

Web Based Instruction and A Sample Portal Design That Can Be Used in Web Based Instruction

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To Cite This Chapter:

Cetin, O. (2023). Web based instruction and a sample portal design that can be used in web based instruction. In O. Çardak & S.A. Kiray (Eds.), *Current Studies in Educational Disciplines 2023* (pp. 99-136). ISRES Publishing.

Introduction

Today's rapid economic, social, scientific and technological developments have significantly changed our way of life. In particular, the impact of scientific and technological developments on our lives today is perhaps more evident than ever before. Although there is not yet a complete consensus on the level of knowledge reached by contemporary civilisation, considering the information explosion brought about by developments in science and technology and the possibilities offered by information technologies to social and economic development, it seems appropriate to call the stage described by Toffler as the "third wave" as the "information age" and the society envisaged by this period as the "information society". The ways of accessing information in the information society envisaged by the information age are differentiating, and this differentiation leads to the emergence of contemporary educational needs. Especially the rapid developments in technology drag all societies towards an information-centred life and as a natural consequence of this, education programmes are organised in this direction. Since investments in education are increasing, education policies are reshaped with this perspective. In this context, most of the developed and developing countries have been realising many innovations in recent years in order to improve their education systems. In particular, the natural cyclical relationship between science and technology - the fact that scientific research develops new technologies, while new technologies enable scientific research to be carried out under more favourable conditions - reveals the necessity of educating individuals who think scientifically and are technologically literate.

Undoubtedly, in the 21st century, which we call the information age, the fact that multimedia (hypermedia) tools, especially computers and the Internet, are used in many areas of life and have even entered into homes makes it necessary to change learning environments in raising technology literate individuals. In terms of the realisation of meaningful learning, the results that the development and use of multimedia-supported teaching activities that can stimulate students' visual and intellectual structures increase students' achievement are included in many research findings in the literature. At this point, the use of multimedia tools in educational environments has rapidly become widespread because it helps active learning, interaction and self-learning, which are mentioned in both the learning cycle approach, the four-stage model 4E, 5E and 7E models, which are different application forms of constructivist learning theory, and other learning theories. Especially the developments in computer and Internet technologies have

dramatically increased the methods used in the teaching-learning process and educators have developed new teaching-learning models using multimedia tools. Depending on the developments in information technologies and especially the inclusion of the Internet in education, several new models such as Distance Education (DE), then computer assisted education, then Web Based Instruction (WBI), E-learning, Internet Supported Education, Internet Based Distance Education (IBDE) have emerged. WBI, which is a sub-type of DE and realised by using Internet technologies, has an important place in education. It is seen as a development that will affect the classical understanding of education and training and change the quality of the education process. Web pages are developed for education in the Internet environment and these pages are enriched with text, graphics, sound and animations and made interactive. Students can follow academic publications from digital libraries, send e-mails to their advisors to discuss their projects and enrol in Web-based courses from their homes. At this point, it would be appropriate to give information about WBI, which is a sub-type of DE.

Web Based Instruction (WBI)

When the literature on WBI is analysed, it is seen that there are studies that have the same aim but have emerged under different titles. These differences are not an indication of an intellectual difference, but only of the fact that the subject is new and therefore common accepted standards have not yet been reached. Especially what is intended to be expressed with the concepts of IBDE, WBI and E-learning are basically very similar ideas. "The use of all kinds of Internet facilities for the purpose of distance education" is referred to as IBDE, and this type of learning is called WBI or E-learning.

Although there is no consensus on the definition of the concepts, IBDE is a general approach that covers all educational models using the Internet infrastructure. Models such as E-learning, Internet Based Asynchronous Education, Web Based Corporate Training, Web Based Distance Education, Web Based Virtual Classroom, WBI are models that are generally considered within the scope of IBDE.

Definition and Meaning of Web Based Instruction

Teleconference calls using the Internet network, electronic mail replacing traditional mail, electronic books and periodicals providing an alternative to printed resources are tools that have been used as part of IBDE. Almost all of the different tools used under the name of IBDE are utilised in WBI. Web page structures are organised to access the content, e-mail lists are used to ensure and maintain healthy communication, discussion lists and chat programmes are used to increase interaction.

At this point, WBI can be defined as a learning-teaching model that can be easily accessible, can support flexible storage and display options, can provide an easy, very powerful publishing format and can include multimedia elements. According to another definition, WBI is "the realisation of the education of individuals by using Web technologies in the organisation of pre-planned teaching-learning activities for any purpose".

With WBI, audio, video, image, graphic, written text, animation and the like can be used together to explain a subject. This not only enables students to learn information through auditory and visual means, but also enables them to actively access information and learn through trial and error and error correction. Simulations of natural applications of complex concepts are presented to the students and they are enabled to learn with their own abilities and knowledge.

WBI is an effective way of supporting the learning environment and with this feature, it seems to be able to respond to the needs provided that the necessary dialogue is provided by involving computer and communication technologies. The basic elements of the Internet are information, transfer and production of information. The Internet contributes to the education system as it provides access to more information at greater speeds. Due to the use of the Internet with WBI, it has become possible for anyone to access the information they want from anywhere, regardless of where the information is located.

WBI via the Internet offers many additional benefits to educators. Firstly, and perhaps most importantly, WBI systems are less device dependent. Secondly, information and resources can be easily accessed by anyone at any time and place (provided they have a computer with an Internet connection). Thirdly, it is easier to update and manage the materials and information available on the site server.

The time spent in the current education and training process is very long, often there is not enough teaching staff and the inability to provide classrooms, laboratories and educational materials causes disruption of the education and training process. Since WBI provides the requirements of producing information, storing, sharing and accessing it easily, its use in business life and daily life has become increasingly widespread. Internet and Web are the most valid ways of accessing information easily, cheaply, quickly and safely and exchanging ideas on numerous subjects.

Different methods can be used in WBI, including Asynchronous (e-mail, discussion lists, discussion forums) and synchronous (chat-chat channels, real-time audio/visual conferences, applications, etc.).

In terms of understanding and practice, WBI shows a change from objectivist approaches to constructivist approaches. In particular, the fact that network-based learning environments allow access to various communication channels such as student-content, student-student, student-teacher, student-other multimedia resources and student-other teaching staff leads to the emergence of learning as a product of interaction in virtual classrooms. WBI aims to realise the individual's own learning by using the features of the Internet such as time and space independence depending on the constructivist learning approach.

By using constructivist learning approach with WBI, students can produce their own graphics, Web pages or any project related to the subject; they can be directed to team work; they can discuss the subjects in e-mail, forum or chat pages; they can learn in a realistic environment by developing problem solving skills with activities such as audio, video, interactive activities, simulated experiments in virtual environment, animations etc.

The fulfilment of the above-mentioned functions that should be present in WBI and the integration of the constructivist approach into WBI can only be realised through an appropriate instructional design.

According to the researches in the literature, the number of indexed Web pages exceeded 11.5 billion in mid-2005 and new Web pages are created at the rate of 8 per cent of the existing Web pages on a weekly basis. At this point, content for WBI should be developed more by educators.

Based on the information given above, in the next section, a sample WBI portal designed according to McManus' (1996) Hypermedia Design Model, which contains the elements that should be present in WBI and is based on the constructivist approach, is introduced.

A Sample Web Based Instruction Portal Designed for Science Education

It is important that the content of WBI is up-to-date, adequate, related to other informatics software, appropriate to grammar rules and includes multimedia applications. In addition, in the selection and preparation of materials, target audience characteristics, learning styles should be determined correctly, appropriate media tools should be selected, and attention should be paid to present materials that will meet the needs. In curriculum design, attention should be paid to the organisation of the content, the topics to be covered, the media tools to be used, the teaching strategies to be determined, the system to be used to evaluate the success of the course, the feedback methods to be determined and the methods to be used in the production of tools and materials.

When designing WBI content, all the variables of instruction need to be considered. It is quite easy to simply put information together and put it on the Web, but this is a very small part of designing instruction. In the organisation of all variables, instructional design theories should be used. At this point, in the sample content presented, the descriptive approach was used in the design dimension and the steps of the Hypermedia Design Model were taken into consideration. The sample WBI portal was designed for Science Curriculum outcomes at all grade levels in secondary school.

In the dimension of defining the learning domain, document analysis method was performed before the design was realised. Since document analysis involves the analysis of written materials containing information about the phenomenon or phenomena targeted to be investigated, the applications in the literature and textbooks were examined within the framework of the acquisitions in the secondary school Science Curriculum.

In addition, studies on misconceptions in the literature were analysed and activities were planned to prevent possible misconceptions.

While designing, the following points were taken into consideration in line with the expert guidance;

- Before writing the information on the subject, the concepts that should be taught depending on the objectives and achievements of the course determined by the Ministry of National Education were determined.
- It was determined how and with which definition the determined concepts would be taught.
- After the definition of the concept was determined, activities such as concept maps, experiments, etc. were designed to teach this concept more effectively.

- The order in which the concepts would be taught was determined.
- The materials needed to ensure the transition between concepts and the connection between concepts have been developed.

To prevent the students from getting bored, the lectures were kept as short as possible and elements such as animations, activities, experiments and games were used to make the students more active.

It is aimed to have the following qualities in the prepared portal;

- To create a teaching plan suitable for each student,
- Creating a platform suitable for the structure of Science Lesson (Spiralling),
- Analysing students' learning styles,
- To provide students with quality attention strategies,
- Analysing students' learning strategies,
- Analysing students' self-regulation skills,
- To determine the scientific process skills of students.

Therefore, it is desired that the portal to be prepared should be designed as a special platform suitable for each student structure and that students should progress at their own pace according to their readiness levels. In the preparation of the portal, the UNESCO Standards determined for the distance education process were taken as a basis. These standards require the distance education system to have the following features;

- Security (Encryption-Authentication)
- Access Individual/Group Access Password
- Course Design, Development Integration
- Personalisation
- Course Supervision
- Practice and Evaluation
- Student Profile Management
- Online Communication and Group Work
- Productivity Tools
- Technical Competence

In the digital portal prepared on this basis, the preliminary determination of student achievements, the creation of the Step Lock System that supports spiral learning, and in this way, by determining the student's preliminary readiness, it is ensured that he/she can follow the course only in accordance with his/her own competence as simple, intermediate and advanced level. The portal was designed according to the "Hypermedia Design Model" developed by McManus and based on constructivist thinking. In this framework, a portal has been prepared for each student with a user-membership system where he/she can make his/her own navigation and arrangements, follow the content he/she wants within the same step (subject level) and complete the content appropriate to his/her level. In addition, the parent and school information system was also included in the portal.

