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TEACHING MATHEMATICS USING MOODLE

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ABSTRACT. Distance learning is one of study modes that is offered by a great number of universities. Our university offers partial distance learning for the students of part-time studies, i.e. such studies have a short learning session, but the basic studies are cared out individually while using Moodle (Modular Object-Oriented Dynamic Learning Environment). The article presents the experience of preparing and teaching the course of Mathematics using Moodle for part-time studies. It also reveals the students' survey results which evaluate the advantages and disadvantages of studying Mathematics with the help of Moodle.

INTRODUCTION. The teaching and learning of Mathematics at the university is a matter of concern in almost all faculties of our university. Students with various levels of knowledge, skills and abilities enter the university. There is a difference between the actual result of mathematical preparation in secondary schools and the expectations held at university level [1, 2]. Mathematics is not one of the main subjects for our students, thus the majority of them faces the difficulties of solving various tasks or following lecturer's explanations. However, in order to encourage the university-wide students' self-sufficiency contact hours decreased while more time was allocated to self-dependent studies, so it was necessary to modify the way of teaching and learning.

Aleksandras Stulginskis University has been implementing the distance learning system in the virtual learning environment of Moodle [3] since 2013. The distance learning students of the year 2013/2014 were asked to answer some questions about the advantages and disadvantages of Moodle and their peculiarities of studying. Moreover, they were asked to express their comments and suggestions concerning the presentation of Mathematics material, the organizing of education, etc.

The goal of the research is to evaluate studies of Mathematics using the virtual learning environment Moodle at the Faculty of Economics and Management. The object of the research is the organization process of teaching Mathematics using Moodle.

THE TEACHING PROCESS.

The study subject of Mathematics at the Faculty of Economics and Management is equivalent to 6 credits (i.e. 160 hours). During the learning session only 23 hours are awarded for learning part-time students with teacher in two weeks' time. During this time students are introduced to the procedures of using Moodle, the structure of

material and the assessments of individual homework tasks. Besides, during the studying session the short theoretical material is being explained and tasks are being solved. The creation of Mathematics course in the Moodle environment provides an opportunity to present the course material in more details. Teachers put all the necessary theoretical material and exercises in pdf format files. Students can also do self-assessment tests in the Moodle environment, revise them and see the evaluation every time.

The mathematics course material comprises 10 topics. Each topic includes:

- Theoretical material with examples;
- Video material;
- Tasks with answers for individual work;
- Individual tasks for homework;
- Self-assessment tests (theoretical questions and tasks).

The lecturer additionally uses these Moodle options:

- Submit the information about the process of learning and teaching, the dates of assignments or other schedules;
- Hide or show the topics depending on the schedules of learning and assignments;
- Reply to questions;
- Follow students' activity and the evaluation of self-assessment tests.

One of the great objectives using Moodle is to motivate students to study self-sufficiently, as well as to encourage them to overcome the difficulties and to rely on themselves. Lots of efforts are put into flexible usage of Moodle possibilities. These innovations give students who are not able to attend the lectures during the studying sessions (e.g. they live and/or work abroad) the opportunity to study individually.

Thus the aim was to prepare a well understood studying material with the help of various technical means. Moodle environment is very convenient for lecturers as it allows constant updates or improvement of teaching material. What is more, this material is available to a great number of students.

RESULTS AND DISCUSSION. During the first term of their first year the students gain knowledge in the fields of linear algebra, differential and integral calculus and differential equation solving. The theoretical material of each topic presents with the main concepts, definitions, formulae and their explanations as well as the examples of all typical task solutions. The video material demonstrates only separate fragments of difficult tasks solution (for instance such as matrix multiplication, the calculation of limits, etc.). Tasks with answers and self-assessment tests are recommended to be exercised in each topic. During the whole semester lecturers can follow students' activity, their evaluation of each topic and the overall statistical indicators of the course.

The individual tasks for homework are different for each student. It is obligatory to do it and bring to the assessments as written works. Students also write two midterm tests and take the exam.

Students' comments and suggestions (the information was taken from the questionnaire):

- Convenient to use Moodle environment;

- Moodle environment helps to learn the Mathematics material at a pace that is appropriate for the student;
- Moodle environment helps to learn the Mathematics material in time, which is suitable for the student;
- Some students pointed out that face-to-face lectures are better.

To sum up, it should be noted that majority of students who had registered for the course had been studying successfully and passed the examination on time.

CONCLUSIONS.

1. The necessity to prepare teaching tools that could help the students better understand the Mathematical language and problem solving methods still remains.

2. Students' evaluation of distance learning of Mathematics using Moodle environment is good.

3. One of the main aims of studying with the help of Moodle is the possibility to use the studying material in any location (including while living or working abroad) and at student's most convenient time. The student is also given the possibility to check the level of his/her gained knowledge and to prepare for the examination.

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ТЕХНОЛОГИИ ПЕДАГОГИЧЕСКОГО ДИЗАЙНА: РАЗРАБОТКА ЗАДАНИЙ В ТЕСТОВОЙ ФОРМЕ ДЛЯ LMS MOODLE

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Технологии обучения с приобретением знаний, применяемые в высшей школе Республики Беларусь, требуют разработки новых методик, в первую очередь, методики практико-ориентированного обучения. Практико-ориентированное обучение способствует формированиютаких качеств личности у студентов, которые являются доминирующими в будущей профессиональной деятельности. В качестве образовательной среды, создающей у студентов условия для осознанного и мотивированного приобретения профессиональных компетенций, широко используются компьютерные (виртуальные) образовательные среды (ВОС).

В УО «Гродненский государственный медицинский университет» уже несколько лет используется в обучении ВОС Moodle. Кафедра медицинской и биологической физики участвует в процессе внедрения системы Moodle в