# Advanced Solutions in Study Using ICT


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***Abstract*** *— The introduction of new technologies provides great opportunities for a high -quality organization of the study . The professor 's role changes: he doesn't remain a classic lecturer, he becomes a mentor. In a way a teacher is a student at the same time who must study permanently , who must accept new technologies, who is to introduce the ICT into teaching. Future that with developing information and communication technologies (ICT) half lifetime of knowledge becomes shorter, professor's main mission is to motivate student for lifelong learning. This paper will describe the use of ICT in the course "Introduction to ICT" at Zagreb School of Economics and Management (ZSEM) . ZSEM is a height business school with the aim to provide students with the best education comparable to that of the best schools in the world . As the ZSEM was founded only in 2002, we have been fortunate to take advantage of the possibilities offered by new technologies implementation since the very beginning. This paper will present new structural possibilities in teaching based on use of the WebCT. This courseware tool may be successfully used in a standard, classic teaching, however, its contribution to the asynchronous distance learning ( ADL) is to be emphasized. We will describe in our paper the ICT course structure per its components, emphasizing the online tests and quizzes. We will analyze the results achieved in our two - year - experience and study the plans for our future. Finally, we will discuss what this system means for professor and student .*



***Index Terms*** *— Asynchronous distance learning , education , information and communication technologies, online tests*


## INTRODUCTION

Introduction of the ICT (Information and Communication Technologies) into teaching opens up possibilities to improve the teaching quality both in classic teaching combined with the ICT [1]-[5] and in the distance learning [6]-[10]. A student is switching from passive to active studying process becoming a researcher accountable for its own level of education. Consequently the classic teacher's role disappears. In the ZSEM [11] the course "Introduction to ICT" is lectured in the first semester aiming to introduce the vast possibilities of the new technologies to the future economists and managers. It is a basic course followed by e-business, Management Information Systems, etc. It is used as well as a support to commercial mathematics, statistics, accountancy and other courses.

The actual educational system in the ZSEM can be described as the classic teaching model combined with an intensified use of the ICT. In classic teaching methods students and lecturers remain within a certain timeframe, at a certain place. However, all our teachers must use to the utmost new technologies in their classes. The WebCT [12] enables fast and constant communication between teachers and their students. The WebCT is a courseware tool that allows the creator's or student's approach. Through the WebCT the lecturer presents his teaching methods: lectures, practical works, exercises, tests and quizzes. Through the WebCT the teachers and students communicate by the clock on e-mail, through forums and discussion groups. The WebCT enables students to be selected into different groups. For example, there is possibility to select students that are actually solving one particular online test.

## THE "INTRODUCTION TO ICT" CURRICULUM

The scheme of the "Introduction to ICT" course curriculum [13]:

- 1st test - 12% of the final grade
- 2nd test - 12% of the final grade
- 3rd test - 12% of the final grade
- PC practical work - 34% of the final grade
- Attendance and activity in lectures - 5% of the final grade

- Student's papers (not mandatory) -2-5% of the final grade
- Final exam - 25% of the final grade

Fifteen lectures are scheduled in the first semester. Depending on students' commitment and activity, one or two lectures are reserved for student papers. All the lectures in Power point are available to students through the WebCT. Attendance and activity in lectures are both awarded with 5% of the final mark. Students must take 3 tests in semester. Each test represents 12% of the final grade. Students may check their knowledge taking the WebCT online exercise test prior to taking the actual test, which is a perfect simulation. Our test exercise offers 15 questions to verify knowledge. 5 answers are offered to each problem, only one being correct. The correct reply is awarded with 5 points, the incorrect reply with -1. We introduced negative points to prevent off-hand guessing. Online test takes 45 minutes. Each reply can be justified, so that the student gets the feed-back information on possible mistakes. Besides particular explanations, student can receive the remark concerning the entire exercise. WebCT is one of the most sophisticated tools for estimation and self-estimation of knowledge. A teacher approaches the test as a creator and a student as a user. Based on the results of the exercise test the teacher gets the feed-back: statistics per students, statistics per question, etc. This way we are able to analyze questions. Questions resulting in 100% correct replies are considered to be too simple and those resulting in 0% correct answers are considered to be too difficult.

PC Practical work training taking place in the computer classroom among a small workshop group is a substantial segment of the course. This practical work training is mandatory and must be completed for the attendance record. In 15 weeks period students deal with topics: MS Word, Excel, presentations, Web design, e-mail, Internet, videoconference, simple database. After having completed the practical works, students are given homework projects to be presented within the deadline. These projects are individually created. Not meeting the deadline results in a grade deduction. As our students graduated various secondary schools their foreknowledge does not equal. Following the enrollment to our school we carry out a poll among students to screen their computer literacy. Students showing higher degree of foreknowledge usually act as student tutors in practical works. The demonstrators are graded 5 in commitment, this mark being added to the final grade. The aim of the drill is to enable student to complete the majority of tasks independently at home. WebCT is offering detailed explanations helping students to complete the tasks on their own. The average practical works mark makes 34% of the final mark in the ICT. Due to their active participation in practical works a number of students managed to complete their first independent presentation, personal web pages or they participated in a desktop video- conference.

Students are offered possibility to prepare papers in consultation with their teacher, and to present them in teacher's lecture. They usually work on interesting ICT topics. Depending on presentation quality, student is awarded additional 2-5% grade.

The final exam makes 25% of the final grade. Only the students that have completed the scheduled practical works may take the final exam. The computer skills and theory knowledge are both checked. In case it becomes evident that a student has not completed the practical works on his own, the awarded mark will be decreased. Such cases of cheating are very rare in the two initial years of the ICT course. The 62% score is sufficient to pass the final exam with the lowest mark 2. Even if the 62% of the grade has been scored n practical works and 3 tests, the student must take the final exam.