It has been agreed that the platform will include the following elements;

- Rich subject content
- Topic summary

- Applications that appeal to more than one sense organ (audio narration, video, animation, simulation, educational game, concept map, experiment, puzzle, etc.)
- Forum pages where students can communicate with each other and their teachers
- Download links where information about science can be downloaded
- Short messaging module
- Links to puzzles, drama, video, picture, experiment, activity, lecture, presentation, project etc. related to science (as archive)
- File sharing module (allows students to share files with each other)
- Online lectures
- Online test solutions
- Online homework assignment system
- Notebook
- Search engine
- Calendar
- Links to useful sites

The prepared portal is expected to provide contribution and diversity to scientific studies in secondary school science education, to bring results and suggestions that will be useful in the studies to be carried out on the development of the secondary school science curriculum, to provide new options to the methods, techniques and activities used in science teaching, to create new thoughts, discussions and research topics for science education practices, It is desired that the Internet, especially distance education, will generalise to other fields of education by developing creativity for other fields, increase the learning skills of students and thus reduce the workload of teachers, enable students to realise their own learning strategy profiles and gain study skills in this direction, develop self-learning skills, and contribute to raising a successful new generation in the numerical fields and science that our country aims for.

Technical Infrastructure Used in the Portal

- For software consistency, Codeigniter version 3.1.13 framework was preferred instead of spaghetti code (<https://www.codeigniter.com/>).
- The portal is written in PHP 7.2 version.
- MySQL 8.0.34 was used as the database.
- The server has been selected to be hosted within Turkey in accordance with KVKK.
- The server is built with Linux operating system.
- Apache 2.4.57 is used.
- Server management is provided by Cpanel 110.0. (build 5) version.
- CronJob definitions have been made for automated processes.
- Cloudflare system is used as a proxy server (<https://www.cloudflare.com/>).
- Agile software principles were adopted during the creation of the portal. Scrum methodology was used. Sprint meetings were arranged with 3-day intervals, software developer, project manager and test user communication and feedbacks were always prioritised and modular development was focused.
- During the creation of the software, clean code methods were preferred and SOLID software principles were adopted as a guide.

- JetBrains product PhpStorm tool was used as IDE.
- Trello was used for Task Board for task management (<https://trello.com/>).
- Bootstrap 4 is used in the design with flexible (responsive) feature.
- Meister Task (<https://www.meistertask.com>) programme was used for task-work monitoring.
- PhpStorm IDE produced by JetBrains company was used for software production.
- During the production process of the software, the GitHub system, which uses the GitHub infrastructure, was used by constantly considering the versioning logic, and the developed software was stored and versioned in the private repository.

The portal is currently hosted on a server purchased with project resources and can be accessed from <https://obecaportal.net/>. The server on which the portal is hosted is capable of handling heavy traffic and providing high performance.

Portal Corporate Page

The website, which shows the institutional face of the system, hosts the introduction and user login and registration processes, has been completed. On this homepage, which emphasises the convenience, measurability, accessibility, quality content and the step-lock feature that forms the backbone of the portal, the features and objectives of the portal have been tried to be explained to users and interested parties with understandable and simple content. When users search the address <https://obecaportal.net/> in their Web browsers, they first encounter this home page. The homepage contains informative links about the portal, videos, sliders and content introducing the portal, student statistics, social media links, contact information, About Us, Contact Us, User Registration and Log In menus for registered users.



Figure 1. Web Based Instruction Portal Home Page

OBECA Portal



Doç. Dr. Oğuz ÇETİN

Sevgili Öğrenciler, Değerli Veliler ve Değerli Öğretmenler,

Fen bilimleri dersine yönelik öğrencilerimizin bilgi dünyasını genişletmek, onların merakını beslemek ve öğrenme süreçlerini keyifli bir deneyime dönüştürmek amacıyla oluşturduğumuz Uzaktan Eğitim Portal'na hoş geldiniz. Doç. Dr. Oğuz ÇETİN ve uzman ekimizle birlikte geliştirdiğimiz bu özgün platform, ortaokul 5., 6., 7. ve 8. sınıf öğrencilerine yönelik birçok interaktif ve etkili öğrenme bileşenini bir araya getiriyor.

Misyonumuz, öğrencilerimizin potansiyelini keşfetmelerini, öğrenmeye olan ilgilerini artırmalarını ve fen bilimlerine olan meraklarını tatmin edecek bir ortam sunmaktır. Bu nedenle, portalımızda farklı öğrenme stillerine uygun içerikleri barındırıyoruz. Öğrencilerimiz, konu anlatımları, konu özetleri, sesli anlatımlar, eğitim videoları, animasyonlar ve web 2.0 etkililiği içerikler aracılığıyla derslerini daha iyi anlayacak ve pekiştirecekler.

Uzaktan eğitimde en önemli unsurlardan biri olan iletişimi de göz ardı etmiyoruz. Öğrencilerimiz, öğretmenleri ve diğer öğrencilerle senkron ve asenkron iletişim kurarak fikir alışverişinde bulunabilir, konuları daha derinlemesine tartışabilir ve öğrenme sürecine katkıda bulunabilirler.

Öğrencilerimizin bireysel farklılıklarını anlamak ve onlara uygun öğrenme deneyimleri sunmak amacıyla, kayıt işlemlerinden sonra bir ön test uyguluyoruz. Bu test sonucunda öğrencilerimizin seviyelerini belirleyerek, onların seviyelerine uygun etkinlikleri sunuyoruz. Böylece, her öğrencimizin kendine özgü öğrenme yoluyla ilerlemesini sağlıyor ve başarılarını ödüllendiriyoruz.

Uzaktan eğitim portalımızda yer alan **"Basamak Kilit Sistemi"**, öğrencilerimizin dersleri sistematik ve düzenli bir şekilde ilerlemelerini sağlamak için tasarlanmıştır. Öğrencilerimiz bir bölümü başarıyla tamamlamadan diğerine geçememektedir. Bu sistem, onların bilgilerini pekiştirme ve anlama sürecini desteklerken, öğrenme disipliniyi teşvik etmektedir.

"Doküman İndirme Bölümü" ile öğrencilerimiz, ders içeriklerine ve ek materyallere kolayca erişebilir, konu sonu sınavları ve çalışma kağıtlarını indirerek kendilerini deneyebilirler. Ayrıca, online sınavlar ile öğrencilerimizin bilgi düzeyini ve ilerlemesini takip ediyor, öğretmenlerimiz ise gelişimlerini izleyebilirler.

Tüm bu içerik ve uygulamalarımızla, fen bilimleri derslerini sadece bir zorunluluk olarak değil, bir keşif yolculuğu ve merak uyandıran bir macera olarak sunuyoruz. Amacımız, her öğrencimizin **fen bilimlerindeki** potansiyelini maksimum düzeyde kullanmalarını sağlamak ve onları geleceğin bilim insanları ve teknoloji liderleri olarak yetiştirmektir.

Sizlerin desteği ve katkılarıyla, Uzaktan Eğitim Portal'nın öğrencilerimizin başarılarına ve mutluluğuna katkı sağlamasını umuyoruz. Bu yolda hep birlikte ilerleyeceğiz, ve başarının tadını birlikte çıkaracağız.

Hep birlikte daha güçlü ve aydınlık bir geleceğe!

Saygılarımızla,

Doç. Dr. Oğuz ÇETİN ve Uzman Ekibi

Figure 2. Menus on the Home Page

İletişim Formu

İSİM SOYİSİM *

E-POSTA *

TELEFON

KONU *

MESAJ *

☐ Ben robot değilim



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BİLGİLENDİRME

K.V.K.K. Kanunu
Kullanıcı Sözleşmesi
Çerez Politikası
Gizlilik ve Güvenlik

ÖĞRENCİ

Giriş Yap
Kayıt Ol

416
SAAT İÇERİK

3,142
ÖĞRENCİ



All messages sent via the contact form are sent to info@obecaportal.net.

Öğrenci Kaydı

ADINIZ:

SOYADINIZ:

SINIF SEVİYENİZ
Lütfen sınıf seviyenizi seçin

ŞUBENİZ
Lütfen şubenizi seçin

E-POSTA:
@.com

PAROLA:
En az 6 en çok 8 karakter

CİNSİYET:
☐ KIZ
☐ ERKEK

İL
İl Seçin

İLÇE
İl Seçin

OKUL
Okul Seçin

☐ OKULUM LİSTEDE YOK

☐ Ben robot değilim

reCAPTCHA
Güvenlik - Şartlar

KAYIT OL

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Figure 3. Student Registration Section

Student registration section is encrypted with high security. All educational institutions in Turkey are registered in the system. After the student performs the membership process, he/she is seen as a passive member in the management panel, and if he/she makes the payment using the payment information sent by the system to the e-mail address he/she wrote during membership, he/she switches from passive membership to active membership.

Portal's Student Panel

Students registered to the portal system must first take a pre-assessment exam in the system in order to view the educational content suitable for their readiness and knowledge levels within the step-lock system. The most unique and R&D feature of the portal, which makes it different from other Web-based education portals, is that each student operates the education process with content appropriate to his/her level after a pre-assessment. Students are classified in three different levels as "Beginner", "Intermediate" and "Advanced". At the same time, all units in the portal are designed according to the step-lock system. The reason for this is that in order to learn a subject in science course, it is a prerequisite that another subject should be learnt beforehand (spiralling).

In the portal, when the student logs into the system with the Login window, he/she first encounters the First Exam module. In other words, after the first login, the student takes a 20-question readiness exam (pre-test) that examines the science acquisitions of the previous academic year. According to the results of this exam, the level of the student is determined. In order to ensure this, a question pool system was created in the management panel during the preparation phase of the portal, which allows the entry of beginner, intermediate and upper level questions, and also allows the students to determine how many questions will be shown at which level and to randomly draw questions from the prepared question bank. There are 462 questions and answers in this first exam system.

