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Developing Competences of Pre-Service Teachers
through STE(A)M-based Renewable Energy Curriculum

{RENEWTEACH}

PR4

**Development of Online Platform Content, Best
Practices Pool: e-Guide**

2021-1-TR01-KA220-HED-000027614





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ABOUT

Overview

RENEWTEACH is an ERASMUS+ project with the title “Developing Competences of Pre-Service Teachers through STE(A)M-based Renewable Energy Curriculum” and project number 2021-1-TR01-KA220-HED-000027614. This document is designed to introduce PR4, one of the project results developed within the RENEWTEACH project.

What is the PR4?

PR4 covers the development of a Learning Management System (LMS) based on Open edX, which incorporates all the project results and best practice repository produced under the RENEWTEACH project.

Aim of PR4

The aim of this project result is to bring together the curricula, teaching materials and assessment tools produced within the RENEWTEACH project to create a learning ecosystem that will enable pre-service teachers to get the most out of all project results.

Implementation

A learning management system is a software or platform used to manage, track and optimize education and learning processes for learners, educational institutions, companies and other related organizations. A learning management system gives learners access to training materials, allows them to follow courses, complete exams and track their progress. On the other hand, learning management systems increase the success of Erasmus+ projects by enabling them to effectively manage, increase collaboration, facilitate information sharing and evaluate project results.

In this guide, the details of the screens and interfaces in the learning management system are explained in a clear and progressive manner.

How to Access?

You can access PR4 content by registering and logging in to the online learning platform (<https://guzemxonline.gazi.edu.tr/>) developed under the project.





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Learning Management System Usage Guidelines

This guide has been prepared to help you use the Learning Management System (LMS) developed based on Open edX within the scope of the European Union project RENEWTEACH titled "Developing Competences of Pre-Service Teachers through STE(A)M-based Renewable Energy Curriculum" with the number 2021-1-TR-01-KA220-HED-000027614 effectively and efficiently.





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Why Open edX?

Open edX is an open source learning management system (LMS) and online course platform used by educational institutions, organizations and individuals around the world. Launched by edX, it is designed to serve both small groups and millions of students.

Open edX, an open source learning management system (LMS) platform, provides flexible, customizable and scalable content support for modern education environments. Key features include user-friendly course creation tools, advanced analytics, and the capacity to serve millions of learners. Its open-source nature allows institutions and individuals to customize and develop the platform according to their own needs, while it is continuously refreshed and improved with the support of a large community of users and developers. Open edX's ease of use allows both educators and learners to adapt quickly, while its flexibility and compatibility features allow for easy integration into various education models and third-party tools.

Unlike other LMS systems, Open edX is open-source, allowing users to have full control over the platform, make customizations when necessary and develop integrations for their specific needs. The innovative learning experiences it offers make it possible to create a more interactive and participatory learning environment than other LMS systems. In terms of cost-effectiveness, it offers access to a wide feature set without license fees. These features position Open edX not only as an LMS but also as a broad learning ecosystem. Moreover, the fact that the Open edX platform is used by the world's leading educational institutions such as Harvard and MIT proves its reliability and effectiveness in the field of education.

[Click here](#) for detailed information about Open edX.

Processes for the Development of Learning Management System:

The first step in the development of the learning management system was to select reliable and scalable servers with the necessary hardware resources for the project. The operating system was installed by choosing Ubuntu, a Linux distribution supported by Open edX. Then, the software required for the operation of Open edX such as Python, MongoDB, MySQL were installed and the system was installed on the servers by downloading the latest version of Open edX. At this stage, important



configuration settings such as system settings, firewall rules and SSL certificates were performed.

Following the completion of the installation, a user interface was designed in accordance with the institutional identity and theme and interface customizations specific to the Renewteach project were carried out. In addition, various plugins and modules were integrated to meet the project requirements. These customizations will enable both students and educators to use the platform more effectively.

During the roll-out process, course content was enriched by preparing training materials, video lectures, quizzes and other interactive content. All project results (PR1: Framework Curriculum, PR2: Multimedia Based Online Learning Content and Learning Materials, PR3: Self-Assessment Tool) produced within the scope of Renewteach project were collected under a learning management system (PR4) and made available to learners. Thanks to the Best Practices Pool (PR4) in the Learning Management System, participants will be able to use their experience and knowledge about the project results in solving global and local problems, and develop and share their own best practices.

With the completion of the integration of the project results into the system, the learning management system was made accessible to users. After student and educator accounts were created, course registration processes were initiated and necessary trainings on system usage and course management were organized. This phase is critical to ensure effective use of the platform.

During the project, the performance of the system and the user experience were continuously improved by taking into account the feedback from the users. This feedback played an important role in increasing the success of the project and improving the learning experience. The open source and customizable structure provided by the Open edX platform has enabled the development of our innovative solutions in the field of education.

The result is an online platform that offers learners and educators a flexible, accessible and rich learning experience. This guide is intended to support learners and educators to get the most out of this rich learning ecosystem developed within the Renewteach project.



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Introduction to Learning Management System (LMS):

- 1- In order for users to access the contents of the learning management system, they must first go to <https://guzemxonline.gazi.edu.tr/>, click on the "Register" button and create a user account.

Start learning
with
GuzemXOnline

Register Sign in

Full name

Email

Public username

Password

Create an account for free

- 2- After creating your username and password, you can log in to the system by clicking the "Sign in" tab. Enter your username or e-mail address in the "Username or email" field on the screen that opens. Enter your password in the "Password" field and click the "Sign in" button.

Start learning
with
GuzemXOnline

Register Sign in

Username or email

Password

Sign in Forgot password

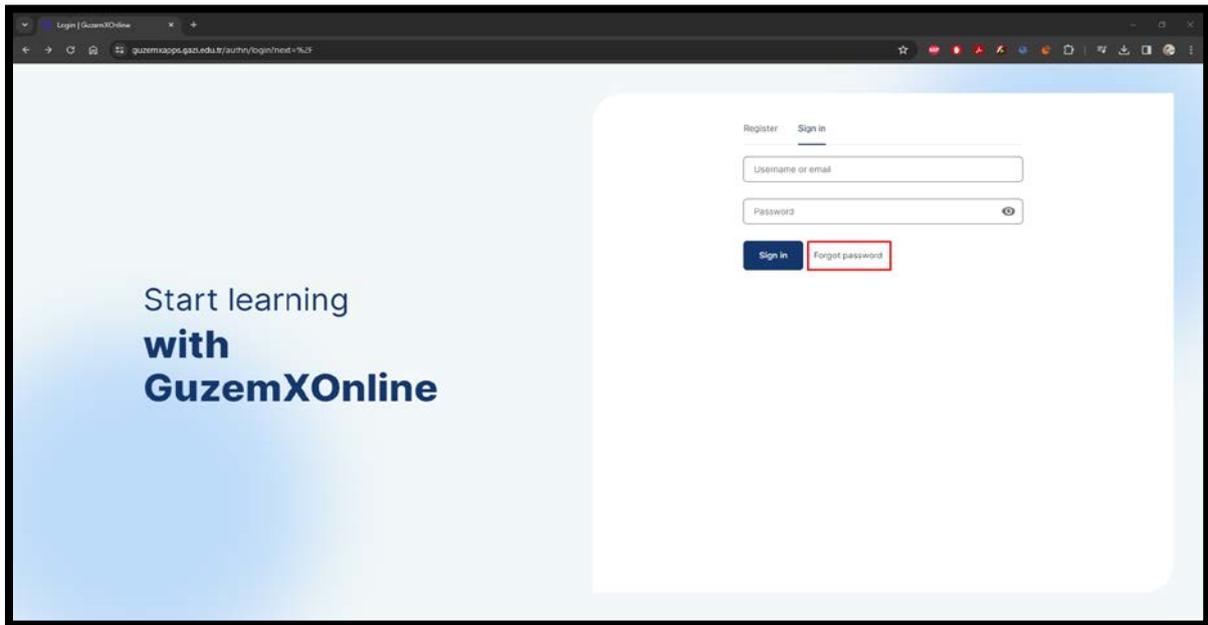




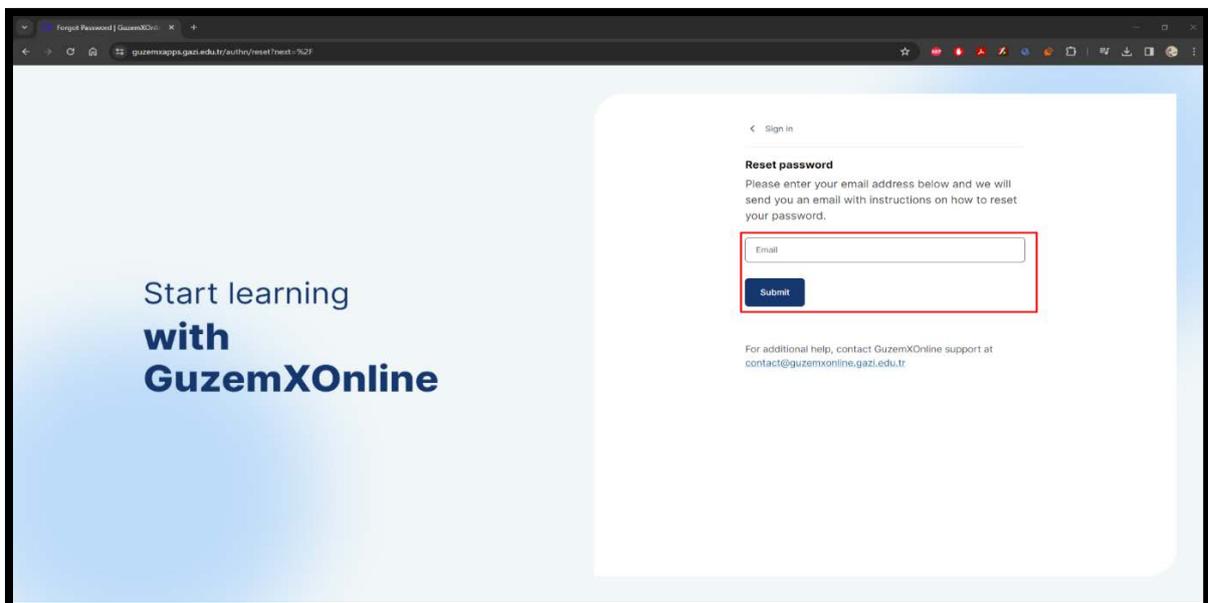
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3- If you forgot your password, click on the "Forgot password" button.



