A MODEL FOR COMMON COURSES IN HIGHER EDUCATION: WEB BASED STUDENT GROUPING SOFTWARE (EXAMPLE OF AKDENIZ UNIVERSITY)

YÜKSEKÖĞRETİMDE ORTAK DERSLER EĞİTİM MODELİ: WEB TABANLI DERSLİK YERLEŞTİRME YAZILIMI (AKDENİZ ÜNİVERSİTESİ ÖRNEĞİ)

Okan ORAL
Instructor, Department of Informatics, Akdeniz University, Antalya, TURKEY
okan@akdeniz.edu.tr

Evren SEZGIN
Instructor, Department of Informatics, Akdeniz University, Antalya, TURKEY
esezgin@akdeniz.edu.tr

Fırat YUCEL
Instructor, Department of Informatics, Akdeniz University, Antalya, TURKEY
fyucel@akdeniz.edu.tr

Mehmet TOPAKCI
Assoc. Prof. Dr., Department of Agricultural Machinery, Faculty of Agriculture, Akdeniz University, Antalya, TURKEY
mtopakci@akdeniz.edu.tr

ABSTRACT

Today, the necessity of widespread using in all areas of informatics and to gain basic skills for the use of information technologies has increased the importance of these courses. In this study, an education model developed for all undergraduate and college freshmen students who are taking compulsory computer courses at Akdeniz University. In this education model, computer usage and knowledge level of each students are measured by "a proficiency exam". Homogeneous classes are established by distributing students into groups according to their success rates. Approximately 3000 students take these lessons in every term. These lessons are organized online. Thus, loss of time at the beginning of each semester is prevented and costs arising from the documentation are reduced. In addition, academic staff and laboratories assigned to lessons are reduced.

Key Words: Informatics, computer education, web based software

ÖZET

Günümüzde bilişimin her alanda kullanımının yaygınlaşması, bilgi teknolojilerinin kullanımına yönelik temel becerilerin kazandırılması gerekliliği, verilen bu derslerin önemini arttırmıştır. Bu çalışmada Akdeniz Üniversitesi'nde tüm lisans ve önlisans bölüm/programlarında ortak bilgisayar derslerini almakta olan birinci sınıf öğrencileri için bir eğitim modeli geliştirilmiştir. Bu eğitim modelinde her bir öğrencinin bilgisayar bilme ve kullanma seviyesi yarıyıl başında yapılan "Sorumluluk Kaldırma Sınavı" ile ölçülmüştür. Öğrenciler başarı oranlarına göre kurlara ayrılarak homojen sınıflar elde edilmiştir. Yaklaşık olarak her dönemde 3000 civarında öğrencinin aldığı bu derslerin web üzerinden organizasyonunun sağlanması, her eğitim öğretim yarıyılı başlangıcında yaşanan zaman kaybını önlemiş, dokümantasyondan kaynaklanan maliyetleri azaltmıştır. Ayrıca derslere tanımlanan akademik personel sayısı ile laboratuar sayısı azalarak teknolojinin sağladığı etkinlik oluşturulmuştur.

Anahtar Sözcükler: Enformatik, Bilgisayar Eğitimi, Web tabanlı yazılım.