At the same time, the question pool system also includes an evaluation and grading feature within the algorithm that evaluates the performance of the students in the first exam according to the previously determined success ranges that can be changed from the admin panel and associates the student with the educational content according to his/her level. In this way, it is ensured that the student starts his/her studies with the educational content suitable for his/her level according to the result obtained after the first exam.

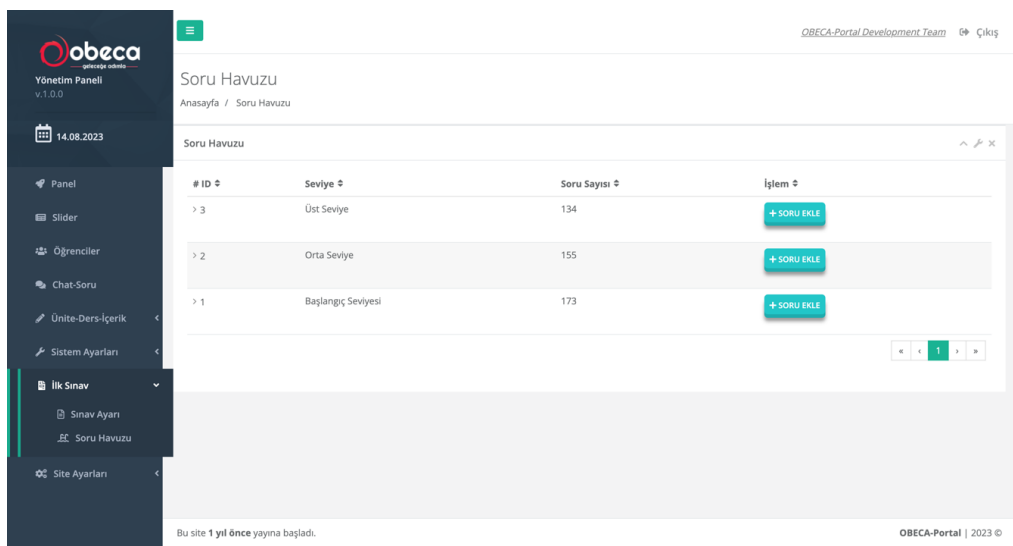


Figure 4. Question Pool Entry Screen

The top image shows the first exam question pool login screen. In the lower images, there are images from the first exam screen that the newly enrolled student will

encounter. The page theme changes according to the gender of the student. The exam process is monitored in case of internet or power outage, or if the student leaves the exam unfinished for any reason, and the exam continues from where it left off when the student next visits the portal. No student who completes the exam and does not reach the result screen has no chance to access the student panel and therefore the learning content.

geleceğe adımla

AnasayfaHakkımızdaİletişimPanelKayıt Ol

Soru 2

Üzerine kaydedilen sesler yukarıda verilen cihaz (gramofon) ile dinlenir. Sesler, kristal iğnelerle kazınarak işlenmiştir.

Tanımı verilen ses kaynağı aşağıdakilerden hangisidir?



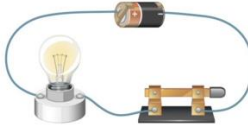
- ☐ USB BELLEK
- ☐ PLAK
- ☐ KASET

geleceğe adımla

AnasayfaHakkımızdaİletişimPanelKayıt Ol

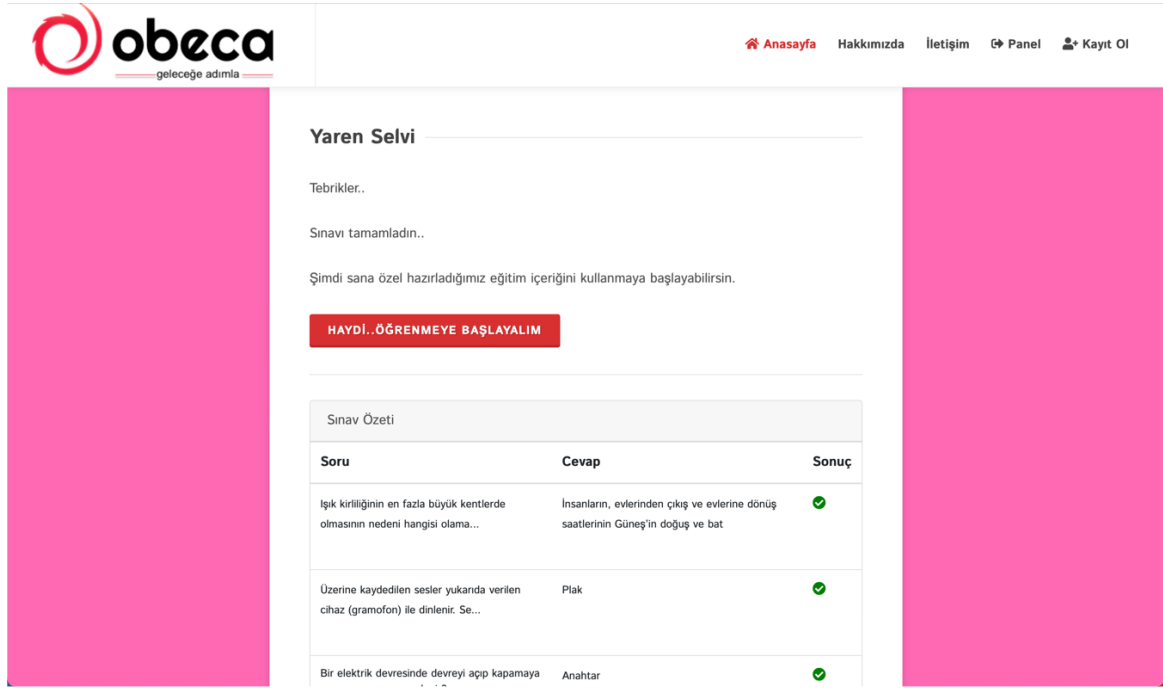
Soru 3

Bir elektrik devresinde devreyi açıp kapamaya yarayan parçaya ne denir?



- ☐ AMPUL
- ☐ PİL YATAĞI
- ☐ PİL
- ☐ ANAHTAR

DEVAM ET



The screenshot shows the obeca student dashboard. At the top, there is a navigation bar with the obeca logo and the tagline 'geleceğe adımla'. The navigation menu includes 'Anasayfa', 'Hakkımızda', 'İletişim', 'Panel', and 'Kayıt Ol'. The main content area is titled 'Yaren Selvi' and contains a congratulatory message: 'Tebrikler.. Sınavı tamamladın.. Şimdi sana özel hazırladığımız eğitim içeriğini kullanmaya başlayabilirsin.' Below this is a red button labeled 'HAYDI..ÖĞRENMEYE BAŞLAYALIM'. A table titled 'Sınav Özeti' (Exam Summary) displays the results of the exam. The table has three columns: 'Soru' (Question), 'Cevap' (Answer), and 'Sonuç' (Result). The results are as follows:

Soru	Cevap	Sonuç
Işık kirliliğinin en fazla büyük kentlerde olmasının nedeni hangisi olamaz...	İnsanların, evlerinden çıkış ve evlerine dönüş saatlerinin Güneş'in doğuş ve bat	✓
Üzerine kaydedilen sesler yukarıda verilen cihaz (gramofon) ile dinlenir. Se...	Plak	✓
Bir elektrik devresinde devreyi açıp kapamaya	Anahtar	✓

Figure 5. *First Exam Screen*

After completing the first exam action mentioned above, the student can see the answers he/she has given in the exam and from here, he/she can see the page we call the student panel, which contains the educational content and the student's success statistics.

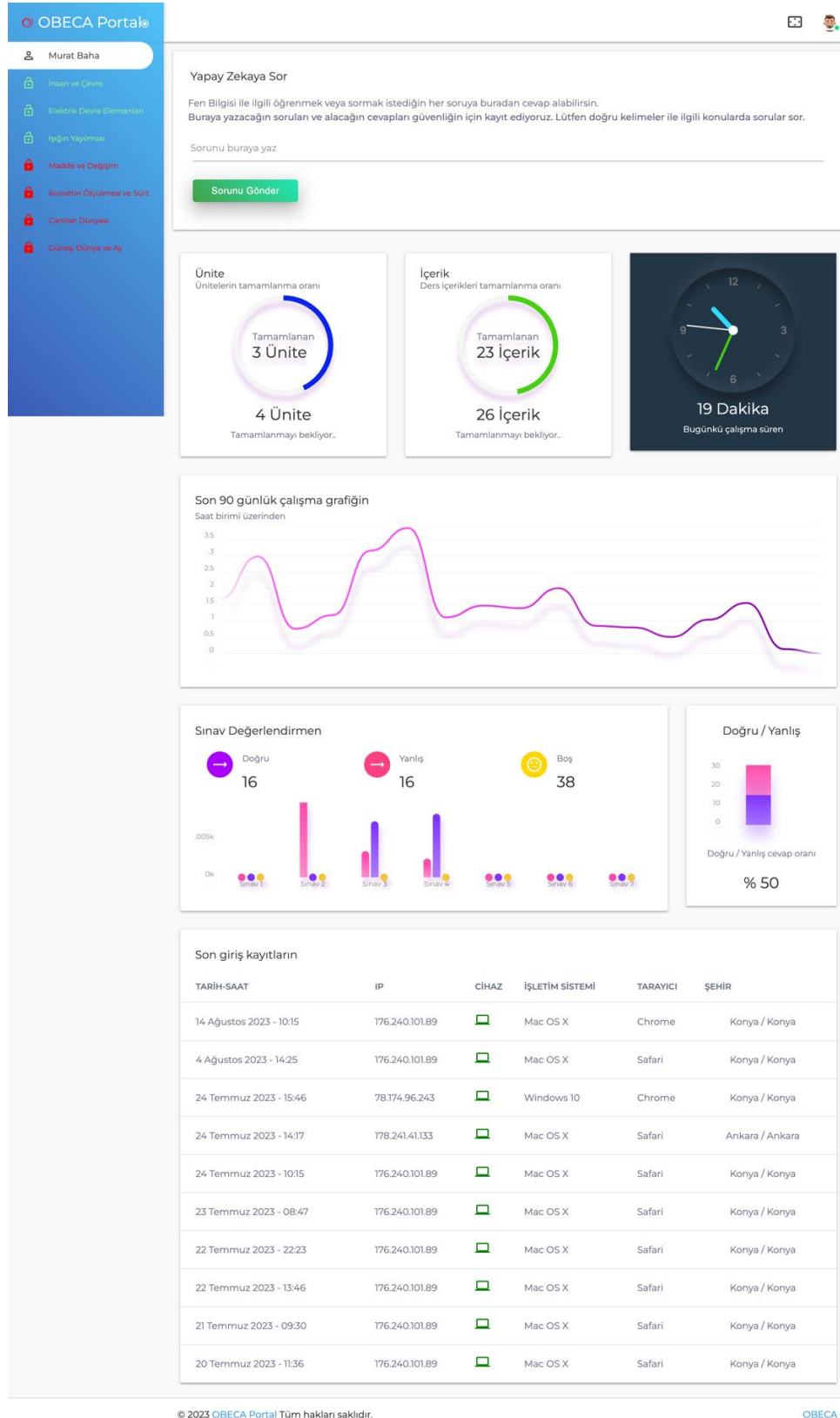


Figure 6. Student Panel (1)

In the left vertical menu on the student panel, there are topics designed according to the step-lock system, where the topics that are allowed to view the content are coloured green and the locked content is coloured red. According to the principle of spiralling, the student cannot switch to another topic before completing a topic

completely. In accordance with McManus' "Multimedia Design Model", the student can navigate within the same topic as much as he/she wishes. However, after completing all the content related to the subject (video, audio, lecture, animation, etc.) and after being successful in the end-of-subject exam, the other subject is unlocked and the student can switch to the new subject.