4- Enter your e-mail address in the "Email" field on the screen that opens and click the "Submit" button. Instructions for the password change process will be sent to your e-mail address. Follow the instructions and change your password. After completing the password change process, follow the first 3 steps to log in to the system.



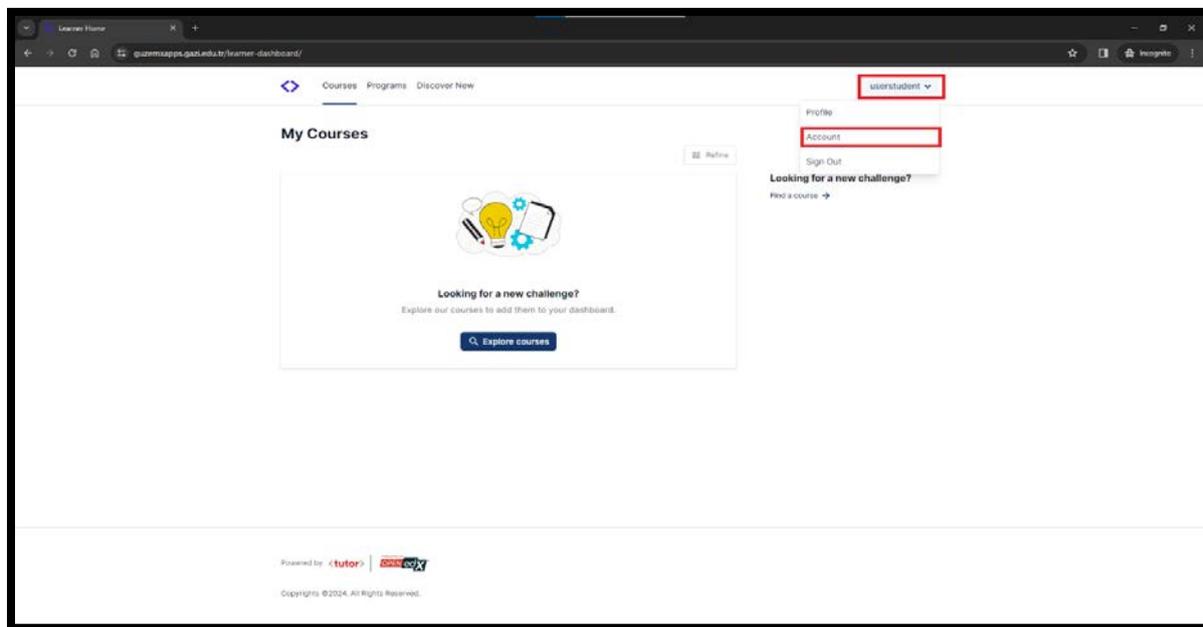


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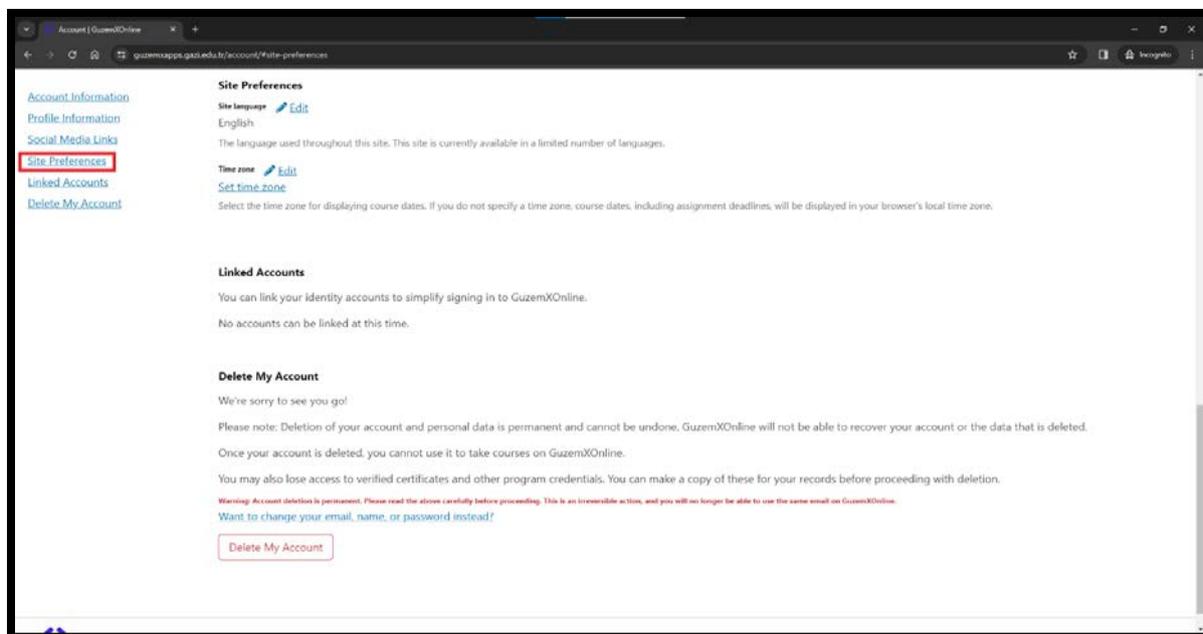


Selecting Open edX Language Support

- 1- After logging in to the Learning Management System, you can change the language of the interface by selecting one of the different language options supported by Open edX. For this, click on your username on the top right. Select the "Account" option from the tabs that open.



- 2- Select the "Site Preferences" section under the "Account Settings" heading.

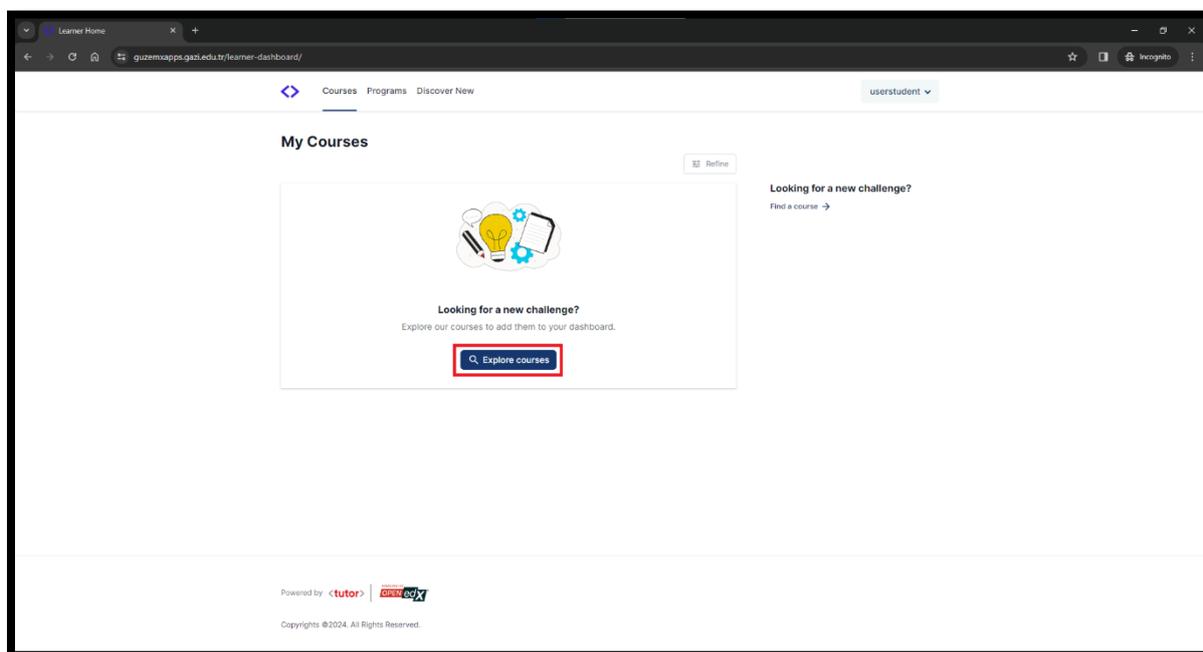


- 3- In the "Site Language" field, you can click the "Edit" button and choose any of the language packs offered by Open edX.

