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IT FOR NON IT STUDENTS – EFFECTIVE LEARNING THROUGH BLENDED COURSE

Zoran Zdravev
University "Goce Delcev"
Faculty of computer science
Stip, Macedonia

Gorgi Dimov
University "Goce Delcev"
Faculty of computer science
Stip, Macedonia

ABSTRACT

The most non informatics faculties, following contemporary trends over the past decade have introduced courses like "Basic of computer science". Syllabus at which these courses are conducted mainly consisted of training to learn basic IT skills. In this paper we propose a new course, with a new syllabus and a new approach. This course is designed to be in function of grasp the basic concepts of science and develop a sense for what is needed for using computers for communication, research and office work, in small or large companies. These courses, from 2008 onwards, were successfully implemented at the University "Goce Delcev" in 11 different faculties.

INTRODUCTION

The courses titled as "Informatics" or "Basic of computer science" at universities where they were introduced, have been conducted as training skills for using computers. From previous experience in the implementation of these courses, and according to the volume of the standard number of lessons (1 +1 +1) believe that the basic skills of using computers (OS, typing, spread sheets) is not possible to overcome this way. In addition to this show is the experience acquired through the projects "Creative teaching and Learning" and Tempus - "Integrating IT into the teaching through curriculum teachers" with study visits to London, Edinburgh, Groningen and Leuven.

Namely, the basic skills of using computers should be acquired in primary and secondary education through cross-curriculum learning, during the teaching of all subjects where learning with assignment of tasks and activities should be done on a computer. In the higher education students should continue to improve the skills of using computers and special the programs for editing text, spread sheet programs and programs for presentations in any subject. This upgrading of skills should be done through setting and preparation of tasks to complete using the computer and on all other courses, ranging from the first year and basic courses, to more closely targeted courses in the last year and the second cycle. This upgrade is not properly implemented with courses like "Basic of computer science".

This was the reason for all students in all faculties of the University to create a course of Informatics (for non IT), which otherwise treats the matter in the course and has a wider range of topics that we believe that future higher education person's must be familiar with.

The course is designed as a blended course, in which most of the activities of classical education are replaced with online activities. The course started to be implemented from the 2008/2009 academic year, first as a pilot project in the winter semester only at one faculty-Teacher Training College and then the summer semester it was introduced to the Faculty of Economics and Faculty of Law, which are faculties with a larger number of students. From the academic year 2009/2010 at the University of "Goce Delcev" in all faculties, the course is officially implemented under this program. So far 27 courses with over 5000 students have been realized. The courses are conducted by 8 lecturers from our University, coordinated by E-Learning Center on UGD.

A COURSE DESIGN APPROACH

This course is designed to be in function of learning the basic concepts of computer science and developing skills for using computers for communication, research and office work. The main specific of this course is blended or hybrid approach. This way, most of the classical teaching is replaced with online activities. This means:

- First, there is a traditional way where the teacher realizes the classical teaching, communicates directly with students and thereby transmits their knowledge and experiences. At the end of each lecture the teacher briefly presents to the students their obligation in connection with exercises that are intended to be realized by using the online platform for e-learning.

- Further, the second component of the blended concept is where students are accessing the platform for E-learning and online from home or from any other location where they can devise exercises planned for the current week. In the Platform for E-Learning (in our case Moodle platform) teacher sets some required resources that students need to use a list of not mandatory additional suggested and resources related to that topic.

The access to activities is very simple and is done by clicking a particular icon placed on week or in the theme of the course in which this activity is planned. When a student opens an activity, first he sees as an explanation and clear guidelines on what he must do to prepare the activity correctly. (Fig.1 access to activities)

For these courses, laboratory exercises are planned, too. In principle, these exercises are not mandatory and students come to them for several reasons:

- Technical problems to access the platform for e-learning
- They need help with making the exercise i.e. given activity

- Also the term will be used by those students who do not have Internet access from home or from the dormitory, so they can complete the tasks during the laboratory exercises.