ChatGPT artificial intelligence chatbot (gpt-3.5-turbo) produced by OpenAI company has been added to the top of the page body. In this way, it is aimed that students can access information other than the content within the system. Every data/question entered by the student in the input in this section is recorded and analysed. Based on the questions asked by the students, the chatbot prompt settings are made.

There are 3 info boxes just below the artificial intelligence chatbot. The first one shows the student's progress in the course content on a unit basis, the second one shows the progress made on the basis of the course content, and the third one shows the current time and the time spent in the system that day.

Below the information boxes, at the 3rd level of the page, there is a graphical display showing the student's last 90 days of study time records graphically, and the student can visually examine the daily study status by following this graph.

Under the graphic screen, the results of the end-of-unit exams, which form the key to the step-lock system, are presented to the student as a column graphic in the context of true/false and questions left blank.

On the small screen next to it, there is an information graph that evaluates the correct / incorrect ratio of the questions answered by the student in all exams.

At the bottom of the student panel, the last 10 of the student's login records to the system are displayed, so that students can see their work tempo as well as security monitoring.

Using the Student Panel

When the student goes to the unit title that he/she is allowed to see within the step-lock system from the vertical menu, he/she goes to the page where he/she will see the subject title and the content within that subject. On this page, there are buttons for viewing the content under 7 headings (Summary-Subject Lecture-Video Content-Audio Lecture-Interaction-Test-Document) determined according to UNESCO distance education platforms standards, an information bar (infobar) showing the progress of the student in the context of the subject content as a percentage (%), a scoring system consisting of stars that the student can evaluate the course content and give feedback, and a tour/guide button that introduces the buttons and features on the page to the student and teaches them how to use them. The content selected through the buttons is presented to the student in the centre of the page body.

Under the course content, there is a chat screen that enables and facilitates the student to communicate with the portal administrators and teachers and is similar in design to current and popular chat programmes. With this chat screen, the questions or contents asked are notified to the portal administrators in the management panel with a warning. The answer given by the teacher is displayed on the same chat screen. Chat content is separated in terms of subject. With the chat feature, the student will be able to get feedback about the course content, and will not have to

look for extra and troublesome ways to communicate with the portal management when there is a question that he/she cannot understand or wants to ask. At the end of each subject, the student is faced with the situation of leveling up or leveling down in the next step with the success score he / she has obtained after the exam he / she has taken.

İŞIĞIN YAYILMASI

Anasayfa Dersler

İŞIĞIN YAYILMASI dersine puan ver?

★★★★★

Bu Sayfayı Nasıl Kullanabilirim?

İŞIĞIN YAYILMASI dersindeki ilerleme durumu

% 29

Özet

Konu Anlatımı

Video İçerik

Sesli Anlatım

Etkileşim

Test

Doküman

İŞIĞIN YAYILMASI (5. SINIF FEN BİLİMLERİ)

OBECA PORTAL

Gelen Işın

Normal

Yansıyan Işın

Gelme Açısı

Yansıma Açısı

Yansıtıcı Yüzey

GELME VE YANSIMA AÇILARI EŞİ

04:01

vimeo

Video Anlatımını Tamamladım.

Öğretmene Soru Sor

Murat Baha

Öğrenci

OBECA Portal

Online Eğitim Platformu

Sorunuzu yazın..

Gönder

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OBECA

OBECA Portal

- Murat Baha
- İnsan ve Çevre
- Elektrik Devre Elemanları
- İşğin Yayılması
- Madde ve Değişim
- Kuvvetin Ölçülmesi ve Sürüt
- Camilar Dünyası
- Güneş, Dünya ve Ay

İŞĞİN YAYILMASI

Anasayfa Dersler

İŞĞİN YAYILMASI dersine puan ver?

★★★★★

Bu Sayfayı Nasıl Kullanabilirim?

İŞĞİN YAYILMASI dersindeki ilerleme durumun

% 29

Özet

Konu Anlatımı

Video İçerik

Sesli Anlatım

Etkileşim

Test

Doküman

0:16 / 13:20

Sesli Anlatımını Tamamladım.

Öğretmene Soru Sor

Murat Baha Öğrenci

OBECA Portal Online Eğitim Platformu

Sorunuzu yazın...

Gönder

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İŞİĞİN YAYILMASI
Anasayfa
Dersler

İŞİĞİN YAYILMASI dersine puan ver?
★★★★★
Bu Sayfayı Nasıl Kullanabilirim?

İŞİĞİN YAYILMASI dersindeki ilerleme durumun
% 29

Özet
Konu Anlatımı
Video İçerik
Sesli Anlatım
Etkileşim
Test
Doküman

Resources
Yanda verilen aydınlatma araçlarından hangilerine ışığın yayılması doğru gösterilmiştir? Neden?
ANAHTAR
NOTLAR
1. ...
2. ...
3. ...
4. ...
5. ...
DEVAM

Etkileşimli Anlatımı Tamamladım.

Öğretmene Soru Sor
Murat Baha Öğrenci
OBECA Portal Online Eğitim Platformu
Sorunuzu yazın...
Gönder

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İŞİĞİN YAYILMASI
Anasayfa Dersler

İŞİĞİN YAYILMASI dersine puan ver?
★★★★★
Bu Sayfayı Nasıl Kullanabilirim?

İŞİĞİN YAYILMASI dersindeki ilerleme durumun
% 29

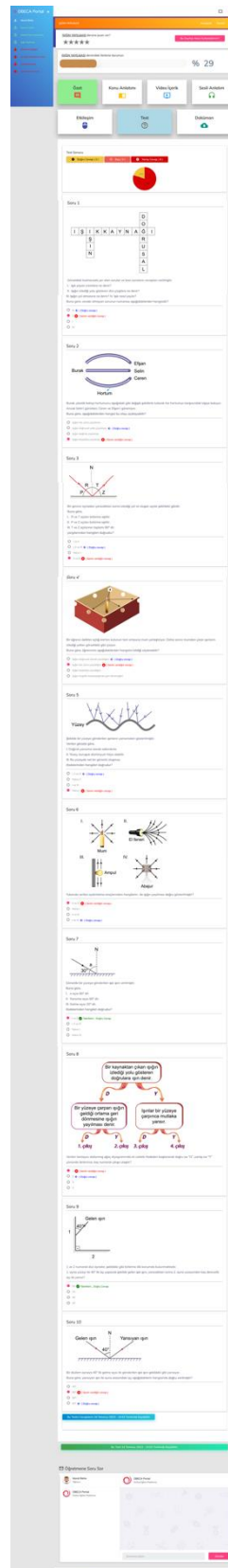
Özet
Konu Anlatımı
Video İçerik
Sesli Anlatım
Etkileşim
Test
Doküman

Resources
Yanda verilen aydınlatma araçlarından hangilerine ışığın yayılması doğru gösterilmiştir? Neden?
1. Yanda verilen aydınlatma araçlarından hangilerine ışığın yayılması doğru gösterilmiştir? Neden?
2. ...
3. ...
4. ...
5. ...
DEVAM

Etkileşimli Anlatımı Tamamladım.

Öğretmene Soru Sor
Murat Baha Öğrenci
OBECA Portal Online Eğitim Platformu
OBECA Portal Online Eğitim Platformu
Sorunuzu yazın...
Gönder

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İŞİĞİN YAYILMASI

Anasayfa Dersler

İŞİĞİN YAYILMASI dersine puan ver?

★★★★★

Bu Sayfayı Nasıl Kullanabilirim?

İŞİĞİN YAYILMASI dersindeki ilerleme durumun

% 29

Özet

Konu Anlatımı

Video İçerik

Sesli Anlatım

Etkileşim

Test

Doküman

İndirilebilir Dokümanlar

Aşağıda yer alan tabloda istediğin dokümanın yanındaki "İndir" butonuna tıklayarak cihazına indirebilir ve çalışma yapabilirsin.

Doküman Adı	Ekleme Tarihi	İşlem
isigin-yayilmasi-1.pdf	23 Temmuz 2023	İndir
isigin-yayilmasi-2.pdf	23 Temmuz 2023	İndir
isigin-yayilmasi-3.pdf	23 Temmuz 2023	İndir

Dokümanlar ile Çalışmayı Tamamladım.

✉ Öğretmene Soru Sor

Murat Baha

Öğrenci

OBECA Portal

Online Eğitim Platformu

Sorunuzu yazın...