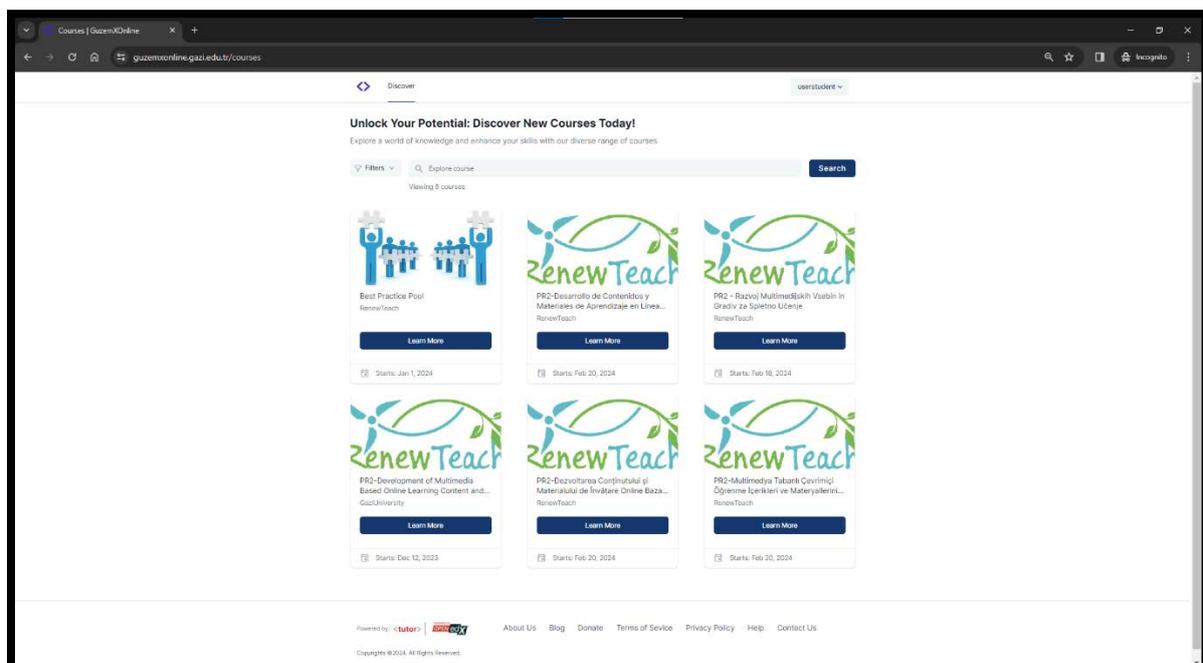


Courses, Learning Materials and Self-Assessment Screens

- 1- If you have not registered for any course yet, you can view the courses you can register for by clicking the "Explore Courses" button in the "Courses" window.



- 2- If you have already enrolled in a course and want to create a new course registration, you can click on the "Discover New" tab to view the courses you have not yet enrolled in.

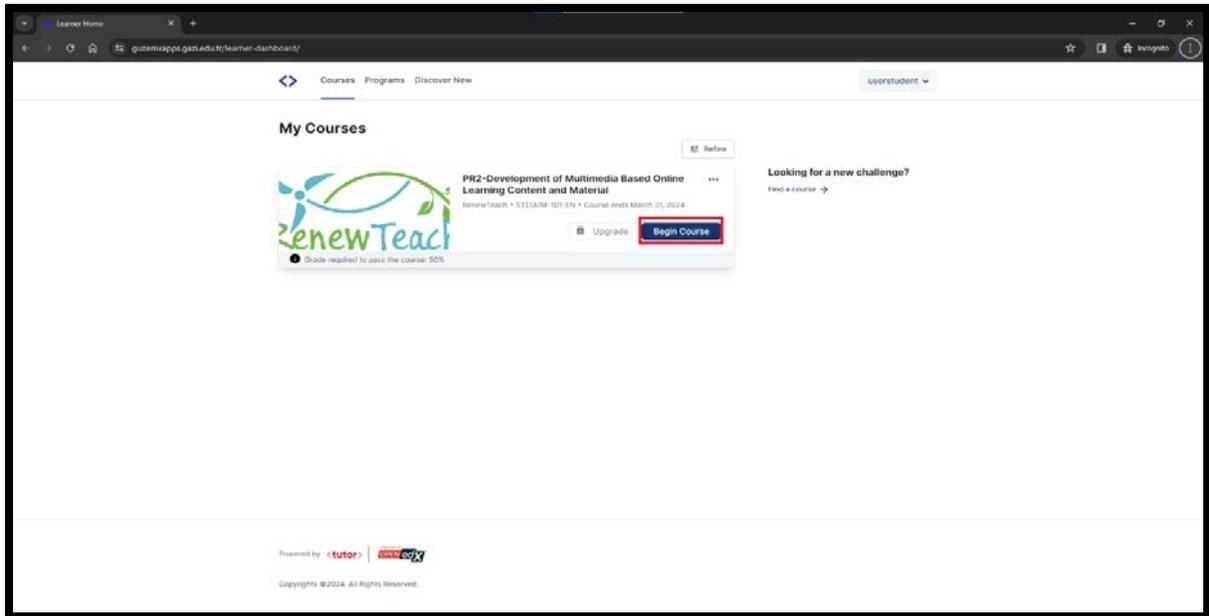




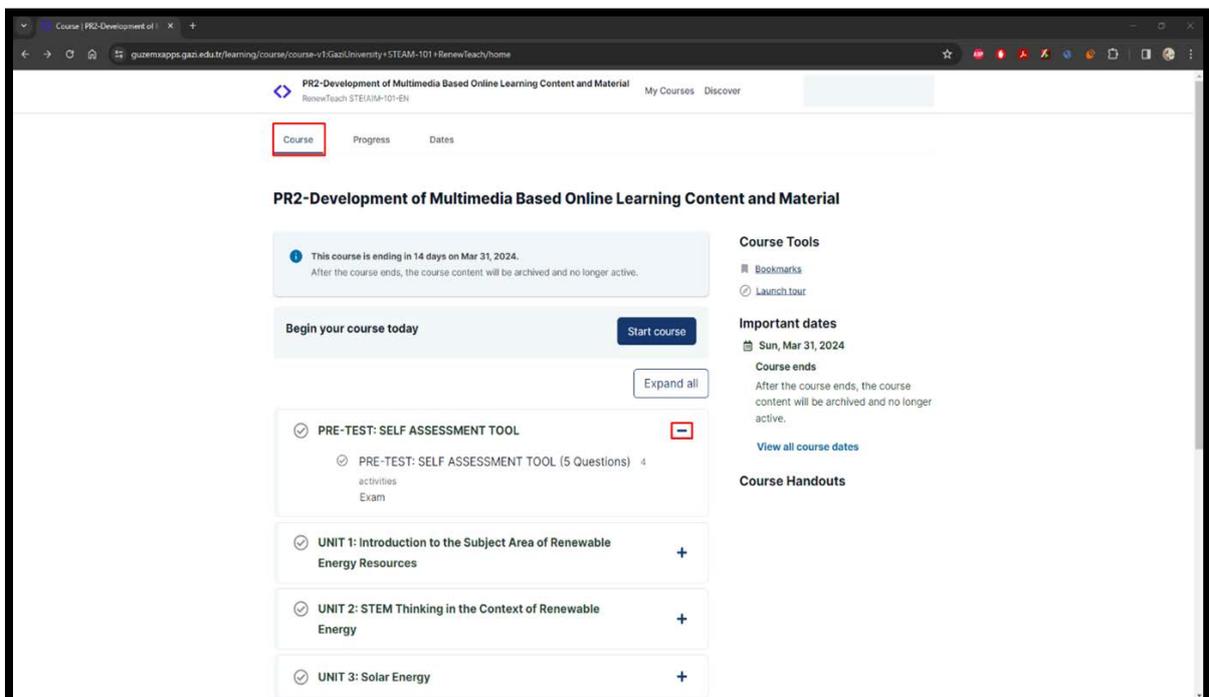
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- 3- After you register for a course, the courses you are registered for will be displayed on the "My Courses" screen. You can log in to the course by clicking the "Begin Course" button.



- 4- After logging in to the course, the "Course" screen opens. On this screen, you can view the contents of the course and access "Course Tools" and "Important dates" information. You can view the preliminary information of the activities by clicking the "+", "-" buttons in the area where the contents of the course are listed.