## RESULTS

In the first college year students have completed their practical works rather late and none of theme could take the final exam prior to the official exam period. We tried to correct all the omissions in our second college year. Practical works resumed already in the first week to enable the active students complete their work and take the final exam even prior to the exam period. The grade pattern (break-down) in the final exam in the two initial college years is shown hereby. A high percentage (18.75%) of students took the final exam already upon the completion of the first semester and managed to get their final grade even before the usual exam period. Mainly the students that have been active through the entire college year took the advanced exam term. 84.2% of students were graded 4 or 5. It is evident that the grade pattern is not average as only the students with perfect attendance record and commitment were allowed to take the exam in the advanced term.

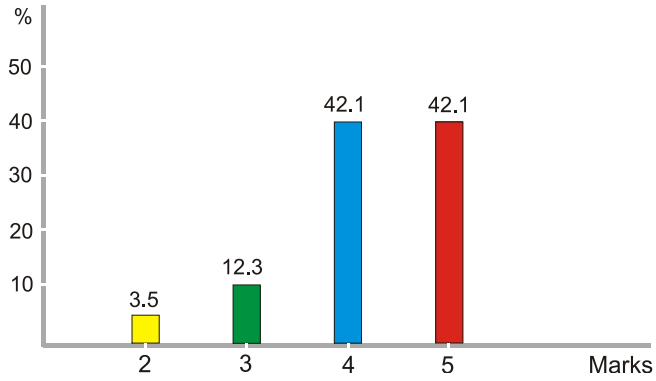


FIGURE 1
THE MARKING DISPOSITION FOR THE FIRST FINAL EXAM.

102 students have passed the ICT course final exam in the school-year 2002/2003. Grades are evenly represented: 29.4% were graded 2, 27.5% were graded 3, 19.6% were graded 4 and 23.5% were graded 5. The average student mark is therefore 3.37.

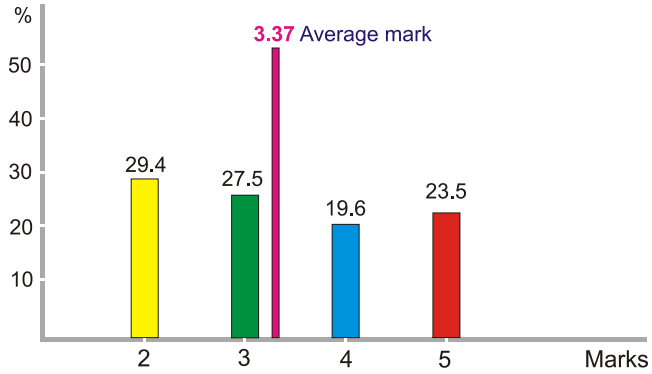


FIGURE 2
FIGURE 2 SHOWS THE GRADE PATTERN IN 2002/2003.

The 2003/2004 sample is at a larger scale since more students enrolled. Up to now 117 students have passed the exam. 20.5% were graded 2, 27.4% were graded 3, 35.9% were graded 4 and 16.2 % were graded 5. The average mark is 3.47.

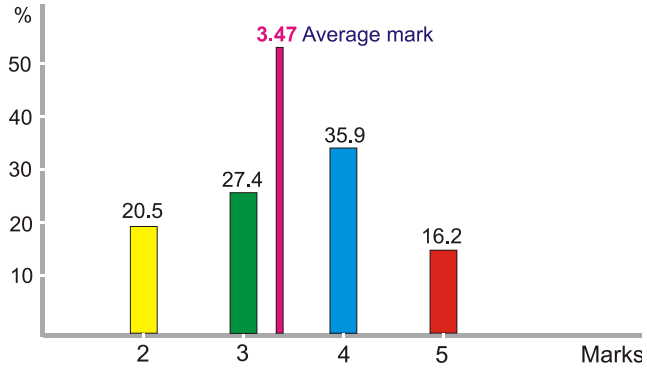


FIGURE 3
FIGURE 3 SHOWS THE GRADE PATTERN IN 2003/2004.

Although the percentage of the students that were graded 5 somewhat declined in the year 2003/2004, we may consider the average results better as we have attempted to correct all the omissions from the previous year. More than 50% of students were graded 4 or 5 although the requested knowledge level remained unchanged, not decreasing.

This way our students get ready for further intensified ICT Technology use. The conditions will be soon met to enable a number of distance learning students to attend our course.

## THE PRESENT AND THE FUTURE

Since ICT area keeps changing fast we attempt to follow the changes. Each school-year we need to modify some 30% of the subject matter. We are actually preparing a number of novelties to be implemented in the following school-year. These will contribute to improve our students activity and commitment.

- The first 10-15 minutes of each lecture will be reserved to comment ICT news and curiosities that the students might have encountered the previous week in media (Internet, TV, newspapers…).
- The lecturer will present an interesting topic each week for discussion in a forum via WebCT. Students showing outstanding activity will be awarded extra points.
- The students who have obtained ECDL certificate [14] will score the additional 5%. The ZSEM has become the ECDL test center, therefore we will aim to provide our students with ECDL diploma upon completion of practical works.
- The course preparation through WebCT and the online tests represent a solid basis for distance learning.

## CONCLUSION

The aim of introducing ICT is to make the educational process easier for the students and the professors [2]. It should enable students to gain their knowledge through different methods, as well as an easier flow of information, and in the future learning which will not be connected to one particular place at one particular time. As for the professor introducing of ICT means a possibility to use different tools in order to make his lectures as best as possible. In this paper we described curriculum of course "Introduction to ICT" on Zagreb school of economics and management. We described the ICT course structure per its components, emphasizing the online tests and quizzes. The course preparation through WebCT and the online tests represent a solid basis for distance learning.

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