Gönder

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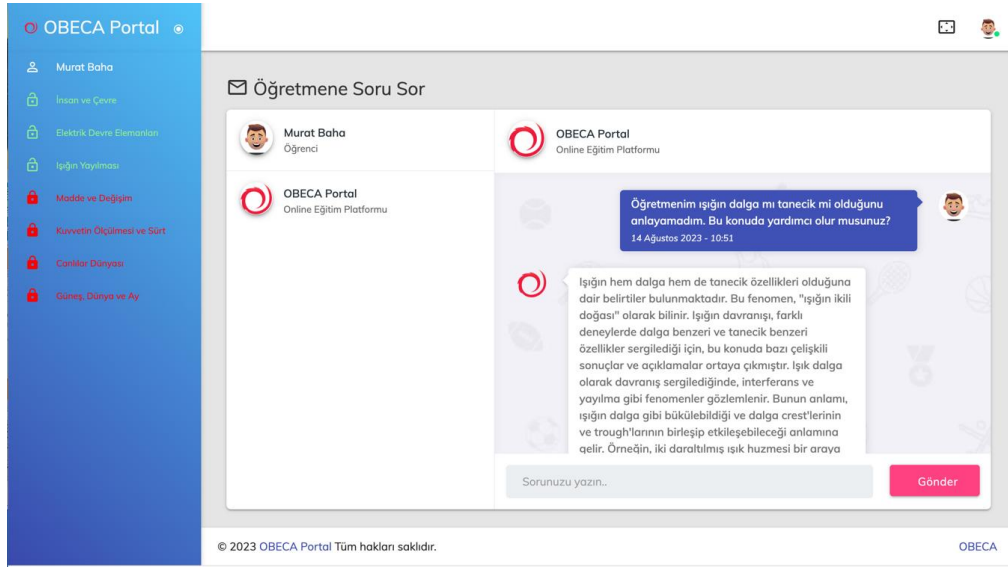
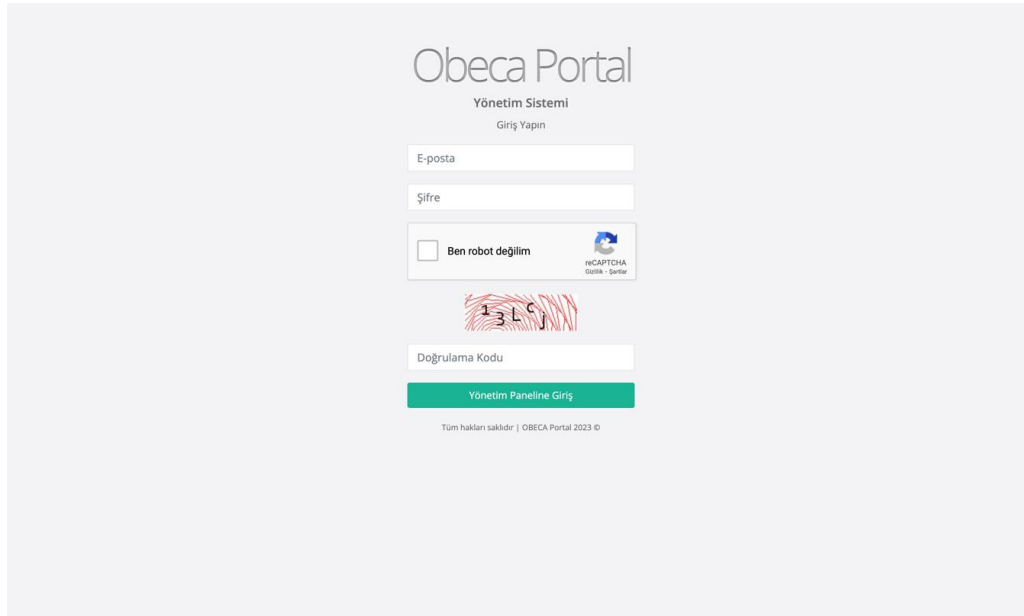


Figure 7. Student Panel (2)

Portal Administration Panel

All management of the portal system is carried out through the administration panel. This panel is accessed through the login screen and the login operation is protected by both captcha code and Google Recaptcha feature. When the administration panel is successfully logged in, a vertical menu and a main page containing graphics-tables and information containing portal statistics are accessed.



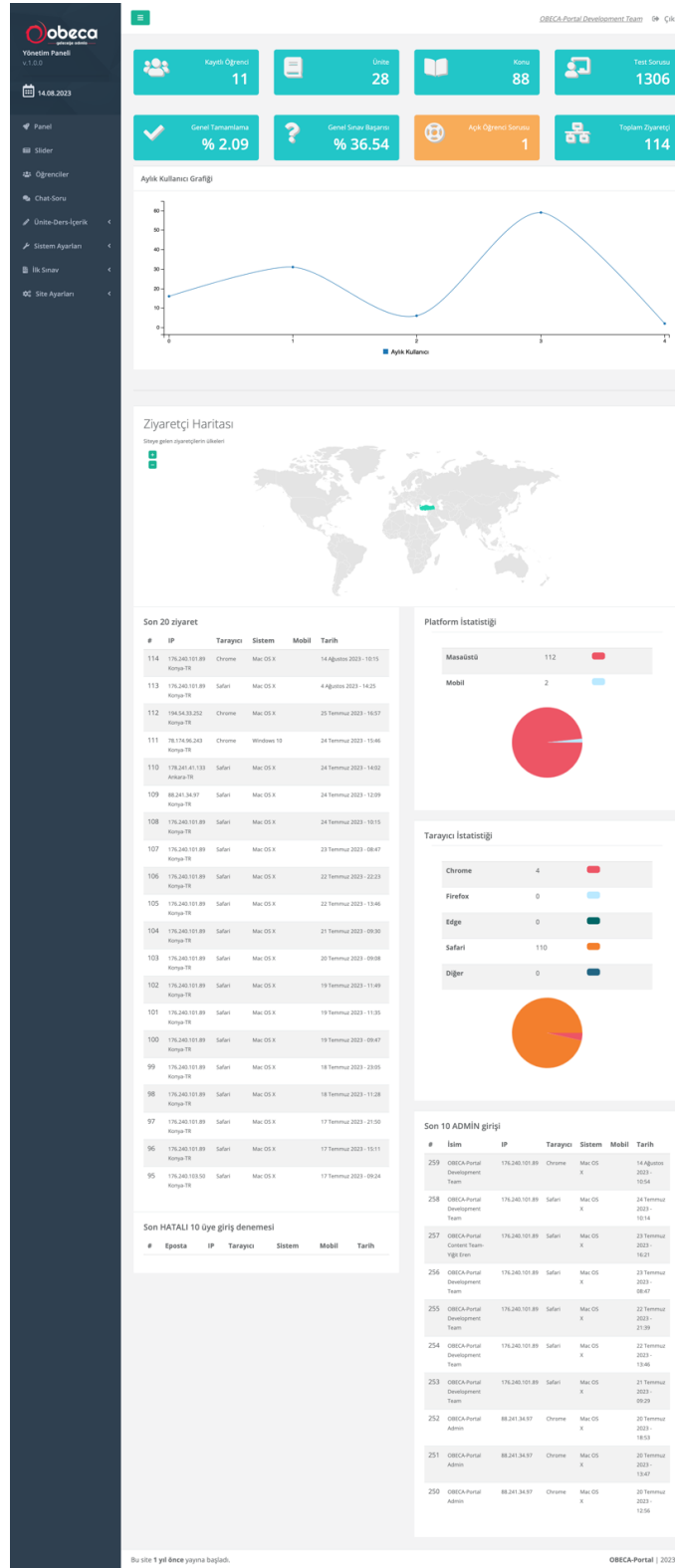


Figure 8. Administration Panel Login Page

In the vertical menu on the left side, there is a module for changing the slider and its features on the introduction page, a student module where registered students are listed and their details can be accessed, a Chat-Question module that shows the questions asked and answers given by the students who send questions or information with the chat screen and also allows the administration to answer, the Unit-Course Content module where the portal content can be managed, the system

settings module where portal settings are made, the First Exam module that hosts the first exam setting and question pool that creates the step lock system, and the site settings menu that hosts the general settings of the system.

The image displays two screenshots of the OBECA Portal Management Panel. The top screenshot shows the 'Slider' module, and the bottom screenshot shows the 'Sınıflara Göre Üniteler' (Units by Class) module.

Slider Module:

- Header:** OBECA-Portal Development Team, Çıkış
- Left Sidebar:** Yönetim Paneli v.1.0.0, 14.08.2023, Panel, Slider, Öğrenciler, Chat-Soru, Ünite-Ders-İçerik, Sistem Ayarları, İlk Sınav, Site Ayarları.
- Main Content:** Slider Listesi. A table with columns: #, Başlık, Açıklama, Görsel, Durumu, İşlem.

#	Başlık	Açıklama	Görsel	Durumu	İşlem
#2	Seninle Ders Çalışıyoruz..	Daha verimli ders çalışabilmen için masaüstü uygulamamız, her cihazda ders çalışabilmen için mobil uygulamalarımız...		☒	SİL DÜZENLE PASIF YAP
#1	Obeqa Portal	Eğitim Portalı		☒	SİL DÜZENLE PASIF YAP

- Footer:** Bu site 1 yıl önce yayına başladı. OBECA-Portal | 2023 ©

Sınıflara Göre Üniteler Module:

- Header:** OBECA-Portal Development Team, Çıkış
- Left Sidebar:** Yönetim Paneli v.1.0.0, 14.08.2023, Panel, Slider, Öğrenciler, Chat-Soru, Ünite-Ders-İçerik, Sistem Ayarları, İlk Sınav, Site Ayarları.
- Main Content:** Sınıflara göre üniteler. A table with columns: # ID, Sınıf, Konular.

# ID	Sınıf	Konular
4	8. Sınıf	1 ÜNİTELER
3	7. Sınıf	1 ÜNİTELER
2	6. Sınıf	1 ÜNİTELER
1	5. Sınıf	1 ÜNİTELER

- Footer:** Bu site 1 yıl önce yayına başladı. OBECA-Portal | 2023 ©



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v.1.0.0

14.08.2023

- Panel
- Slider
- Öğrenciler
- Chat-Soru
- Ünite-Ders-İçerik
- Sistem Ayarları
- İlk Sınav
- Site Ayarları

OBCEA-Portal Development Team

Çıkış

Murat Baha - IŞIĞIN YAYILMASI

Anasayfa / Murat Baha - IŞIĞIN YAYILMASI

Öğrenci Sorusu

14 Ağustos 2023 - 10:51

Murat Baha

Öğretmenim ışığın dalga mı tanecek mi olduğunu anlayamadım. Bu konuda yardımcı olur musunuz?