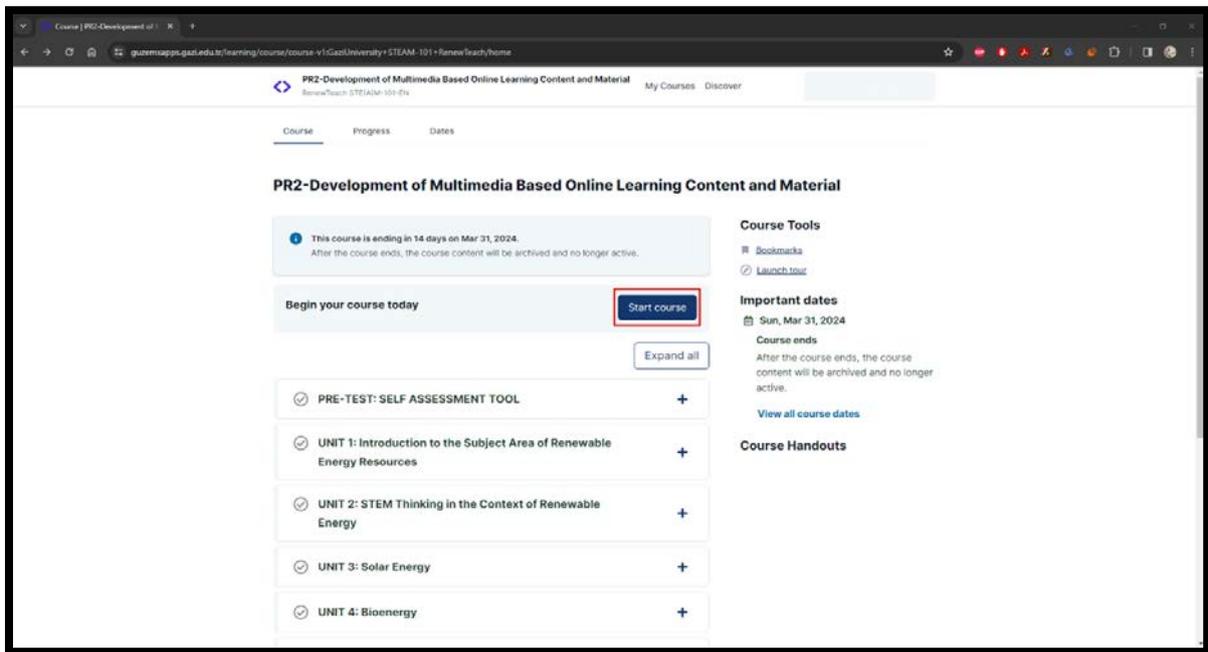




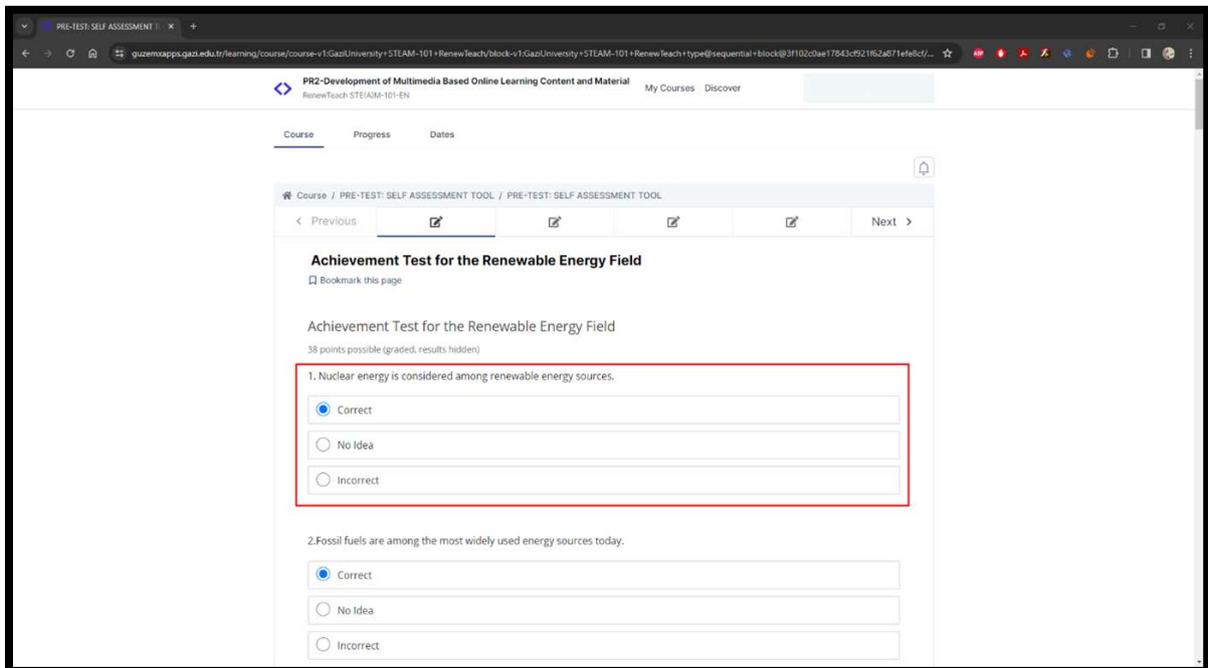
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5- Login to the course by clicking on the "Start Course" button.



6- The first section in the course tree is "PRE-TEST: SELF ASSESSMENT TOOL". In order to move to the next section in the course design, the previous sections must be completed. In order to move on to the interactive Unit contents in the following sections, you need to answer the pre-test questions in the first section. Please select the option that you think best represents your opinion.





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- 7- After answering all questions, the "Submit" button will become active. Please ensure that your answers are saved in the system by clicking the "Submit" button.

The screenshot shows a web browser window with a URL starting with 'guzemapps.gazi.edu.tr'. The page displays two identical questions. Each question has three radio button options: 'Correct', 'No Idea', and 'Incorrect'. The 'Correct' option is selected for both. Below the second question, a blue 'Submit' button is highlighted with a red rectangle. At the bottom of the question area, there are 'Previous' and 'Next >' buttons. The footer includes '© All Rights Reserved' and 'Powered by <tutor> | <open edx>'.

- 8- After clicking the "Submit" button, the information message "Answer submitted." will be displayed. After viewing the information message, click on the "Next" button to proceed to the next section.

This screenshot shows the same interface as the previous one, but after the 'Submit' button has been clicked. A blue message box with a checkmark icon and the text 'Answer submitted.' is now visible below the question area. The 'Submit' button is no longer active. The 'Next >' button is now highlighted with a red rectangle. The rest of the interface, including the question text and options, remains the same.

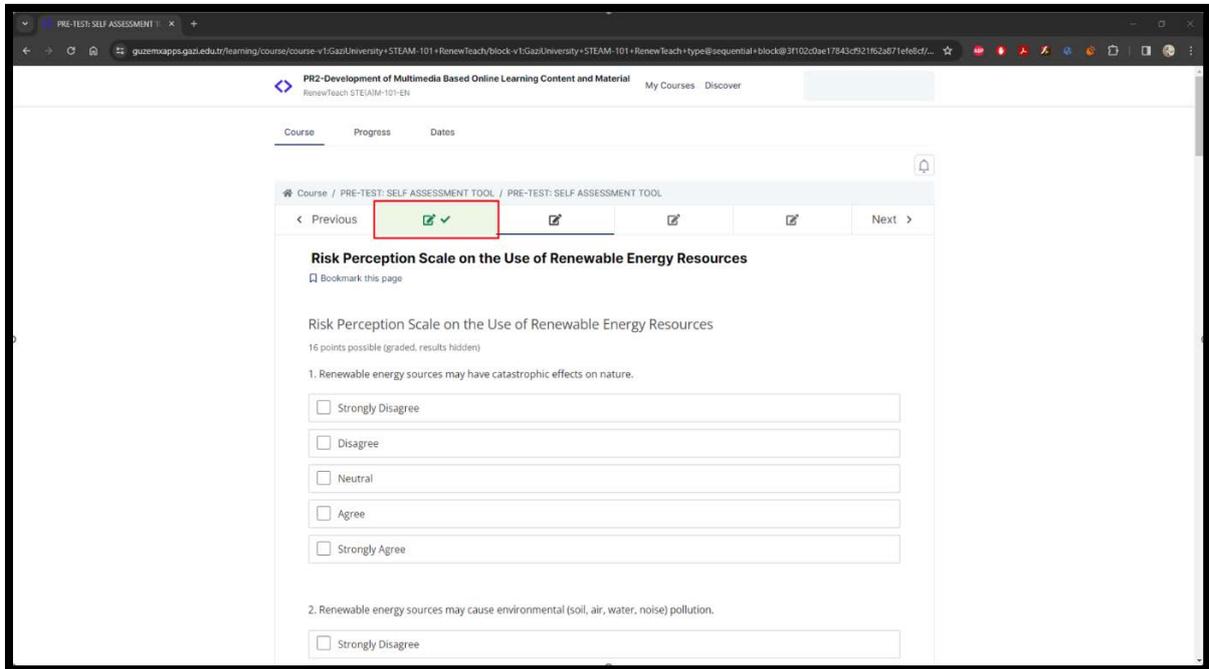




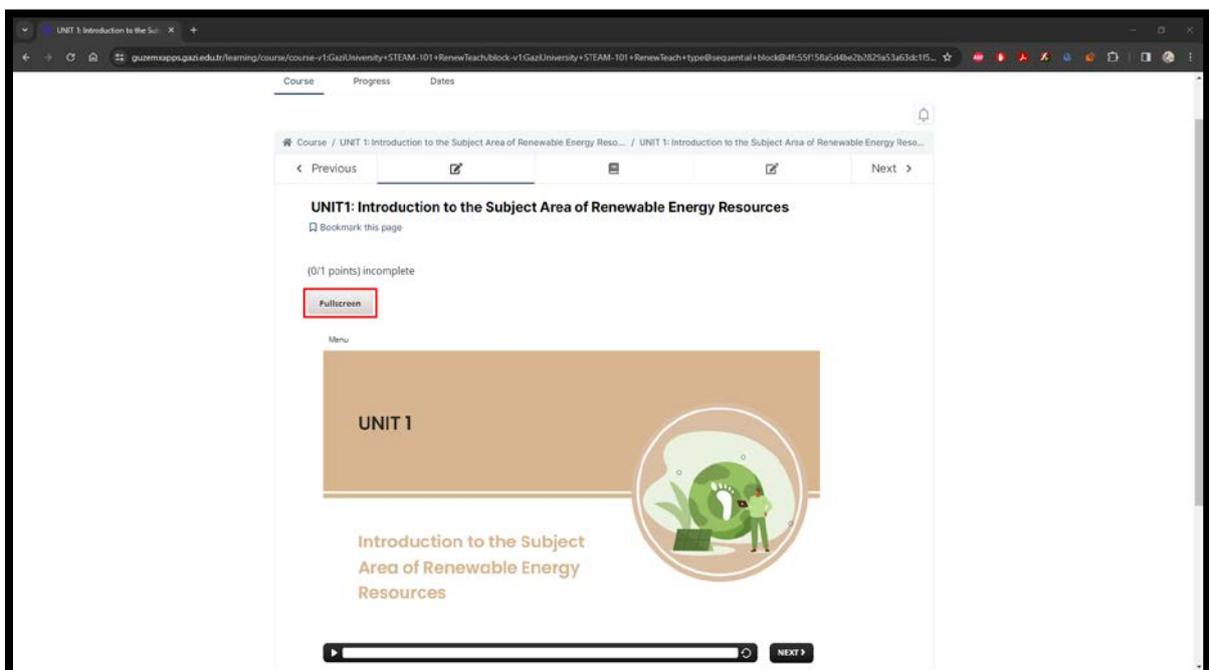
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- 9- The completed content will be displayed in green with a check mark as shown in the marked area. Please make sure that the content you have completed is displayed in this way.



