

Strengthening Teaching Competences
in Higher Education
in Natural and Mathematical Sciences



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LearningKey
Platform for
Interactive learning

Jelena Ignjatović
University of Niš, Serbia



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LearningKey – knowledge base: ADMIN

- Common functionalities (professor + admin)
- Content structure and create areas (levels)
- TeComp (Roof-institution) configuration
- Adding professors/administrators and students



<https://learning.tecomp.ni.ac.rs/>



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LearningKey – Login for university ADMIN

P1 - University of Niš username: "admin_nis" Password: "tecomp2021"
P2 - University of Belgrade username: "admin_belgrade" Password: "tecomp2021"
P3 - University of Novi Sad username: "admin_novisad" Password: "tecomp2021"
P4 - University of Kragujevac username: "admin_krag" Password: "tecomp2021"
P5 - Eqrem Çabej University Gjirokastër username: "admin_gjir" Password: "tecomp2021"
P6 - Fan S. Noli University Korçë username: "admin_kor" Password: "tecomp2021"



<https://learning.tecomp.ni.ac.rs/>

LearningKey - Home page

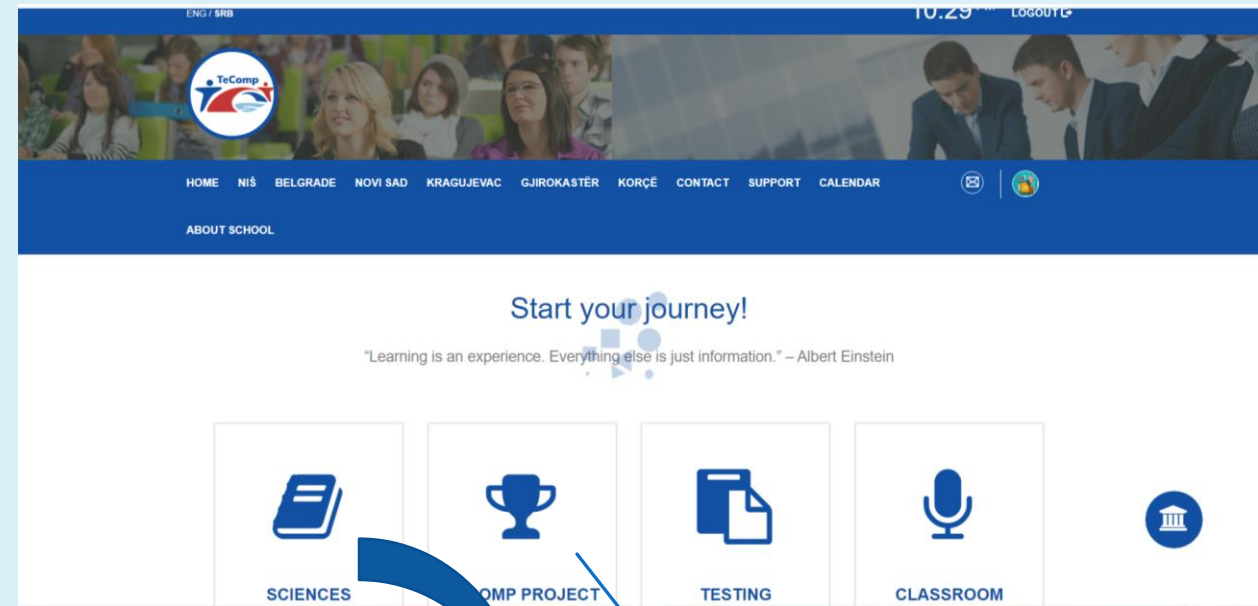
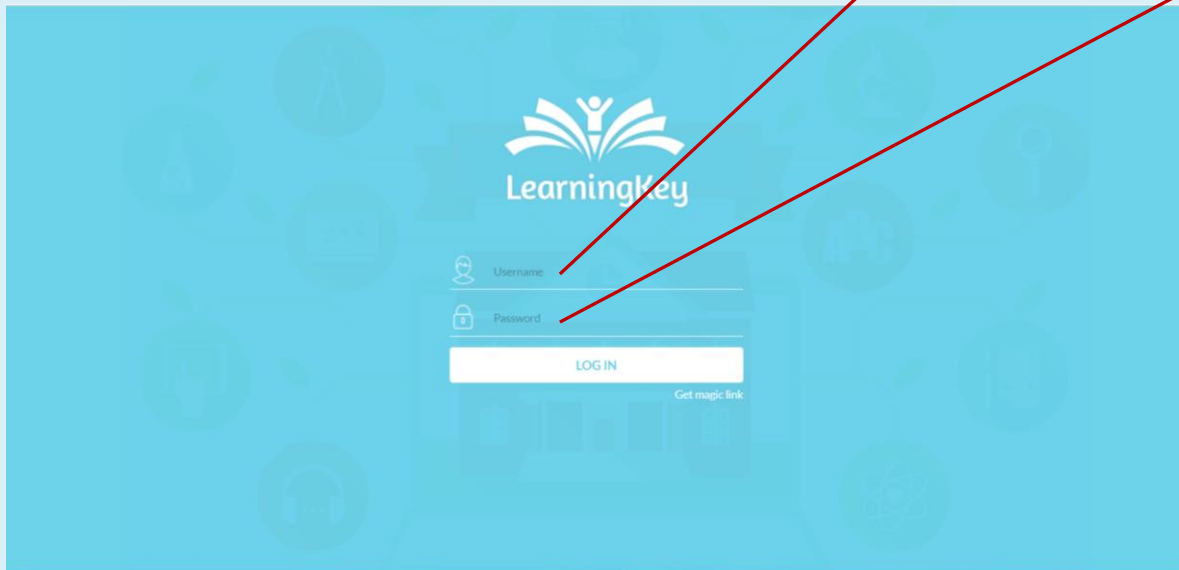