OBCEA Portal

14 Ağustos 2023 - 11:08

Işğın hem dalga hem de tanecek özellikleri olduğuna dair belirtiler bulunmaktadır. Bu fenomen, "ışğın ikili doğası" olarak bilinir. Işğın davranış, farklı deneylerde dalga benzeri ve tanecek benzeri özellikler sergilediğ için, bu konuda bazı çelişkili sonuçlar ve açıklamalar ortaya çıkmıştır. Işık dalga olarak davranış sergilediğinde, interferans ve yayılma gibi fenomenler gözlemlenir. Bunun anlamı, ışğın dalga gibi bükülebildiğ ve dalga crestlerinin ve trough'larının birleşip etkileşebileceğ anlamına gelir. Örneğın, iki daraltılmış ışık huzmesi bir araya geldiğinde, dalga tepe noktaları birleşebilir veya yok edilebilir, bu da parlak ve karanlık çizgilerin oluşmasına neden olur. Diğer yandan, ışık tanecekimsi özellikler de sergiler. Fotoelektrik etki, bu özelliğın en iyi örneklerinden biridir. Fotoelektrik etkide, ışğın bir yüzeye çarptığında, yüzeyden elektronlar çıkabilir. Bu olay, ışğın enerjisinin küçük paketler (fotonlar) halinde taşındığını ve bir fotonun belirli bir enerji taşıdığını gösterir. Işğın bu ikili doğası, kuantum fizik alanında derinlemesine çalışmaların konusu olmuştur. Işık dalga ve tanecek benzeri davranışlarını farklı durumlar altında sergileyebilir ve bu, ışğın doğasının karmaşıklığını yansıtır. Etkileşimli ders içeriğimizin de deneyi, sonuçlarını ve açıklamaları bulabilirsiniz. Bana soru sorduğın için teşekkür ederim.

Cevabınızı Yazın...

Gönder

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Yönetim Paneli
v.1.0.0

14.08.2023

- Panel
- Slider
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- Chat-Soru
- Ünite-Ders-İçerik
- Sistem Ayarları
- İlk Sınav
- Site Ayarları

OBCEA-Portal Development Team

Çıkış

Kayıtlı Öğrenciler

Anasayfa / Kayıtlı Öğrenciler

Kayıtlı Öğrenciler

+ YENİ EKLE

25 kayıt göster

Ara:

Kopyala CSV Excel PDF Yazdır

11 Kayıttan 1 ile 11 arası gösteriliyor

# ID	İsim-Soyisim	Şehir	Okul	Sınıf	Seviye	Durum	İşlem
11	Yusuf Uzun	KONYA	Ihsan Tekin İlkokulu	5. Sınıf	Başlangıç Seviyesi	✓	  
10	Süleyman Aktaş	İZMİR	Selçuk IMKB Mesleki ve Teknik Anadolu Lisesi	5. Sınıf	Orta Seviye	✓	  
9	Meltem Yıldız	İZMİR	Sekizyüzlü Ortaokulu	5. Sınıf	Başlangıç Seviyesi	✓	  
8	Yğit Eren	İZMİR	Selçuk IMKB Anadolu Lisesi	5. Sınıf	Başlangıç Seviyesi	✓	  
7	Murat Baha	İZMİR	19 Mayıs Ortaokulu	5. Sınıf		✓	  



Yönetim Paneli
v.1.0.0

14.08.2023

- Panel
- Slider
- Öğrenciler
- Chat-Soru
- Ünite-Ders-İçerik
- Sistem Ayarları
- İlk Sınav
- Site Ayarları

OBECİ-Portal Development Team

Çıkış

Murat Baha isimli öğrenci

Anasayfa / Öğrenciler / Murat Baha



Murat Baha
Maresal Mustafa Kemal Ortaokulu - KONYA
5. Sınıf
Başlangıç Seviyesi

131 Giriş

4 Tamamlanmış Test

3 Tamamlanmış Ünite

16 Doğru Cevap

23 Tamamlanmış İçerik

16 Yanlış Cevap

Ortalama günlük çalışma süresi

1.47



Üniteler

#	Ünite	Durum
1	İnsan ve Çevre	Tamamlandı
2	Elektrik Devre Elemanları	Tamamlandı
3	İşğin Yayılması	Tamamlanmadı
4	Madde ve Değişim	Tamamlanmadı
5	Kuvvetin Ölçülmesi ve Sürtünme	Tamamlanmadı
6	Canlılar Dünyası	Tamamlanmadı
7	Güneş, Dünya ve Ay	Tamamlanmadı

İçerikler

#	Ünite	Durum
1	CANILAR DÜNYASI	Tamamlanmadı
2	ELEKTRİK DEVRE ELEMANLARI	Tamamlandı
3	İNSAN VE ÇEVRE KİRLİLİĞİ	Tamamlandı
4	İŞĞİN YAYILMASI	Tamamlandı
5	MADDENİN HAL DEĞİŞİMİ	Tamamlanmadı
6	KUVVETİN ÖLÇÜLMESİ VE SÜRTÜNME	Tamamlanmadı
7	Güneş, Dünya ve Ay	Tamamlanmadı

Son 20 Giriş Kaydı

Tarih-Saat	IP	Cihaz	İşletim Sistemi	Tarayıcı	Şehir
14 Ağustos 2023 - 10:15	176.240.101.89	Mac OS X	Mac OS X	Chrome	Konya / Konya
4 Ağustos 2023 - 14:25	176.240.101.89	Mac OS X	Mac OS X	Safari	Konya / Konya
24 Temmuz 2023 - 15:46	78.174.96.243	Windows 10	Windows 10	Chrome	Konya / Konya
24 Temmuz 2023 - 14:17	178.241.41.133	Mac OS X	Mac OS X	Safari	Ankara / Ankara
24 Temmuz 2023 - 10:15	176.240.101.89	Mac OS X	Mac OS X	Safari	Konya / Konya
23 Temmuz 2023 - 08:47	176.240.101.89	Mac OS X	Mac OS X	Safari	Konya / Konya
22 Temmuz 2023 - 22:23	176.240.101.89	Mac OS X	Mac OS X	Safari	Konya / Konya
22 Temmuz 2023 - 13:46	176.240.101.89	Mac OS X	Mac OS X	Safari	Konya / Konya
21 Temmuz 2023 - 09:30	176.240.101.89	Mac OS X	Mac OS X	Safari	Konya / Konya
20 Temmuz 2023 - 11:36	176.240.101.89	Mac OS X	Mac OS X	Safari	Konya / Konya
20 Temmuz 2023 - 09:08	176.240.101.89	Mac OS X	Mac OS X	Safari	Konya / Konya
19 Temmuz 2023 - 11:49	176.240.101.89	Mac OS X	Mac OS X	Safari	Konya / Konya
19 Temmuz 2023 - 11:35	176.240.101.89	Mac OS X	Mac OS X	Safari	Konya / Konya
19 Temmuz 2023 - 09:47	176.240.101.89	Mac OS X	Mac OS X	Safari	Konya / Konya
18 Temmuz 2023 - 23:05	176.240.101.89	Mac OS X	Mac OS X	Safari	Konya / Konya
18 Temmuz 2023 - 11:28	176.240.101.89	Mac OS X	Mac OS X	Safari	Konya / Konya
17 Temmuz 2023 - 15:11	176.240.101.89	Mac OS X	Mac OS X	Safari	Konya / Konya
17 Temmuz 2023 - 09:24	176.240.103.50	Mac OS X	Mac OS X	Safari	Konya / Konya
17 Temmuz 2023 - 01:18	176.240.103.50	Mac OS X	Mac OS X	Safari	Konya / Konya
16 Temmuz 2023 - 11:45	176.240.103.50	Mac OS X	Mac OS X	Safari	Konya / Konya

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v1.0.0

14.08.2023

- Panel
- Statü
- Öğrenciler
- Chat Sora
- Ünitede Öneri İptali
- Sistem Ayarları
- İki Sora
- Site Ayarları

5. Sınıf İnsan ve Çevre Ünitesi **İNSAN VE ÇEVRE KİRLİLİĞİ** Konusu **Başlangıç Seviyesi** Konu Anlatımı İçeriği

Anasayfa / Üniteler / 5. Sınıf İnsan ve Çevre Ünitesi İNSAN VE ÇEVRE KİRLİLİĞİ Konusu Başlangıç Seviyesi Konu Anlatımı İçeriği

5. Sınıf İnsan ve Çevre Ünitesi İNSAN VE ÇEVRE KİRLİLİĞİ Konusu Başlangıç Seviyesi Konu Anlatımı İçeriği

İNSAN VE ÇEVRE İLİŞİSİ

ÇEVRE NEDİR ?
Çevremizi oluşturan herşeyi kapsayan kavramdır.
Çevre, insan ve canlılar arasında var olan ilişkidir.
Çevre, insan, su, toprak gibi canlılar ve insan, hayvan, bitki gibi canlılar arasında var olan ilişkidir.
İnsanlar ve diğer canlılar çevre içinde yaşarlar ve çevre içinde yaşarlar.
İnsanlar çevreyle etkileşim içinde yaşarlar ve çevreyle etkileşim içinde yaşarlar.
Bedenine, su, toprak, bitimlere etkileşim içinde yaşarlar ve çevreyle etkileşim içinde yaşarlar.

ÇEVRE KİRLİLİĞİNİN NEDİR ?
İnsanların yaptıkları işler sonucu çevreye zarar vermesi olarak tanımlanır.
Hava kirliliği
Su kirliliği
Toprak kirliliği
Gürültü kirliliği
Işıklı kirliliği
Çevremizdeki herşeyi insan etkisiyle kirliliğe uğratır.
Doğal çevremizi kirlilettiğimiz herşeyi kirlilik olarak tanımlarız.
Hava, su, toprak kirliliği insan etkisiyle kirliliğe uğratır.

KİRLİLİK ÇEŞİTLERİ
HAVA KİRLİLİĞİ
Evlerden, fabrikalardan, taşıtlardan çıkan gazlar havayı kirliler.
Atmosferde bulunan bu zararlı gazlar sağa etkiler (Küresel ısınma)

SU KİRLİLİĞİ
Kullanılan yağlar, petrol ve kimyasal maddeler, evsel ve endüstriyel atık maddeler suyu kirliler.
Çevremizdeki su kaynakları kirlenir ve suyun kalitesi düşer.
Bununla birlikte suyun ve suyun kalitesi düşer.