- 10- The first chapters in the unit are prepared as Scorm Package. You can view them in fullscreen size by clicking the "Fullscreen" button on these screens.

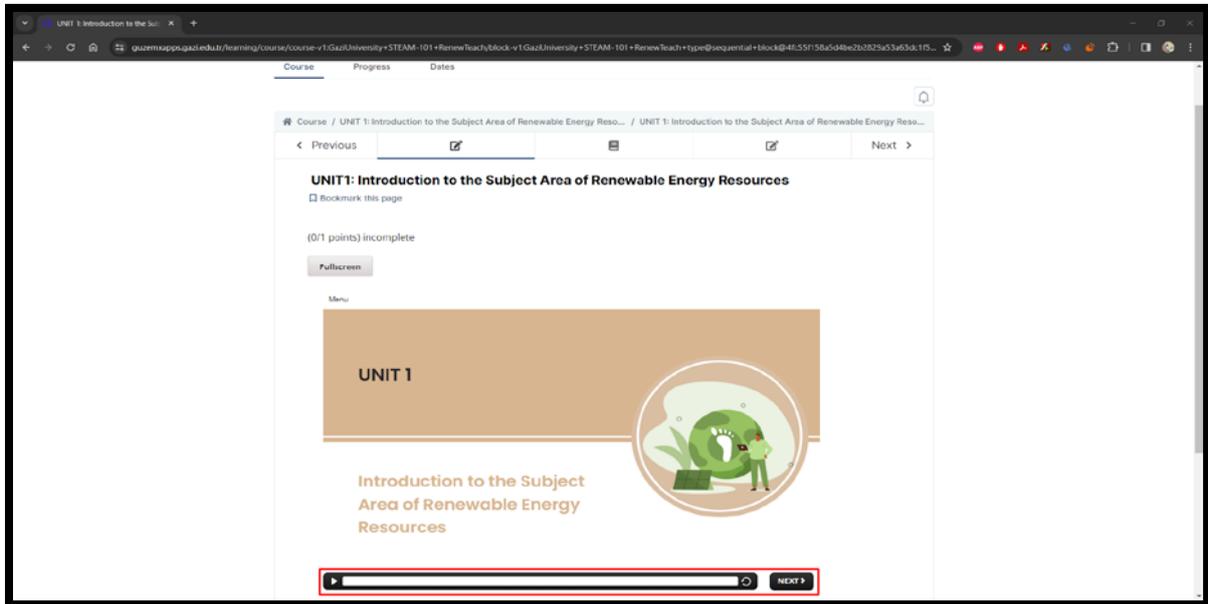




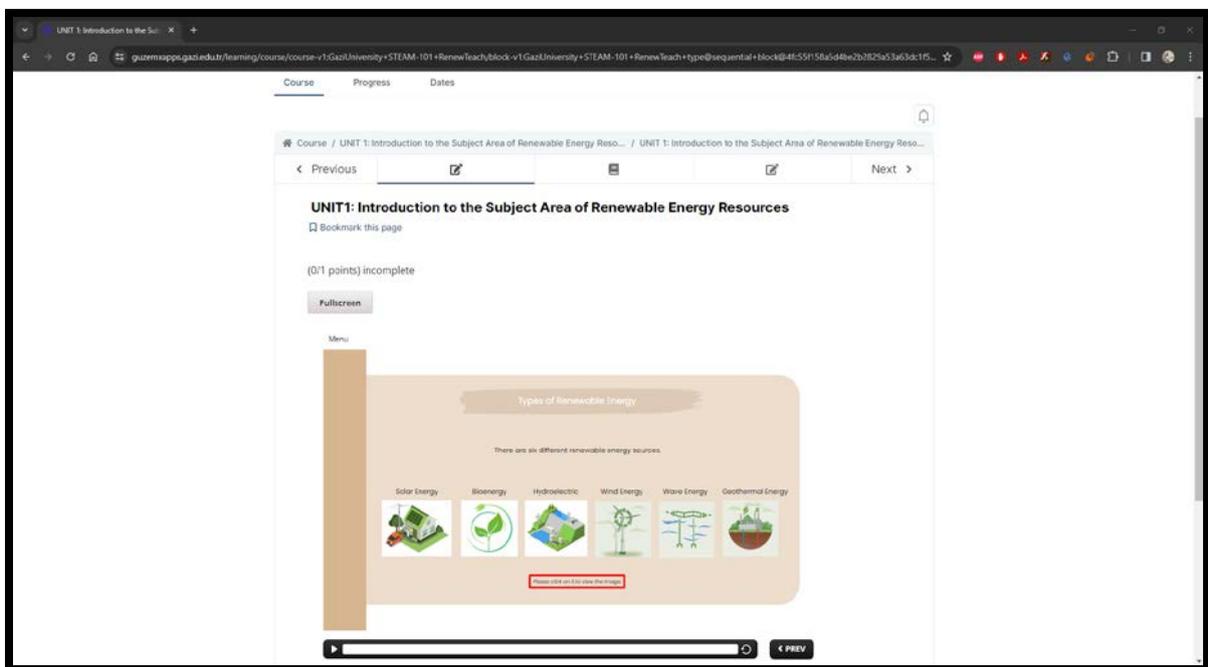
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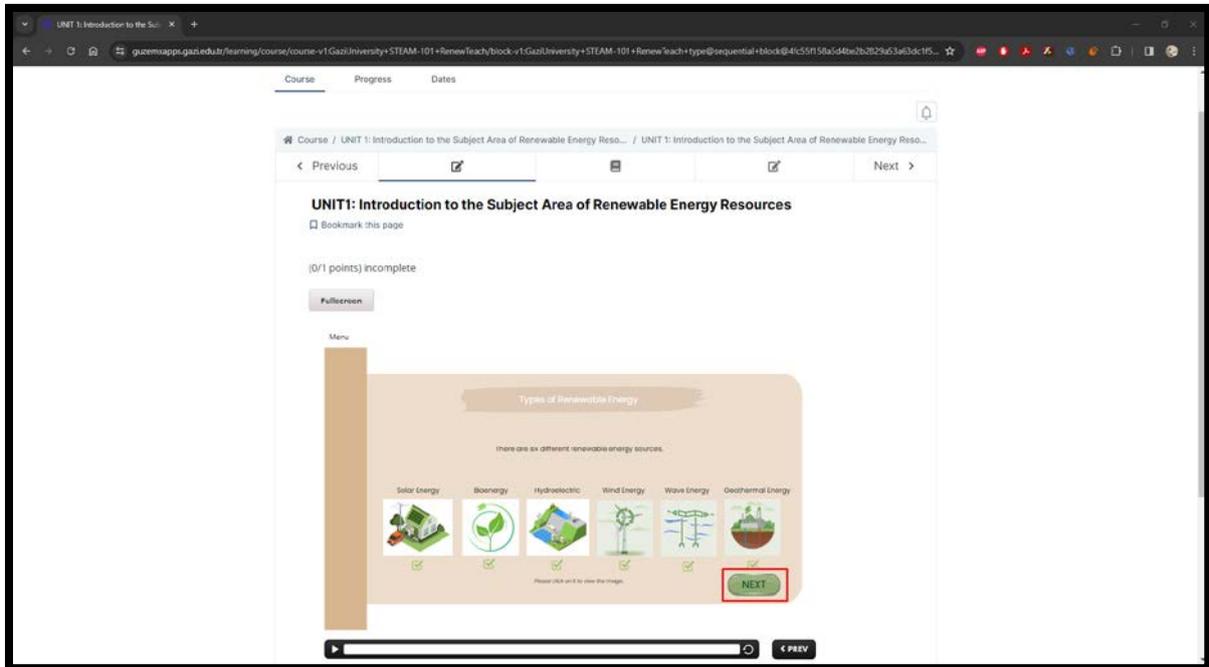
- 11- You can play/stop, forward/rewind and replay the scene in the "Seekbar" area in the Scorm package. You can switch to the previous or next scene by clicking on the "Next" and "Prev" buttons. (There is no "Prev" button on the first screens.)