1. INTRODUCTION

Rapid improvements in the field of technology, globalization of the international market, increase in communication and easy information exchange and transportation worldwide have an enormous impact on the economies of the countries. In today's world, the rapid transformation in the technology also triggered the economic transformation. Modern age is also called ''Information Age'' due to concepts such as information society, information economy and information management. In this era, where the countries that produce information and use it efficiently will have a say in the world economy and the ones that do not will be left behind, countries invest more and more in education every day. Because, in the era that we live in, the richness of the countries is not measured with the money or natural resources they have but with the richness of their information and human resources (Tecim & Gökşen, 2012). With the effect of globalization alongside with the information technologies, societies are trying to exist as information and technology societies and because of this, it is inevitable that professionalism need to be added to the changing human qualifications. In this context, being included in a qualified education program in the name of being professional and having the art of knowing what is good have become the truth of existence in the information and technology society (Aksal, 2011). In recent years, being able to use information technologies in both business and school or academic field has become criteria for successful performance. As a result, the need to integrate information technologies into educational activities has emerged in many countries around the world (Kartal & Yıldız & İnelmen, 2005). Internet technology, which emerged in parallel with the rapid developments in the information technologies, has a deep impact on economy, education, consumer behaviors and thus on the life itself. With the internet people find the opportunity to share and improve their knowledge in a virtual platform. Therefore, people obtain the opportunity to be able to learn constantly for a lifetime and create a sustainable added value for himself and for other people in the information age (Tecim & Gökşen, 2012).

In Turkey, higher education students pass the transition to higher education exam, which is held once a year across the country, and are placed into the departments they choose. All of the students who start higher education take shared lessons such as Turkish Language, Ataturk's principles and history of Turkish revolution, Physical Education and Information Technologies, with same credits and contends in their first year. It is of vital importance that students follow the developments in technology closely, use the opportunities of the technology efficiently in their fields and integrate these developments into their own lives. With the aim of helping students in the Turkish universities gain skills regarding information technologies and to make them computer-literate; in accordance with the decision of the Presidency of the Council of Higher Education dated 17.06.1997 and numbered 97.19.1429, within the body of Universities and High Technology Institutes, Informatics Departments bound to the Presidency (rectorship) were introduced. In accordance with the same decision, with the aim of teaching information technologies to all students, it was required that the students take Basic Information Technologies Usage as a compulsory course in the first year of their higher education, and in the remaining years of their educations one of the Basic Computer Sciences courses as optional courses (Sezgin & Yücel & Oral & Kasalak & Akbunar & Uyar, 2010). These courses are lectured in every university but the education models can differ.

In this study, the education model of Usage of Information Technologies course is explained, which is one of the compulsory courses within the body of the Presidency of Akdeniz

University Informatics Department. Moreover, this study gives information on the web-based applications, which are designed to make activities regarding the areas of responsibility of the unit more efficient and effective.

2. SHARED COURSE EDUCATION MODEL

The superiority of institutions depends on the effectiveness and efficiency of the plans they make. And the effectiveness and efficiency of the planning depends on the planning process. If the information flow is not preset in the planning process or if there is any delay in the planning, this will either cause a delay in the implementation or cause a plan with lacking information to be put into practice. In the study made by Işık and Aypay (2004) the problems encountered while strategic planning is done in the educational institutions are determined as conceptual, juridical, financial, human resources and time. Transition to web programming in the planning process will resolve these problems. With internet or a network like internet, processes such as preparing, implementing, monitoring the phases, getting feedback and making required arrangements can be done in a faster and more effective way (Çetin & Ünal, 2005). Informatics departments were established with the aim of spreading information technologies to all of the departments in the universities and organizations outside of the universities, making necessary arrangements to be able to teach information technologies subjects to all students in universities and high technology institutions and coordinating courses virtually. Akdeniz University Informatics Department gives Usage Information Technologies course, which is one of the compulsory courses, and 6 optional courses (Computer Programming, Internet Programming, Data Base Applications, Computer-aided Drawing and Design, Advanced Office Applications, Multimedia Applications) according to the needs of the units in associate and bachelor's degree levels in formal and evening education. As seen in Table 1, these courses are given to 6000 freshmen students with 140 student branches in either fall semester or spring semester according to the unit based planning done. The unit has 11 computer laboratories with 40 student capacity (Figure 1-a).