TOPRAK KİRLİLİĞİ
Toprakta bulunan ağır metaller, kimyasal maddeler toprağı kirliler.
Toprakta bulunan ağır metaller toprağı kirliler.
Toprakta bulunan ağır metaller toprağı kirliler.

İŞ KİRLİLİĞİ
Çevremizdeki herşeyi insan etkisiyle kirliliğe uğratır.
Çevremizdeki herşeyi insan etkisiyle kirliliğe uğratır.

İŞ KİRLİLİĞİ
Çevremizdeki herşeyi insan etkisiyle kirliliğe uğratır.
Çevremizdeki herşeyi insan etkisiyle kirliliğe uğratır.

ÇEVRE KİRLİLİĞİNİN ÇÖZÜMLERİ
Çevre kirliliğinin önlenmesi için aşağıdaki önlemler alınmalıdır.
Su kirliliğinin önlenmesi için suyun kalitesi kontrol edilmelidir.
Hava kirliliğinin önlenmesi için hava kirliliği kontrol edilmelidir.
Toprak kirliliğinin önlenmesi için toprağın kalitesi kontrol edilmelidir.
Gürültü kirliliğinin önlenmesi için gürültü kontrol edilmelidir.
Işıklı kirliliğinin önlenmesi için ışık kontrol edilmelidir.
Çevremizdeki herşeyi insan etkisiyle kirliliğe uğratır.
Çevremizdeki herşeyi insan etkisiyle kirliliğe uğratır.

24 Şubat 2023 - 11:37

if content

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v.1.0.0

14.08.2023

- Panel
- Slider
- Öğrenciler
- Chat-Soru
- Ünite-Ders-İçerik
- Sistem Ayarları
- İlk Sınav
- Site Ayarları

OBECA-Portal Development Team

Çıkış

5. Sınıf İnsan ve Çevre Ünitesi İNSAN VE ÇEVRE KİRLİLİĞİ Konusu Başlangıç Seviyesi Video İçeriği

Anasayfa / Üniteler / 5. Sınıf İnsan ve Çevre Ünitesi İNSAN VE ÇEVRE KİRLİLİĞİ Konusu Başlangıç Seviyesi Video İçeriği

5. Sınıf İnsan ve Çevre Ünitesi İNSAN VE ÇEVRE KİRLİLİĞİ Konusu Başlangıç Seviyesi Video İçeriği

+YENİ EKLE

BİYOÇEŞİTLİLİK (5. SINIF FEN BİLİMLERİ)

OBECA PORTAL

Yönetim Paneli
v.1.0.0

14.08.2023

- Panel
- Slider
- Öğrenciler
- Chat-Soru
- Ünite-Ders-İçerik
- Sistem Ayarları
- İlk Sınav
- Site Ayarları

OBECA-Portal Development Team

Çıkış

5. Sınıf Işığın Yayılması Ünitesi IŞIĞIN YAYILMASI Konusu Başlangıç Seviyesi İndirilebilir Dokümanlar

Anasayfa / Üniteler / 5. Sınıf Işığın Yayılması Ünitesi IŞIĞIN YAYILMASI Konusu Başlangıç Seviyesi İndirilebilir Dokümanlar

5. Sınıf Işığın Yayılması Ünitesi IŞIĞIN YAYILMASI Konusu Başlangıç Seviyesi İndirilebilir Dokümanlar

+YENİ EKLE

25 kayıt göster

Ara:

Kopyala CSV Excel PDF Yazdır

3 Kayıttan 1 ile 3 arası gösteriliyor

# ID	Doküman	Hit	Tarih	İşlem
14	ışigin-yayilmasi-3.pdf	0	23 Temmuz 2023 - 15:06	DÜZENLE SİL
13	ışigin-yayilmasi-2.pdf	0	23 Temmuz 2023 - 15:06	DÜZENLE SİL
12	ışigin-yayilmasi-1.pdf	0	23 Temmuz 2023 - 15:06	DÜZENLE SİL

Geri 1 İleri

Bu site 1 yıl önce yayına başladı.

OBECA-Portal | 2023 ©

Yönetim Paneli
v.1.0.0

14.08.2023

- Panel
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 - Seviye
 - Sınıf
 - Okul
 - Öğretmen
- İlk Sınav
- Site Ayarları

OBECA-Portal Development Team

Çıkış

Seviyeler

Anasayfa / Seviyeler

Seviyeler

+YENİ EKLE

25 kayıt göster

Ara:

Kopyala CSV Excel PDF Yazdır

3 Kayıttan 1 ile 3 arası gösteriliyor

# ID	Seviye	Yüzde Aralığı	Öğrenci Sayısı	Tarih	İşlem
3	Üst Seviye	% 67 - % 100	0	18 Haziran 2021 - 10:52	DÜZENLE SİL
2	Orta Seviye	% 34 - % 66	2	4 Haziran 2021 - 18:57	DÜZENLE SİL
1	Başlangıç Seviyesi	% 0 - % 33	13	4 Haziran 2021 - 14:34	DÜZENLE SİL

Geri 1 İleri

Bu site 1 yıl önce yayına başladı.

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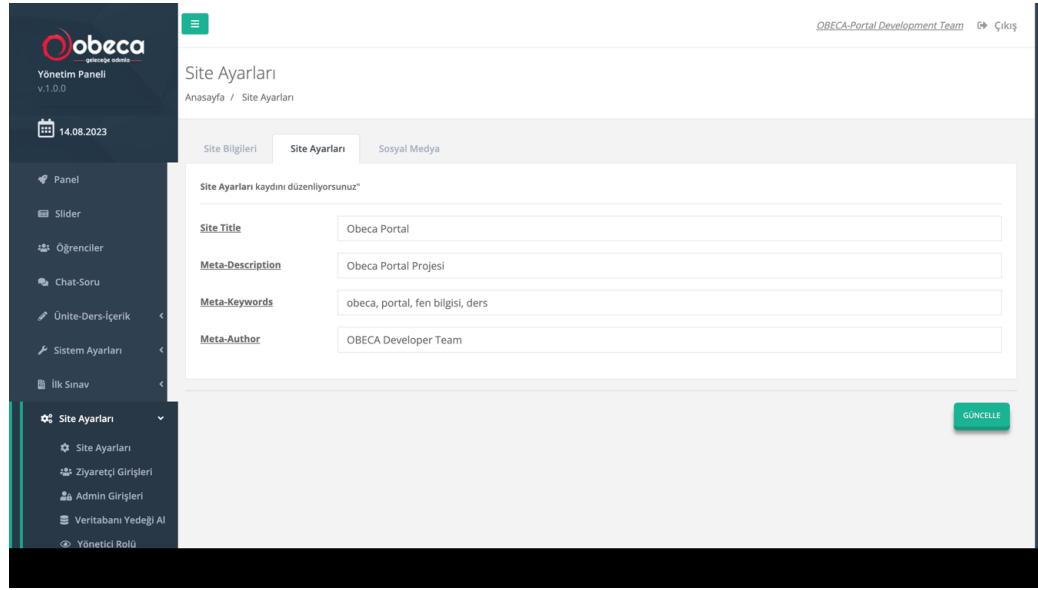
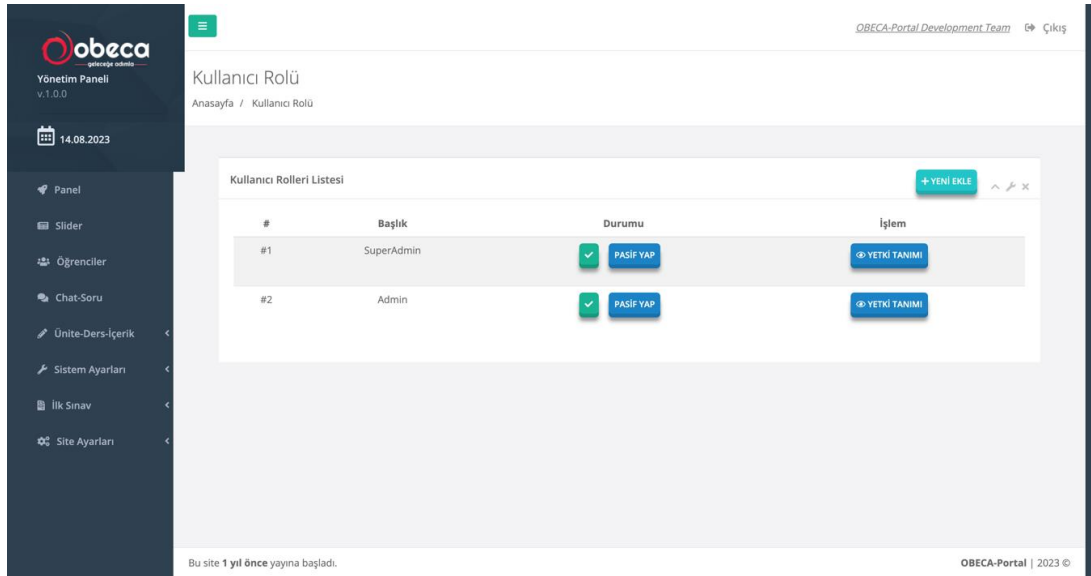


Figure 9. Administration Panel Settings

The portal system provides authorisation features and authorisation tracking for both administrators and users. Authorisation can be made for user groups in the administration panel and unauthorised users can be restricted from using portal features. Screenshots of this feature are shown below.