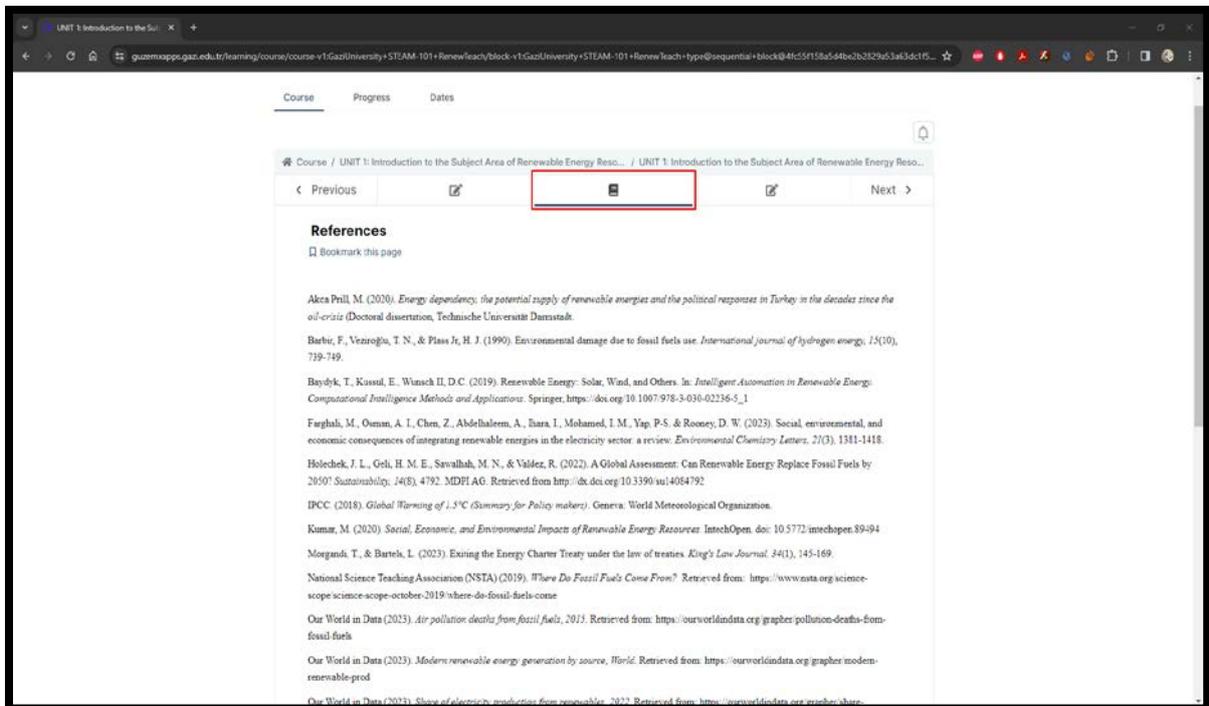
- 12- There are interactive scenes and activity areas in the training content. The "Next" buttons on these pages are activated after the user completes the interactions/activities.



13- Please follow the instructions in the scene carefully. Complete the interaction areas and activities and activate the "Next" button. Otherwise, no progress will be made.



14- After watching the Scorm packages, press the "Next" button to move to the next section. In the "References" section, you can view the resources used in the training content.





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- 15- Answer the end of unit evaluation questions in the "End of Unit Quiz" section and mark the appropriate option.

Course / UNIT 1: Introduction to the Subject Area of Renewable Energy Reso... / UNIT 1: Introduction to the Subject Area of Renewable Energy Reso...

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End of Unit Quiz

Bookmark this page

End of Unit Quiz
5 points possible (graded, results hidden)

I. The low cost of fossil fuels
II. The environmental issues caused by fossil fuels
III. The rapid depletion of fossil fuels
IV. The majority of fossil fuels being imported from abroad.

1. The increasing interest in renewable energy sources in our country is due to which of the following reasons?

a) Only I
 b) I, II
 c) III and IV
 d) II, III and IV
 e) I, II, III and IV

- 16- After answering all questions, the "Submit" button will become active. Please ensure that your answers are saved in the system by clicking the "Submit" button.

4. Which of the following is a characteristic of renewable energies?

a) Having negative effects on the environment and living organisms
 b) Independence from seasonal conditions
 c) Zero greenhouse gas emissions
 d) Lack of maintenance and repair costs
 e) Being produced more rapidly than consumed on a human time scale

5. Which of the following is a characteristic of fossil fuels?

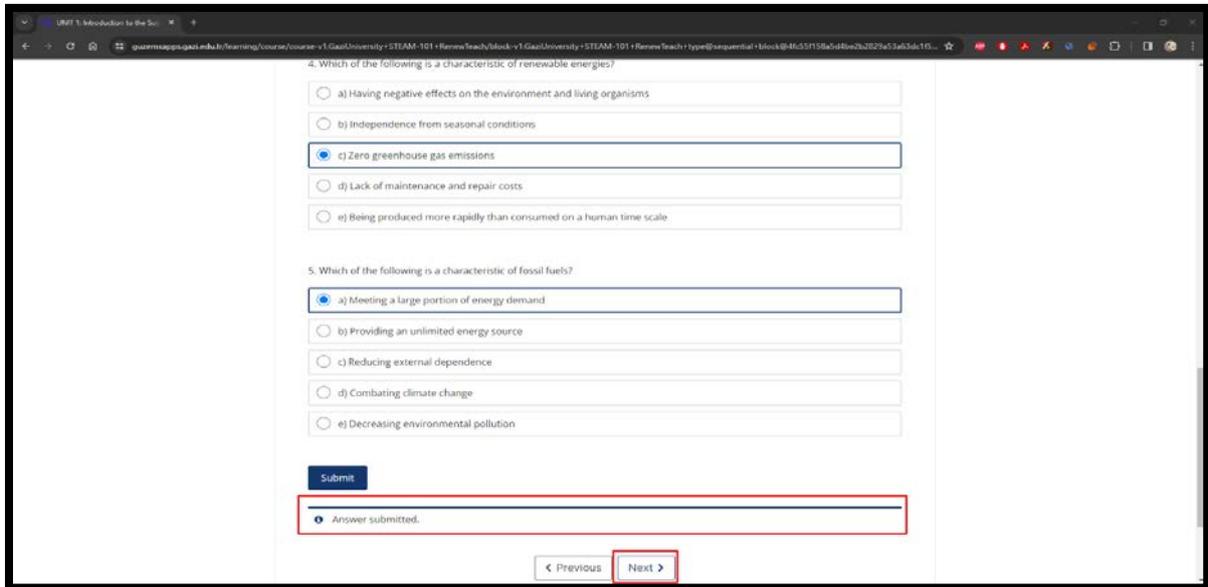
a) Meeting a large portion of energy demand
 b) Providing an unlimited energy source
 c) Reducing external dependence
 d) Combating climate change
 e) Decreasing environmental pollution

Submit

< Previous Next >



- 17-** After clicking the "Submit" button, the information message "Answer submitted." will be displayed. After viewing the information message, click on the "Next" button to proceed to the next unit.



4. Which of the following is a characteristic of renewable energies?

- a) Having negative effects on the environment and living organisms
- b) Independence from seasonal conditions
- c) Zero greenhouse gas emissions
- d) Lack of maintenance and repair costs
- e) Being produced more rapidly than consumed on a human time scale

5. Which of the following is a characteristic of fossil fuels?

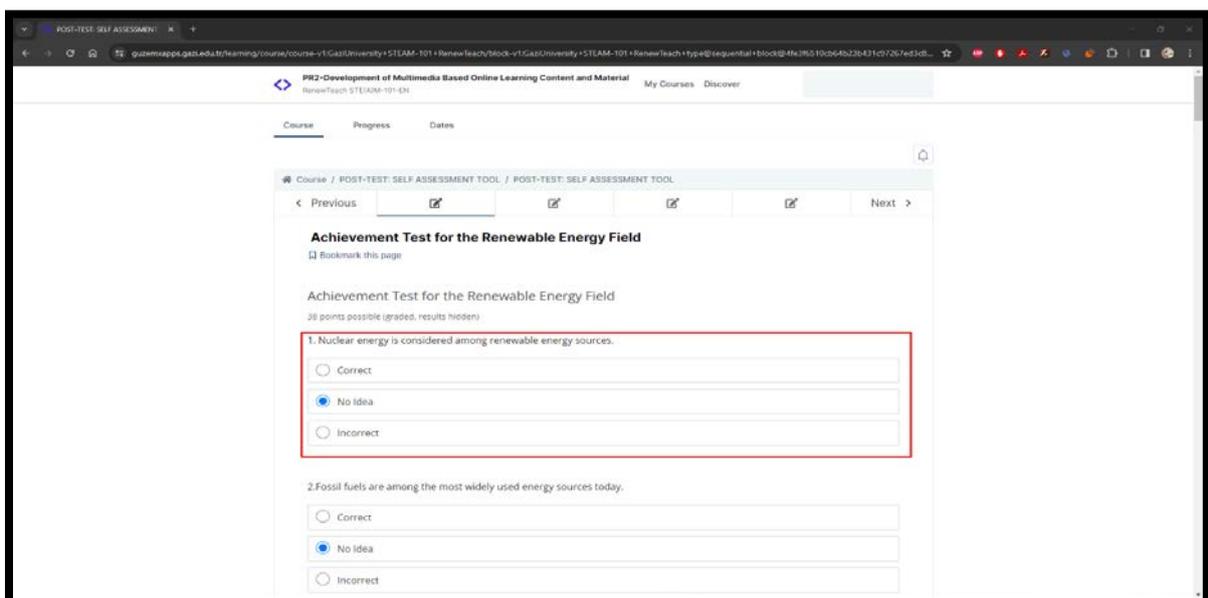
- a) Meeting a large portion of energy demand
- b) Providing an unlimited energy source
- c) Reducing external dependence
- d) Combating climate change
- e) Decreasing environmental pollution

Submit

Answer submitted.