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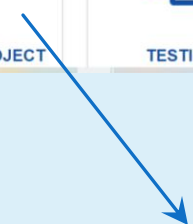


User name

Password



Project website



LearningKey - Home page




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Language

Choose university

ENG / SRB 09:00 PM LOGOUT




HOME NIS BELGRADE NOVI SAD KRAGUJEVAC GJROKASTER KORCE CONTACT SUPPORT CALENDAR

ABOUT SCHOOL


Choose field of science

NIS

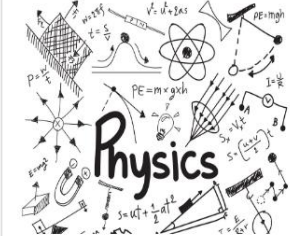
MATHEMATICS AND INFORMATICS




CHEMISTRY



PHYSICS



BIOLOGY & ECOLOGY



Calendar

Common functionalities (professor + admin)

Functionalities related to adding content, group management and others -- common for both the administrator and the professor.

All of them will be explained within the professor's knowledge base



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<https://learning.tecomp.ni.ac.rs/>

Content structure and area creation (levels)



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Branching and content structure are managed from the left navigation menu in the "Content structure" section

Choose
University

The screenshot displays the Learning Key Admin interface. The top navigation bar includes the user name 'Learning Key Admin', language options 'ENG / SRB', and various utility icons. The main content area shows a calendar view for the week of 7 Jun 2021 to 13 Jun 2021. The left navigation menu is expanded to the 'Content' section, which includes options for Pages, Administration, and Students. The calendar grid shows time slots from 06:00 to 18:00 for each day.

