMENT OF THE EDUCATIONAL INSTITUTION

In the context of the processes of European integration in education, the education system of Ukraine has undergone significant structural and substantive changes. The learning process should be aimed at the gradual formation of the appropriate system of knowledge, abilities, skills and professional competences in students, including digital competence (DC) as an important component of professional competence. At the same time, the construction and implementation of a model for the formation of digital competence of future electrical specialists during distance learning is one of the directions of the development of the information and educational environment of the educational institution.