Table 1. Akdeniz University 2011-2012 academic year Information Technologies course planning in unit base

Fall semester			**Spring semester**		
Unit	Normal Education	Secondary Education	Unit	Normal Education	Secondary Education
Faculty of Agriculture	240		Faculty of Arts and Sciences	580	170
Faculty of Communication	126		Health Care VHS	150	
Faculty of Aquaculture	40		Antalya Healt H.S.	100	
Faculty of Law	150		Faculty of Fine Arts	185	
Physical tra. and sports fac.	140		Faculty of Engineering	325	
Technical Sciences VHS	700	750	Fac. of Economics and Adm. Sciences	439	
Social Sciences VHS	600	720	Tourism and Hotel Management H.S.	140	140
			Antalya State Conservatory	75	
Total	1996	1470	Total	1994	310

The aim of the compulsory computer course is to help students gain problem solving and analysis skills by teaching them the importance of information technologies and to build infrastructure according to their learning needs. Also, other objectives are, to raise individuals who have knowledge about obtaining, producing, conveying and using information; who can use information and communication technologies opportunities when needed; who can improve themselves by using these technologies, solve problems they encounter and who can independently meet their information and communication needs in their own fields.

In the universities where there are no exemption exams, it is a unnecessary waste of time for a student with a good level of computer knowledge. Forming computer course classrooms according to departments constitutes a burden for providing one computer for each student. Forming more classrooms because of classes with low student numbers causes problems in terms of instructor deficiency, cost loss, unnecessary time-waste and unnecessary classroom occupation. This situation contradicts with the efficiency and productivity principles of universities. To be able to prevent these problems, Akdeniz University developed a shared course education model application.

In the beginning of every academic year, the list of students who gained the right to study in Akdeniz University is obtained from the student automation system of the university. Considering that there may be students with a good level of computer knowledge, an exemption exam (20% theory + 80% applied at the computer) is performed, for one time only, for all freshmen students (Figure 1-b). The exemption exam schedule is formed, stating the time and place, with classes in 40, according to the laboratory number in the department and then this schedule is announced via the developed web software. From the students attending to the exam in the specified time and place, the ones who get 70 points out of 100 are considered as successful and are exempted from this course. But, if these exempted students want to improve their computer knowledge, they can take other optional courses involving advanced level computer subjects.



Fig. 1. (a) Computer Rooms ; (b) Exemption Exam

The students who failed the exam, never took the exam or failed it last year have to take this course. The students who were successful in the exam are removed from the database. Remaining students are listed separately, unit-based according to undergraduate and associate degree records. The students who took the exemption exam are listed according to their grades; the ones who didn't take the exam are listed below these students in a unit based order. The students who take the exam for the first time and the ones who take it to get higher grades are separated in the list. The students are divided into homogenous groups of 40,

divided into branches and then a number is given for every branch. There are computer education rooms for every branch for 4 hours in the weekly program. Instructors are assigned to the branches. So, the students are placed into homogenous groups according to their level of computer knowledge and each student can practice at one computer assigned to himself (Fig.2). With this model, fewer instructors are assigned, the efficient usage of the laboratories is and equivalence in the course process is ensured. The exams are done at the same time with the same questions so that a fair exam system can be applied.

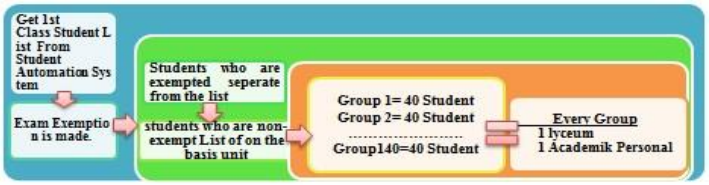

Fig. 2. Shared Course Education Model Scheme

3. WEB BASED CLASS PLACEMENT SOFTWARE

The preparation of weekly academic program is one of the important activities carried out in the beginning of the academic year in education institutions. It is very important for these educational institutions that this preparation process is carried out fast, efficient and with low cost. The hardest problem in this process is that, different parameters such as different departments, instructors and course hours are evaluated all together. Preparing the academic program by using web technologies is very helpful for making a complicated and costly process better. Thus, costs arising from excessive documentation and the waste of time experienced in the beginning of every academic year would be reduced (Harmanşah & Seylan & Sözeri & Önal, 2011). With this study, Akdeniz University prepared the weekly program of the Informatics Department by using web software. In the created web software; department's education room locations, courses and their contents, branch lists, course time and places, exam time, date and places, the instructor assignments are announced (Fig.3).