	Mon, June 7	Tue, June 8	Wed, June 9	Thu, June 10	Fri, June 11	Sat, June 12	Sun, June 13
06:00							
07:00							
08:00							
09:00							
10:00							
11:00							
12:00							
13:00							
14:00							
15:00							
16:00							
17:00							
18:00							

Content structure and area creation (levels)



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The image displays two screenshots from the Learning Key Admin interface. The left screenshot shows the Curriculum builder interface, which includes a sidebar with navigation options like Pages, Administration, and Students, and a main area with a calendar view for Monday, June 7 and Tuesday, June 8. A callout bubble points to the 'Curriculum builder' link in the sidebar. The right screenshot shows the 'Manage Types of Publication' interface, which includes a sidebar and a main area with a table of publication types. A red box highlights the 'Add New' button, with a callout bubble stating 'Adding a new unit within the content branching'.

Curriculum builder

Adding a new unit within the content branching

	Title	Is Top Unit	URL
☑ id = 307	Niš	✓	/en/nis
☑ id = 308	Subject		
☑ id = 328	Lecture		
☑ id = 346	Belgrade	✓	/en/belgrade
☑ id = 347	Subject		
☑ id = 348	Lecture		
☑ id = 349	Novi Sad	✓	/en/novi-sad
☑ id = 350	Subject		
☑ id = 351	Lecture		
☑ id = 352	Kragujevac	✓	/en/kragujevac

Content structure and area creation (levels)



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Learning Key Admin

ENG / SRB

Content

Pages

Niš

Belgrade

Novi Sad

Kragujevac

Gjirokastër

Korçë

Manage classrooms

Manage tests

Administration

My profile

Manage users

School configuration

Curriculum builder

Students

Manage Students

Manage groups

Test results

English Serbian

Back Save

Unit settings

Title

Description

Thumbnail image Reading time

Has attachments Difficulty

Parent unit type

Unit icon

This is top unit

Top unit settings

Number publications per page

Display layout

Content structure and area creation (levels)



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Learning Key Admin

ENG / SRB

Content

- Pages
- NIŠ
- Belgrade
- Novi Sad
- Kragujevac
- Gjirkastër
- Korçë
- Manage classrooms
- Manage tests

Administration

- My profile
- Manage users
- School configuration
- Curriculum builder**

Students

- Manage Students
- Manage groups
- Test results

Parent unit type: This is top unit

Unit icon: [Empty field]

Top unit settings

Number publications per page: 10

Display layout: List

Passed condition type: No condition

Passed condition value: [Empty field]

Student active by default

Unit builder

Headline

Text

Presentation

Video

Section homework

Section homework grading system: None

Test

Content structure and area creation (levels)



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Administration 🏢	11:00
My profile 👤	
Manage users 👥	12:00
School configuration ⚙️	
Curriculum builder 👤	13:00
Students 👥	14:00
Manage Students 🎓	
Manage groups 👥	15:00
Test results 📊	16:00
	17:00



School configuration

Main 🏢 Functionality settings ⚙️ Classroom types 💬 Packages 📁 Tests config 🔍 Localization ⚙️ Role names 👤 Home page 🏠

Full school name

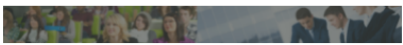
Short school name

Date format


Main branding color

Show Logo in header

School cover photo



School logo



Main branding color – Color of the platform presented on a screen

Full school name – Profile and title photo of the PROJECT (school)

Content structure and area creation (levels)



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A screenshot of the 'School configuration' interface, specifically the 'Functionality settings' tab. The page has a blue header with navigation icons. Below the header, there are tabs for 'Main', 'Functionality settings', 'Classroom types', 'Packages', 'Tests config', 'Localization', 'Role names', and 'Home page'. The 'Functionality settings' tab is active. It contains three main sections: 'Academy settings' with a toggle for 'Show unassigned courses' (checked), 'Classroom settings' with a toggle for 'Allow Student tools' (checked), and 'Scheduler settings'. The 'Scheduler settings' section includes a 'Scheduler attendance limit' section with a 'Booking system' dropdown set to 'Free booking system', and two input fields for 'How long before a class start Students can apply for attendance? (in Hours)' (24) and 'How long before a class start Professors can assign themselves to that class? (in Hours)' (72). Below that is a 'Scheduler mail settings' section with two input fields: 'Send "Class starts" reminder in how many hours before a class start? (in Hours)' (24) and 'Send "Class unattended" email to Admin if class is unassigned. How many hours before a class start? (in Hours)' (72).