COVERED TOPICS AND TEACHING OBJECTIVES

Topics are conceptualized in order to give the students basic introductory knowledge in several fields of information technology. This introductory knowledge is required to facilitate the use of ICT during their studies and work in practice. On these courses are presented and processed the following topics:
- Basic Concepts on Information Technology
- Hardware and software
- Computer networks
- Computer Security
- Informational Systems
- Content Management Systems
- WEB 2 and others trends in E-Society
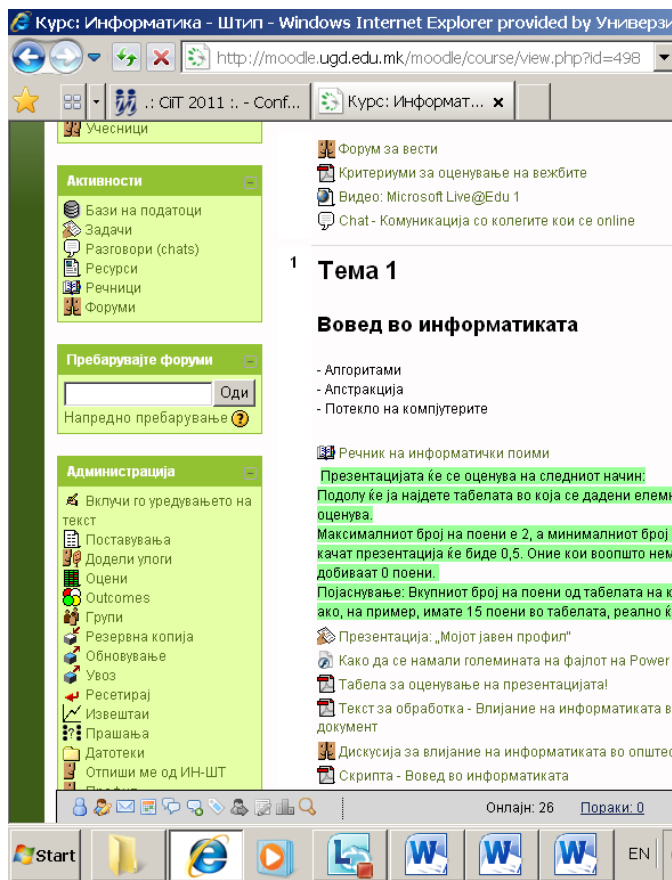- Data Base Management Systems

Figure 1 – Access to activities (screenshot)

Generally, instructional objectives are limited to understanding of the topic, identification of the major components and functions, and finally a summary of the main technologies in the relevant subject. Details of the topics are not taught, but only give hints and ideas to further the students' work and to study independently. As an example here are educational purposes for topics hardware and software:

Hardware-curricular objectives:
- To understand the history and evolution of computer hardware

- To identify the main types and use of microcomputer, midrange and mainframe computer systems
- To make a summary of the major technologies and uses of computer peripherals for input, output and storage of data
- To identify and give examples of components and functions of computer systems
- To identify the computer systems and peripherals that would be purchased or recommended, such as a business, and to explain the reasons for choosing them

Software - instructional goals:
- To describe several important trends occurring in connection with software
- To give examples of several major types of applications and system software
- To explain the purpose of several popular software packages for end users for production and collaboration
- To define and describe the functions of operating systems
- To describe the use of programming software, tools and languages

Parallel they should overcome the anticipated topics, the students master and working with the e-learning system, which should be used during the studying. This is an educational goal that is not mentioned in the topics, but it is taught cross-curricular through activities that are provided to students pursuing online opportunities to gain knowledge of web 2 technologies and their impact on society and the "online socialization".

ONLINE ACTIVITIES IN THE COURSE

The main advantage of the mixed approach is that students perform their tasks from home or from any location that has Internet access. All exercises should be developed as teacher sets the platform for e-learning in the form of certain activities. Platform for E-Learning Moodle contains a number of activities i.e. modules that are previously prepared, localized and adapted to reach certain teaching purposes and which are easy to use by the students. All these activities are able to be added as a part of any course. For the purposes of our course the following activities have been used:
- Dictionary - Create the dictionary of the computer concepts (ice breaking activity)
- Forums (discussion of carefully selected topics)
- Upload complete assignments (articles, presentations, excel spread sheets)
- Databases, where students entered information about their seminar topics
- Advanced uploading of files – a seminar paper (a research on a given topic: an analysis of a company work, a study of a tool for IT applications in their area (education, economics, law) etc.

A Dictionary is an activity where each student has a task of adding one information term in the dictionary and explains it in a few sentences. The term should be written in English, and the explanation in the Macedonian language and Cyrillic support. One term can be written only once in the dictionary, because those students who will first develop this exercise will have a great choice of terms. The purpose of this activity is to familiarize students with basic concepts and information

through the reading of already given concepts and explanations (by their colleagues) and by reading literature that will make the choice that put the term in the dictionary.

Forums (discussion of carefully selected topics), are activities where students must begin a discussion on a specific topic and should respond to at least three posts started by colleagues. Usually the first topic gives "The impact of ICT in society," whereby they are given a reading text related to this topic and students discuss further on the subject. Other topics related to topics that are taught in the course: hardware, software, networking, security, etc.

Uploading the final assignments (articles, presentations, excel spread sheets) is a module where students need to get tasks that are previously worked with some applications (mostly applications of Microsoft Office package).

In addition, they should be given the criteria against which to assess the task and make it in the form of a rubric (Fig. 2 Rubric sample), tasks related to some of the topics or some current developments in the field of ICT. For example, the task of making the presentation "My public profile" through which students are required to demonstrate skills in using Microsoft Power Point or Open Office Impress, but also to consider the issue of public disclosure of personal data and to answer the question what data would set their public profile (e.g. Facebook).