Program consists of codes that can be buried in HTLM in ASP and ASP.NET 2010 web developing platforms. Database consists of Microsoft SQL Server 2008 R2 and Microsoft Access 2007 software. The software model is designed through 6 parameters as courses, education rooms, branches (student groups), days of the week, course hours and instructors. 140 branches, 8 different courses given in one semester, 30 instructors, and 15 non-overlapping 4-hour-time frames are given as inputs to the software. The instructors are asked about the time frames they want to and do not want to give courses in and these parameters are entered by the user.

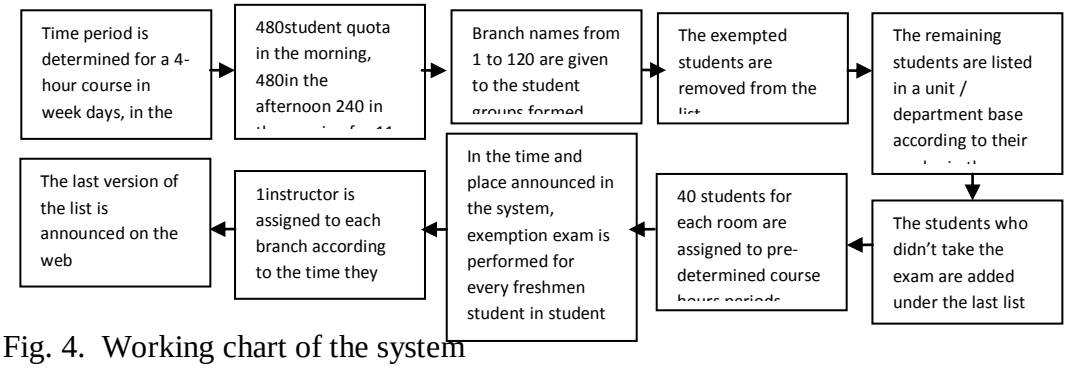

Fig. 4. Working chart of the system

All of the departments who take the courses are written in the periods according to the time frames they want in the week days. For 11 education rooms, 480-student quota in the morning, 480 in the afternoon and 240 in the evening are given for course hour periods. The students who successfully passed the exemption exam are removed from the freshmen student list taken from the Rectorship Registrar's Office. The remaining students are listed according to the grades they got in the exam. The students who didn't take the exam are added to the list under the students who have unit department based grades. The latest form of the list, ranked from high grades to the low, is placed to the rooms as 40 students per room according to previously determined course hour periods and a branch name is assigned. One instructor is assigned to each branch according to the previously chosen time frames and these information is displayed on the home page (Fig.5).

In the developed software these conditions below are taken into consideration;

- Each instructor should give courses at least 24-hours,
- An instructor should be assigned to each brach,
- Only one classroom should be assigned for each branch,
- There should be a 4-hour-course time frame for each branch,
- There should be only one course in one classroom at any time,
- Each instructor should give maximum one course in a single time frame,
- Overlapping between the courses should be prevented.