< Previous Next >

- 18-** When you have completed all the units in the learning management system, you will access the "POST-TEST: SELF ASSESSMENT TOOL" section. The contents here are the same as the pre-test contents. The aim here is to assess learners' knowledge, skills and attitudes towards renewable energy and STEM before and after the units. Please mark the option that you think best represents your opinion in the post-test questions in this section.



PR2-Development of Multimedia Based Online Learning Content and Material
RenewTeach STEAM-101-EN

Course / POST-TEST: SELF ASSESSMENT TOOL / POST-TEST: SELF ASSESSMENT TOOL

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Achievement Test for the Renewable Energy Field

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Achievement Test for the Renewable Energy Field

38 points possible (graded, results hidden)

1. Nuclear energy is considered among renewable energy sources.

- Correct
- No idea
- Incorrect

2. Fossil fuels are among the most widely used energy sources today.

- Correct
- No idea
- Incorrect



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- 19- After answering all questions, the "Submit" button will become active. Please ensure that your answers are saved in the system by clicking the "Submit" button.

The screenshot shows a web browser window with a URL starting with 'guzemapps.gazi.edu.tr'. The page title is 'PRE-TEST: SELF ASSESSMENT'. The main content area contains a question: '38. The increase in temperature as one descends from the Earth's surface towards the magma is referred to as the geothermal gradient.' Below the question are three radio button options: 'Correct' (selected), 'No Idea', and 'Incorrect'. A blue 'Submit' button is highlighted with a red box. At the bottom of the question area are 'Previous' and 'Next >' buttons. The footer includes 'Powered by <tutor> | <edx>' and '© All Rights Reserved'.

- 20- After clicking the "Submit" button, the information message "Answer submitted." will be displayed. After viewing the information message, complete the course by clicking the "Next" button.

The screenshot shows the same web browser window as in the previous image. The 'Submit' button is now disabled. A message box at the bottom of the question area displays 'Answer submitted.' and is highlighted with a red box. The 'Next >' button is also highlighted with a red box. The footer remains the same: 'Powered by <tutor> | <edx>' and '© All Rights Reserved'.

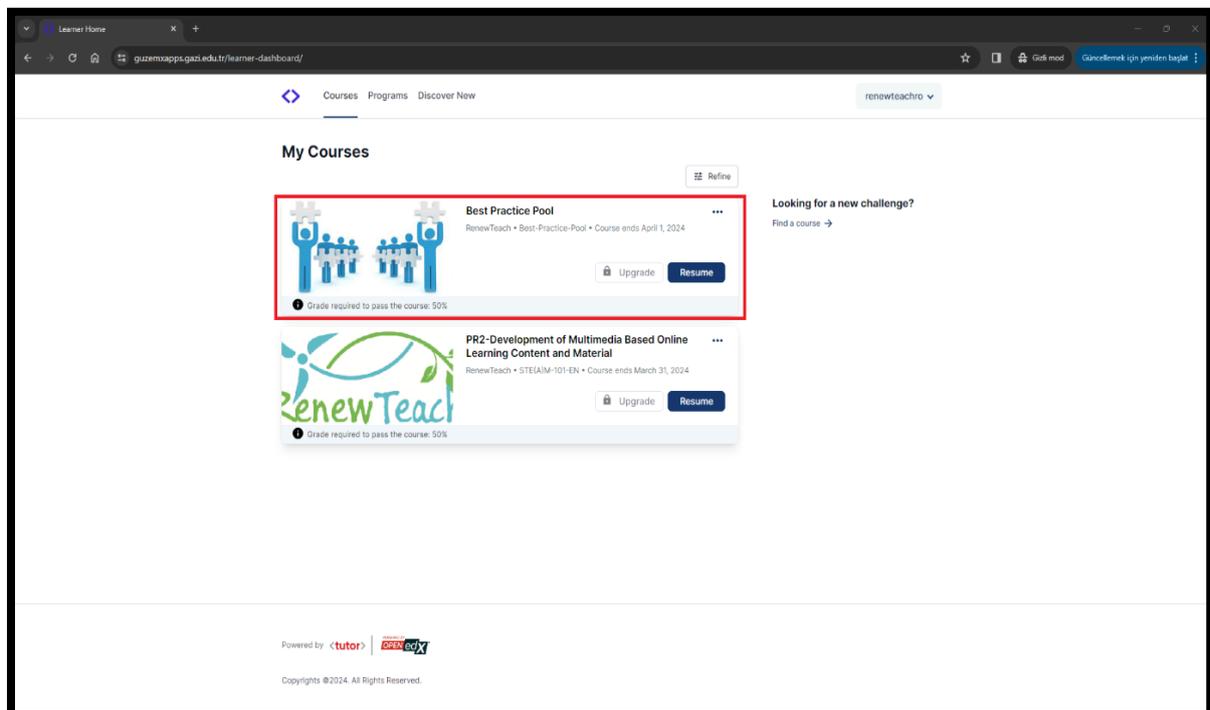


Best Practices Pool Screens

After completing the interactive content in all units, learners can move on to the "best practices" section. The aim of this section is to support learners to develop their own best practices for real life problems in the field of renewable energy by using their experience and knowledge gained during the project process. A case pool has been created through this online portal where learners can share their experiences, knowledge and solution suggestions. Through this platform, participants can share their best practices with other users or view and evaluate other users' best practices. In this way, it is possible for learners to take part in solving global and local scale problems in the context of renewable energy and STEM by collaborating with stakeholders in partner countries (project participants in partner countries and other relevant individuals or organizations). In this way, stakeholders have the opportunity to compare, evaluate and reflect on their local problems with those in other partner countries.

Let's take a closer look at the pool of best practices.

- 1- Best practices are available as a separate course in the learning management system. You can start the course by clicking the "View Course" button.