Functionality settings:

1. Project settings:

Show/not show courses that the student does not have access to. If a student does not have access to a teaching unit, it is possible for the student to be shown that unit with the icon that it is locked and that he does not have access yet, but to see that there is a teaching unit that will be unlocked when the time comes.

2. Classroom setting:

Allow students to use tools in the classroom. This is a setting that defines whether students are allowed/not allowed to draw on the board as soon as they join the virtual classroom. Of course, the professor can always turn this setting on/off during class

Content structure and area creation (levels)



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The screenshot shows the 'School configuration' interface with the following sections:

- Academy settings:** A toggle switch for 'Show unassigned courses' is turned on.
- Classroom settings:** A toggle switch for 'Allow Student tools' is turned on.
- Scheduler settings:**
 - Scheduler attendance limit:** A dropdown menu is set to 'Free booking system'.
 - Booking system:** A dropdown menu is set to 'Free booking system'.
 - How long before a class start Students can apply for attendance? (in Hours):** A text input field contains the value '24'.
 - How long before a class start Professors can assign themselves to that class? (in Hours):** A text input field contains the value '72'.
- Scheduler mail settings:**
 - Send "Class starts" reminder in how many hours before a class start? (in Hours):** A text input field contains the value '24'.
 - Send "Class unattended" email to Admin if class is unassigned. How many hours before a class start? (in Hours):** A text input field contains the value '72'.

Booking settings

1. Free appointment system/ Class confirmation system

Admin enters the number of hours that the student is allowed to apply before the start of the class
Admin enters the number of hours that the professor is allowed to apply before the start of the class

2. Mail settings.

Settings for the moment of arrival of specific mail notifications

- ❖ before the start of the class, reminder to the administrator that the class does not have an assigned professor

Content structure and area creation (levels)



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School configuration

Main Functionality settings Classroom types Packages Tests config Localization Role names Home page

Class type title:

Class type description:

Class type duration:

Class type max users:

Class type color:

Class type layout:

Classroom types

1. Types of classes

- connected to the students through the package
- student can schedule classes that have duration, maximum number of students, appearance and only those types of classes to which he has access.

The administrator creates class types and enters:

- ❖ Time type address
- ❖ Description

- ❖ Maximum number of students
- ❖ Time duration hours
- ❖ The color by which the type of class will differ in the calendar for all users

Content structure and area creation (levels)



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The screenshot shows the 'Learning Key Admin' interface. The top navigation bar includes 'Learning Key Admin', 'ENG / SRB', and icons for home, menu, calendar, and mobile. The left sidebar is divided into three sections: 'Content' (Pages, NIS, Belgrade, Novi Sad, Kragujevac, Gjirokastër, Korçë, Manage classrooms, Manage tests), 'Administration' (My profile, Manage users, School configuration, Curriculum builder), and 'Students' (Manage Students, Manage groups, Test results). The 'School configuration' page has tabs for 'Main', 'Functionality settings', 'Classroom types', 'Packages', 'Tests config', 'Localization', 'Role names', and 'Home page'. The 'Packages' tab is active, showing a form for creating a package. The form includes a 'Package title' field with the value '1', a 'Classroom types access' section with a toggle switch turned on and the value '1', and a trash icon. Below the form is a '+ New package' button and a green 'Save' button.