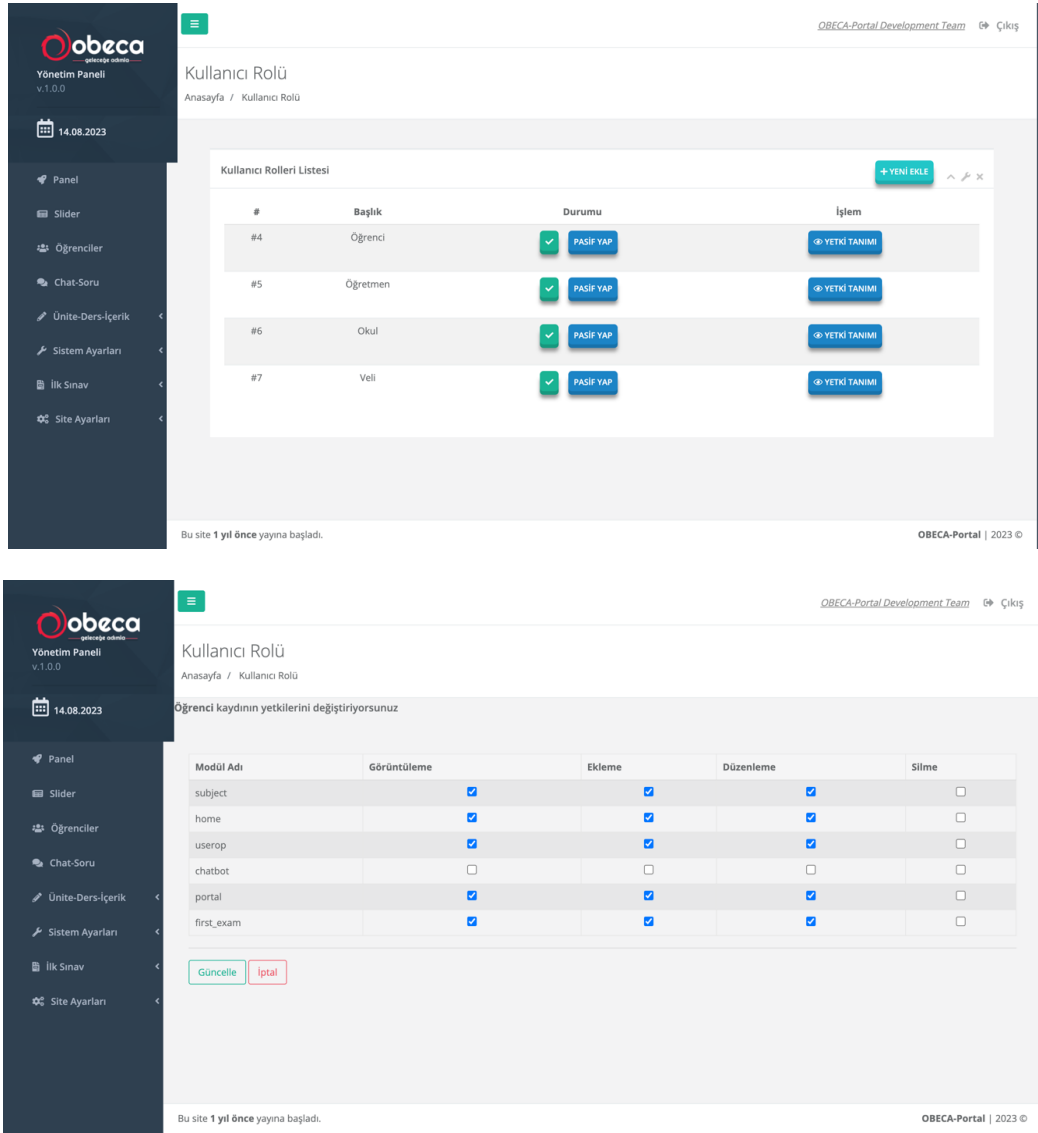


Figure 10. Authorisation Settings

All visits and entries within the portal are recorded, including IP-Location-operating system-ISP, etc. features are also recorded. Database backup can be taken manually with the database backup button in the menu.

Security-Speed and Improvement Aspects of the Portal

- In all login screens in the portal, security steps have been added both with the captcha code generated by the system and with Google Recaptcha.
- All passwords in the database are encrypted with 4-step encryption. Even if it is intercepted, it is impossible for a person who does not have the key data to decrypt the passwords (Hash-Salt principle).
- It is aimed to eliminate hackbots by setting honeypot traps on all login screens.
- The security features of the Codeigniter framework used as infrastructure have been activated, csrf feature, cookie and session security settings have been made.
- Measures have been taken against XSS attacks.

- All data coming from inputs are checked for harmful characters and type (string-integer etc.).
- DNS routing was made to Cloudflare proxy servers in order to control the traffic coming to the system, to eliminate possible attacks and to create an additional layer of security.
- Beta and Alpha user tests of the system were presented to the students of Konya-Selçuklu Marshal Mustafa Kemal Secondary School and feedbacks were evaluated.
- The system was subjected to speed and load tests, and speed-enhancing features such as cache, compression, minimisation were adjusted.
- Prefix feature in the database from the security features offered by the Codeigniter framework, URL manipulation is activated and controller names are hidden.
- Model files and controller files are removed from the default form and extended from different files.
- The study was developed with version management via GitHub platform from the beginning to the end.
- For the school list applied in the student enrolment screen, 53525 school records in Turkey have been added to the database.
- Hosting 1.853.080 lines of code, the portal was implemented with 1591 PHP, 250 HTML, 272 CSS, 670 JS files.

Conclusion

In the age of communication we are living in, there is no longer a need for individuals who memorise information, but for individuals who can access information, use it, synthesise it and obtain new results. Computers and the Internet, which are now almost a part of our lives, are the main sources we use to access and synthesise information. Computers and the Internet are extremely important tools that should be utilised in order to show that change is not a utopia but a part of life. The Internet, called the global communication network, is the main source of information for scientific research, productivity, global changes, global trade and education. This written, oral and visual information communication network also gives educators the opportunity to offer global distance education services.

When the Turkish market is analysed, it is seen that there are various educational platforms that serve online and are commercially marketed. The most important point that distinguishes the prepared portal from these similar platforms is that each student interacts with the content according to his/her own level and learning speed. At the same time, thanks to the step-lock system, the student cannot switch to a new subject without fully learning a subject. They can also navigate within the current active topic as flexibly as they want. For example, while one student is working with video lectures, another student can learn interactively with Web 2.0 contents including animation or simulation. In the current portal, there are activities that appeal to different sensory organs and support different learning styles. In this way, it can appeal to all students who can learn visually, auditorily or differently. This feature of the portal constitutes its unique characteristic and R&D element.

Within the scope of this study, only secondary school science course was taken as a basis in terms of educational content. And only the contents for the science course are included in the portal at four grade levels at the secondary school level. Within the scope of P&D studies, it is planned to include other course contents (mathematics, social studies, Turkish, English, etc.) in the portal, which is considered to be technically sufficient in the future. However, the quality and quantity of such digital platforms are important due to force majeure situations such as the increase in the use of technology in education, the fact that situations such as disasters and health problems have made distance education compulsory, and the fact that distance education is being used as an alternative to formal education day by day. The number of scientifically valid and reliable platforms that will contribute to the development of children, adolescents and young people who are highly exposed to the screen in daily life should be increased. In the future, it is aimed that the portal will not only be limited to computers and tablets, but also be made available as a mobile application in addition to the web browser. The integration of augmented reality applications, whose importance is increasing in technology-based educational content, into the system is also among the future plans as a P&D activity.

As stated before, UNESCO standards were taken into consideration in the theoretical infrastructure of the digital portal. Within these standards, it is stated that while presenting the course content on the portal, the "audio narration" section should also be included. The reason for this is to ensure that visually impaired students can follow the course in an auditory way. Again, within the scope of the P&D studies of the project, it is planned to expand the conditions in which disabled students can easily use the portal and follow the lessons.

Computers are used effectively in our schools as in all institutions. For this purpose, computers should have interactive education programmes and Internet connection. At the same time, the use of interactive educational software should be increased not only in computer courses where office programmes are taught but also in other courses. From this point of view, the Ministry of National Education has equipped almost all of its schools with computers and Internet. However, the efforts of the Ministry of National Education for the use of Internet in education are not at a visitable level at the moment. The efforts of other private organisations in this field are also not sufficiently supported. It can be concluded from this that the use of the Internet, which is used effectively in the field of education in the world, is not at the desired level in Turkey at the moment. Therefore, Internet and Web-based content similar to the content given in the article should be developed to serve as a resource for educators and students.

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About the Author

Dr. Oguz CETIN was born in 1980 in the Bozdoğan District of Aydın Province. He completed his primary education at Bozdoğan Central Primary School, and his middle school and high school education at Nazilli Anatolian High School. Later, he graduated from Dokuz Eylül University, Buca Faculty of Education, Department of Science Education. In 2005, he completed the Master's program in the Department of Science Education with an applied thesis on Constructivism Theory, and in 2010, he graduated from the same department's Ph.D. program with an applied thesis on Web-Based Education.

In 2002, he began working as a teacher at the Ministry of National Education. During his tenure at the Ministry of National Education, he worked full-time as an expert in the Research and Development, Projects Coordination, and Strategy Development units of Provincial and District Directorates of National Education. Between 2009 and 2011, he held managerial and coordinator positions in the

PISA (Programme for International Student Assessment), TIMSS (Trends in International Mathematics and Science Study), and ÖBBS (Öğrenci Başarılarının Belirlenmesi Sınavı) studies conducted under the Ministry of National Education, Directorate of Education Research and Development.

Throughout his service at the Ministry of National Education, he also served as a member of the Provincial and Regional Working Group in the "Bu Benim Eserim" project, a project collaboration between TUBITAK and the Ministry of National Education aimed at primary school students in the fields of Mathematics and Science. He participated in four TUBITAK-supported projects, 13 projects under Provincial Directorates of National Education, and four projects under the Ministry of National Education. He conducted over a hundred seminars as a trainer on various topics such as "Project Development," "Introduction of New Programs," "Assessment and Evaluation," "National and International Evaluation Studies," "Child Development," and "Teacher Training" within the in-service training activities for teachers. He also worked as an expert in many activities of the Ministry of National Education, such as program development and writing textbooks. He attended more than thirty courses and conferences.

After completing his doctoral studies, in 2011, he was appointed as an assistant professor at Niğde Ömer Halisdemir University, Faculty of Education. During his time at the university, he took on roles such as Department Chair and Vice Dean. Throughout his university service, he served as an instructor in over 500 educational programs. As of 2020, Dr. Oğuz ÇETİN, who holds the title of associate professor in basic education, has six international and 22 total articles, 41 presentations (21 international) in various symposiums and congresses, six book chapters, and has been involved in more than ten projects. Dr. Oğuz ÇETİN is married, has two children, and is fluent in English as a foreign language.

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Scientific Ethics Declaration

The author declares that the scientific ethical and legal responsibility of paper titled “**Web based instruction and a sample portal design that can be used in web based instruction**” belongs to the author.