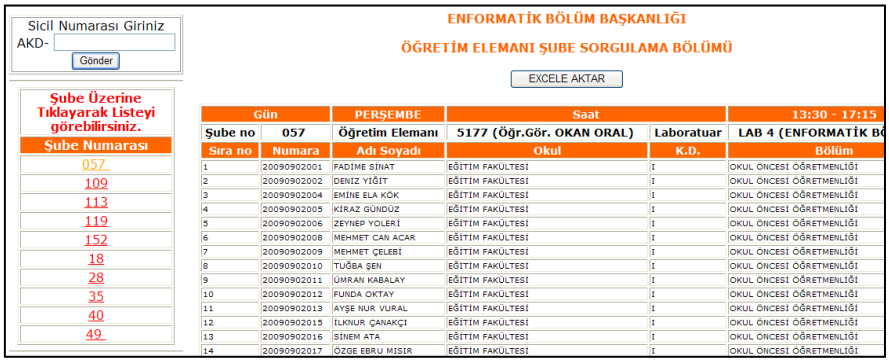

Fig. 5. Unit Management Branch Query Screen

In the unit management query screen (Fig.5); as soon as the Faculty Academy, Department program is choosen, branch no, course name, group, day, time, laboratory, assigned instructor and if there is any, explanations can be seen. At the same time, the time, day and laboratory for the exams can be viewed.

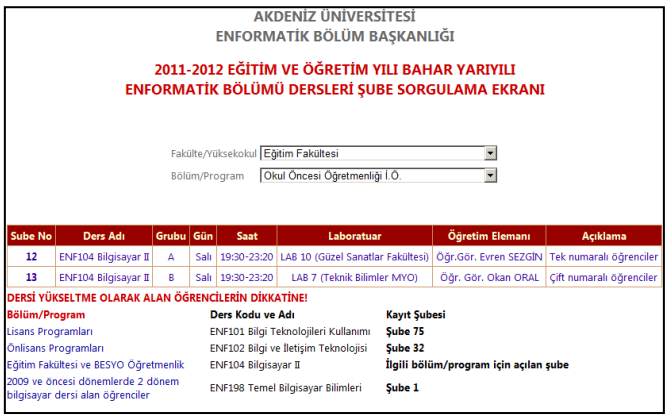

Fig. 6. Instructor branch query and list taking screen

In the instructor query screen where registration number is entered (Fig.6); the code of the course, branch no, laboratory, day and time, branch list that can be converted into excel program, time and laboratory of the exams when entered by the management, can be viewed respectively.



Öğrenci Numarası	20091805020
Adı Soyadı	FATIH TÜRKMEN
Fakülte/ Yüksekokul	GÜZEL SANATLAR FAKÜLTESİ
Bölüm/Program	SERAMİK
Kayıt Durumu	I
Şube No	28
Öğretim Elemanı	5177 (ÖĞR.GÖR. OKAN ORAL)
Bilgisayar Laboratuarı	LAB 5 (İLETİŞİM FAKÜLTESİ)
Gün	SALI
Saat	13:30 - 17:15

Fig. 7. (a) Student branch query screen (b) Student branch query result screen

In the student query screen where student number is entered (Fig.7); the number of the student, name and surname, unit/department, registry state, branch no, instructor, education room, course day and hour can be seen respectively. Besides, the date and time of the exam is seen on the student query screen as soon as this data is entered by the management.
The developed software; makes the jobs of instructors, students and the coordinators who prepare the academic programs of other units. When compared to the existing methods, this software provides a better process management and control in terms of making the shared course planning much simpler and understandable, preparing the system and lowering the costs by minimizing the waste of paper and time. The fact that units prepare their programs by looking at other units' programs via web software, made the solution for overlapping courses fast and easy.

4. CONCLUSION

With the prepared software, all of the freshmen students of the Akdeniz University who takes the Information Technologies course are provided with a much more efficient and high quality computer education and the problems encountered during the education room planning are solved. Qualified instructor problem has been dealt with, evaluation criteria are equalized and the quality of education is taken to a higher standard.
With the developed we-based software, it is now possible to create branch lists, do the assignment of instructors, and prepare academic programs. It is also possible for the academic personnel and students to view all this progress online via internet. In the beginning of the academic year, depending on the infrastructure of the unit's computer room, transactions requiring a lot of time and effort are managed with a coordinated process. As a result, the waste of time experienced in the beginning of every academic year and the costs deriving from documentation are reduced, thus the performance of the units giving the course is increased and a system appropriate to the mission of Informatics Department is provided.

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