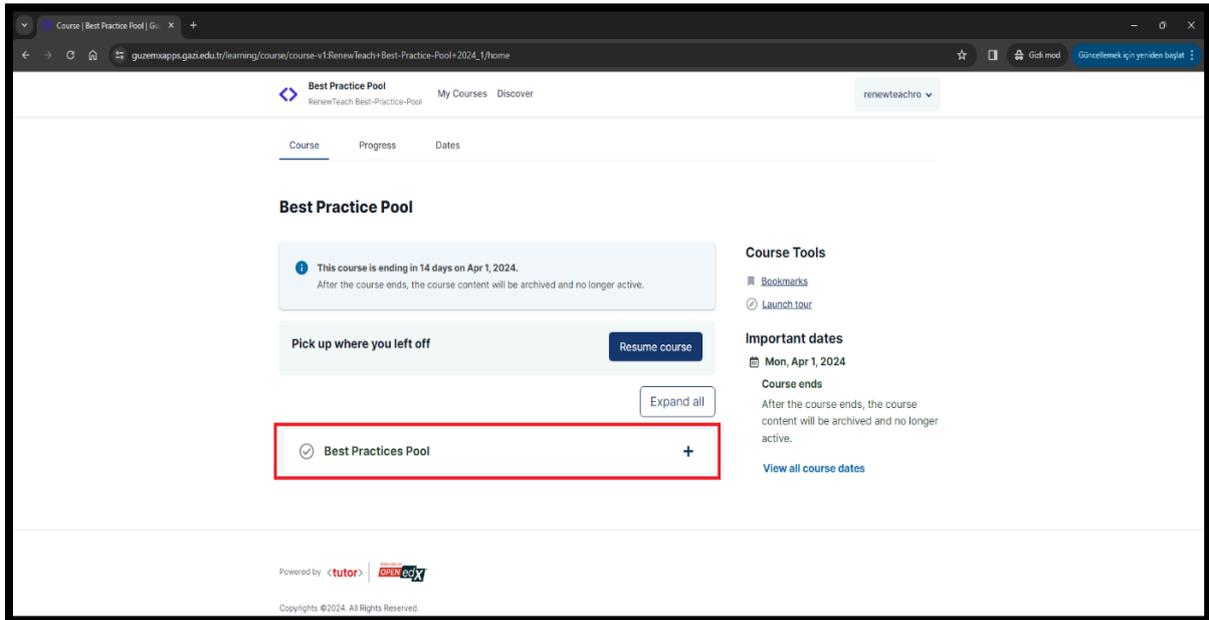




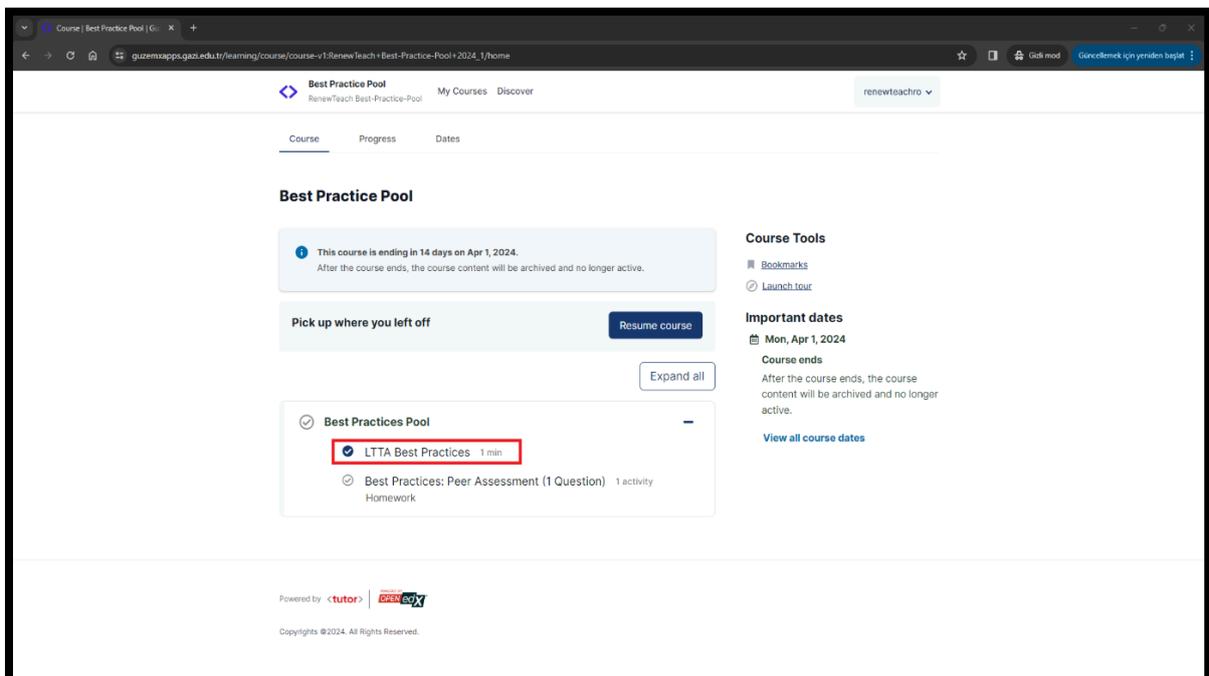
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2- You can access the course contents by clicking on the "Best Practices Pool" section.



3- In the "LTTA Best Practices" section of the screen, there are best practices developed by the participants during the LTTA activity of the Renewteach project. The content here serves as an example for learners to develop their own best practices.



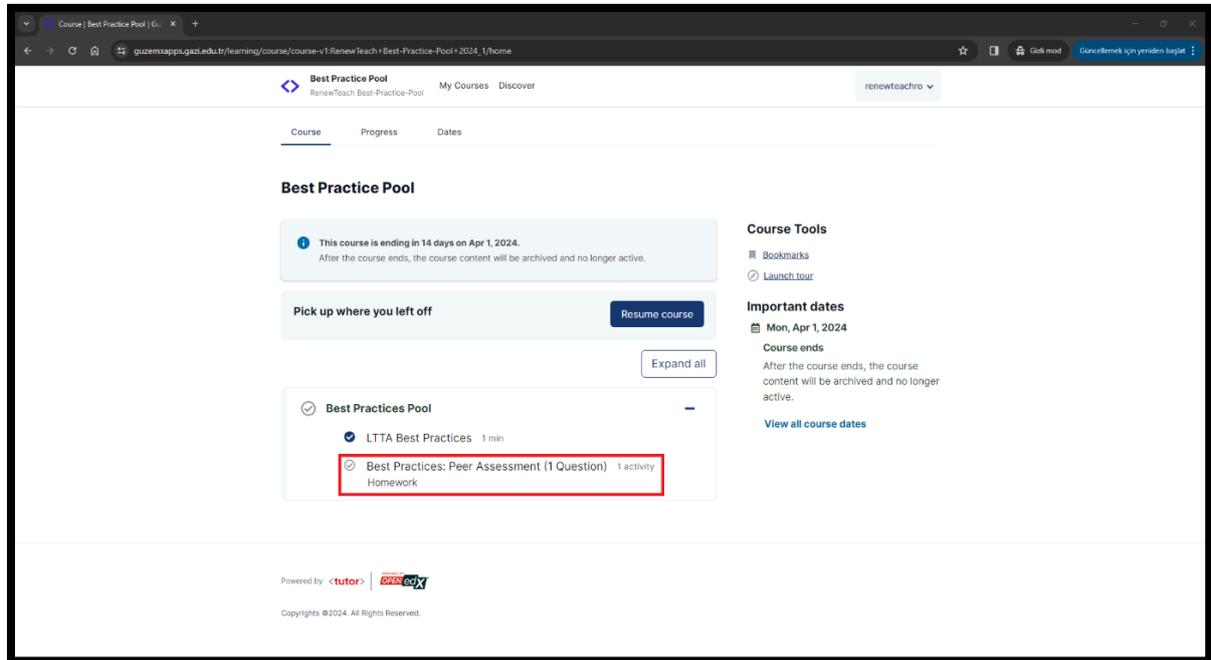
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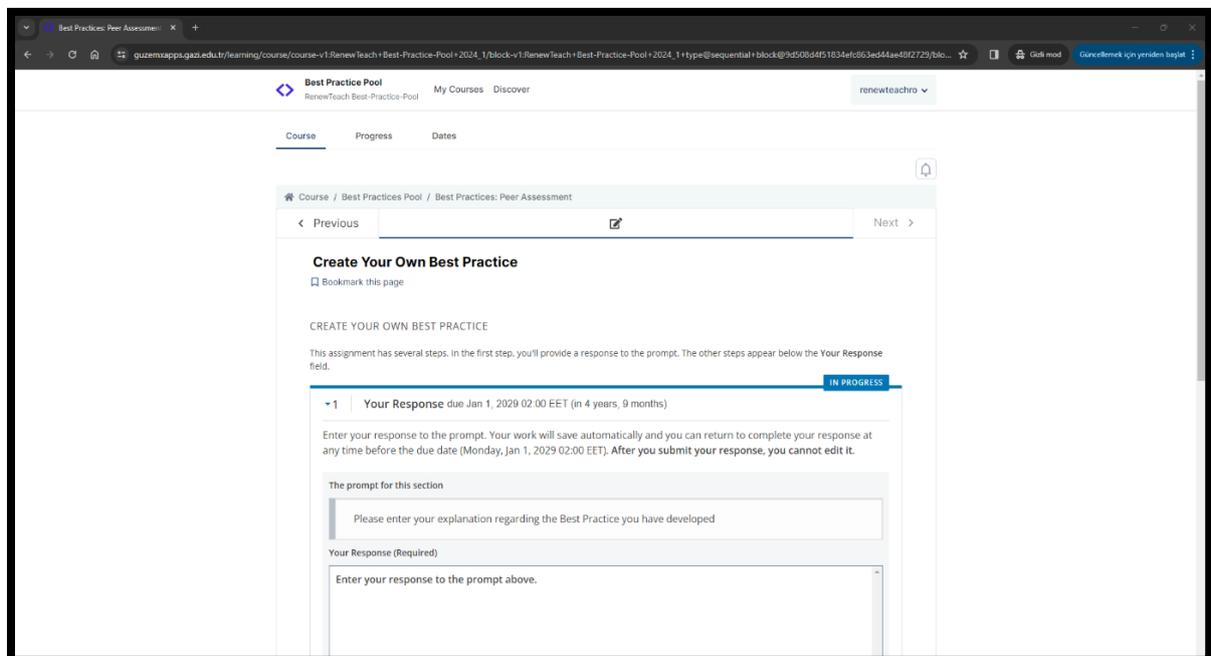
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- 4- "Best Practices: Peer Assessment" section includes screens where learners can upload their own best practices to the system and view and evaluate the best practices of other participants.



- 5- "Best Practices: Peer Assessment" section, the screens where learners upload their own best practices to the system are displayed.





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5.1 – In order for best practices to be registered in the system, users are required to enter the description text of the content developed in the relevant field.

Best Practice Pool
RenewTeach Best-Practice-Pool My Courses Discover renewteachro

Course Progress Dates

Course / Best Practices Pool / Best Practices: Peer Assessment

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Create Your Own Best Practice

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CREATE YOUR OWN BEST PRACTICE

This assignment has several steps. In the first step, you'll provide a response to the prompt. The other steps appear below the Your Response field.

1 Your Response due Jan 1, 2029 02:00 EET (in 4 years, 9 months) IN PROGRESS

Enter your response to the prompt. Your work will save automatically and you can return to complete your response at any time before the due date (Monday, Jan 1, 2029 02:00 EET). After you submit your response, you cannot edit it.

The prompt for this section

Please enter your explanation regarding the Best Practice you have developed

Your Response (Required)

Enter your response to the prompt above.

RESPONSE NOT STARTED.

File Uploads (Optional)
Supported file types: .pdf, .gif, .jpg, .jpeg, .jif, .jpeg, .pjp, .png, .pptx

Dosyaları Seç Dosya seçilmedi

2 Assess Peers due Jan 1, 2029 02:00 EET (in 4 years, 9 months) NOT AVAILABLE

Your Grade: Not Started

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5.2 - After entering the description text, the file containing best practices can be uploaded to the system by clicking the "Select File" button at the bottom left of the window. In order for the upload to be completed, the "Upload Files" button in the lower right section must be clicked.

The screenshot displays the 'Create Your Own Best Practice' page. At the top, there are navigation tabs for 'Course', 'Progress', and 'Dates'. The main heading is 'Create Your Own Best Practice'. Below this, there is a 'Your Response' section with a due date of 'Jan 1, 2029 02:00 EET (in 4 years, 9 months)'. The prompt asks for an explanation of a best practice. A text area is provided for the response. Below the text area, there is a 'File Uploads (Optional)' section with supported file types listed. Two buttons are highlighted with red boxes: 'Dosyaları Seç' (Select Files) and 'Upload files'. A 'Submit your response and move to the next step' button is also present. The interface includes navigation buttons for 'Previous' and 'Next'.





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5.3- When best practices are uploaded to the system, the "Assess Peers" section becomes active. Users who have not yet developed a best practice application cannot access the content in this section.