Another example of such activity "uploading text, which should be written and processed, is a text in the program Microsoft Word or Open Office Writer. The text should be chosen by the student and be written on three pages. The text must include the following elements: insert pictures, tables, numerations:

- To have header and footer inserted with date, time and number of page
- Have centred headlines, leads, with different font size and using bold fonts,
- Paragraphs should be indented with a first order with tab, not spaces, paragraphs are separated by enter,
- Task should be formatted as A4 size and margins to be at 3 cm from each side.

The purpose of this assignment for students is to show their skills for editing a text and get an idea what it means "well formatted" text

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Факултет: _____

Студент: _____

	Одлично	Задоволително	Делумно добро	Незадоволително	
Вовед	Воведот е комплетен репрезент на презентацијата поени(4)	Воведот е чист, кохерентен и соодветствува со насловот поени(3)	Воведот содржи некои структури но не дава силна смисла за тоа што следи поени(2)	Воведот е погрешно ориентиран и нејасен и сосема не одговара на презентацијата поени(1)	
Содржина (тело на презентацијата)	Содржината е конзистентна со логичка прогресија на идеи и подржана со недвосмислени информации поени(4)	Содржината е коректно формулирана и содржи податоци од веродостојни извори поени(3)	Содржината е нејасна во изнесување на гледиштето и дава чувство дека крајната цел е неодредена поени(2)	На содржината и недостасува јасност и логичка секвенца на информации и се карактеризира со мал број факти врзани за насловите што следуваат поени(1)	
Текстуални елементи	Фонтовите се лесно читли-ви и нивните големини соодветствуваат со текстот и заглавјата. Користењето на Italic, bold и адекватна боја на позадината ја подобрува читливоста на самата презентација поени(4)	Фонтовите се лесно читливи но на некои места се забележува користење на несоодветни фонтови, грешно користење на Italic, bold и неадекватна боја на позадината поени(3)	Целокупната читливост е отежната со долги параграфи, различни фонтови, темни и нејасни позадини и несоодветно користење на табулатори поени(2)	Екстремно тешко читлив текст со долги параграфи и ситни букви, недоволен контраст на буквите и позадината и лош избор на фонт поени(1)	
Графика и звук	Графиката и звукот одат во прилог на презентацијата , сликите се со соодветна големина и резолуција и сосема одговараат на контекстот поени(4)	Графиката и звукот визуелно ја отсликуваат материјата, големината на сликите е коректна а истото се однесува и за резолуцијата поени(3)	Некои графички елементи и звуци се некоординирани и не го зголемуваат општиот впечаток, сликите се од Clipart и се со неадекватна големина и резолуција поени(2)	Графиката и звукот воопшто не соодветствуваат со содржината на презентација-та , графиката е нејасна и дополнително го буни читателот поени(1)	
Анимација и транзиција	Анимација и транзиција постои и коректно се применува во презентацијата поени(4)	Анимација и транзиција постои но неправилно се применува во презентацијата поени(3)	Недостасува или анимација или транзиција Поени (2)	Нема Анимација и Транзиција поени(1)	

Вкупно:

Figure 2 – Rubric Sample

A Seminar work is an individual work assignment for which students must explore to write about it and get specific instructions. As an example of a seminar topic, you can mention the last topic that students have received, which they

are required to analyse the information system of a company and make a proposal for its better and more rational use. Each student was given the task to visit a company and make an interview with the person in charge of information technologies, whereas he should find an answer for:

- Basic data on the company;
- Technical data (existing information infrastructure);
- Installed programs (licensed, pirated, free)
- Network (type, orderliness, safety)
- Internet (such Internet use, protection)
- Security (antivirus, data protection, protection of high voltage, etc.).

Then the student should analyse the current state of information system and make recommendations on its improvement and promotion.

ACHIEVED RESULTS

The results of the students are evaluated for several criteria: 10 points from attending classes and online presence for e-learning platform, 10 points made online exercise, two colloquiums in 20 points, 10 points for seminar papers and 30 points for the final exam.

Colloquiums and the final exam are electronic, with questions randomly selected from previously prepared bank of questions. Before introduction a complete electronic assessment is made for exploring the possible difference in written testing and electronic testing and for a sample of 340 students who have obtained identical results for both the written and electronic testing.

Another to be mentioned here is that we performed an analysis of the results of the issues discussed at the "forums" and those that are discussed on "forums". Thus it is found that significantly better results are achieved through "discussed" topics.

The overall assessment is that students achieve the educational goals of the course, and skills to use the platform for e-learning to overcome very easily..

CONCLUSION

Realizing such a course requires a great effort in the preparation stage, as a concept and digital learning resources. A very important fact is that after each cycle of courses, there should be conducted an analysis for determining the advantages and disadvantages during the lectures. The identified deficiencies are corrected or discarded in the next cycle.

The resources required for implementation now is standard, common and does not require involvement of separate, special or expensive equipment. From 5000 students who have mastered this course, only a dozen have complained that they had problems with access to a computer and the Internet outside the faculty.

The following steps should be taken to improve the quality of digital learning resources, i.e. creating audio or video clips and animations for students in order to understand and learn their material easy. It is also necessary to prepare manuals for

teachers to disseminate the course and thus to gain great facilities.

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