Packages:

Packages - whole that combines one or more types of classes to make it easier to add a student to a package later when adding a user (when a student is added to a package, he she gets access/ can schedule all types of classes in the package)

Content structure and area creation (levels)



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A screenshot of the 'School configuration' page in the Learning Key Admin interface. The page has a blue header with navigation icons and a left sidebar with menu items like 'Content', 'Administration', and 'Students'. The main content area is titled 'School configuration' and includes tabs for 'Main', 'Functionality settings', 'Classroom types', 'Packages', 'Tests config', 'Localization', 'Role names', and 'Home page'. The 'Tests config' tab is active, showing a form for 'Grading system title' and 'Grading system description'. Below the form is a 'Grades' section with two toggle switches, each with a green checkmark, and a '+ Add new grade' button. A red 'Delete' button is also visible. At the bottom left, there is a '+ New grading system' button.

Test configuration:

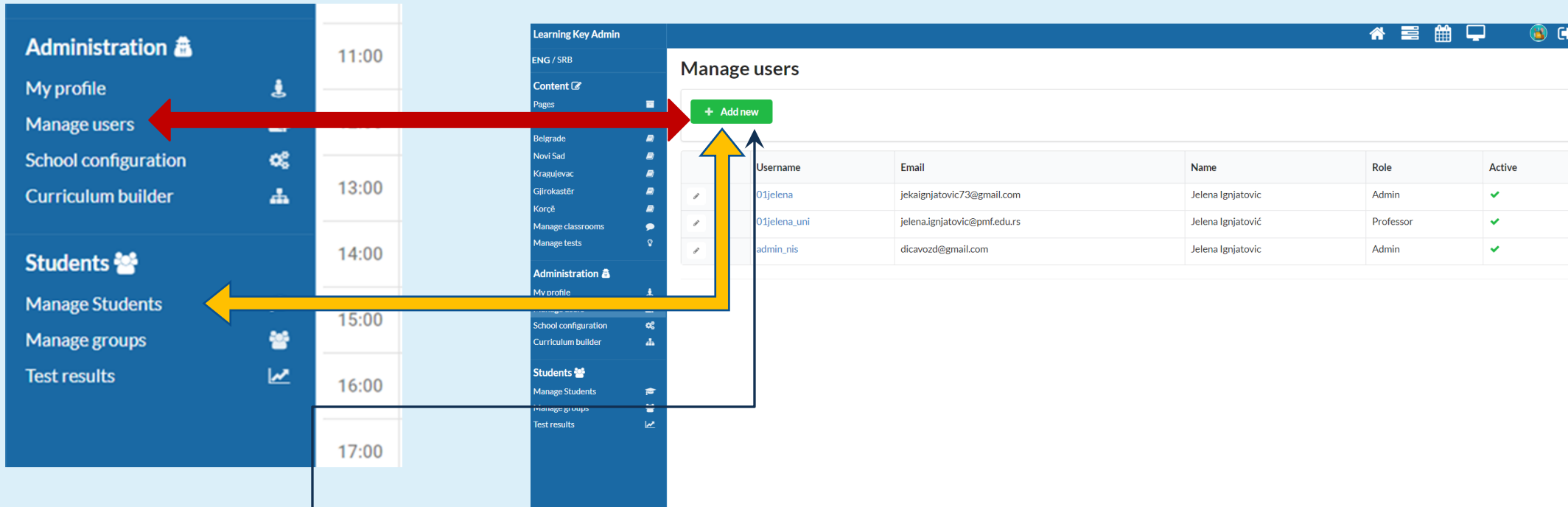
The administrator adds rating scales that consist of the grade name, the check box to see if the grade is passable or not, the title and description of the rating scale.

This scale is later added to the test/homework by entering the required points for the appropriate grades within the test

Localization:

contains all the translations that are displayed to students in the appropriate parts of the platform. The administrator can customize all messages to their own needs - usually the main titles and subheadings of special pages that students see

Adding professors / administrators and students



The screenshot shows the 'Manage users' interface with the following table:

Username	Email	Name	Role	Active
01jelena	jekaignjatovic73@gmail.com	Jelena Ignjatovic	Admin	✓
01jelena_uni	jelena.ignjatovic@pmf.edu.rs	Jelena Ignjatović	Professor	✓
admin_nis	dicavozd@gmail.com	Jelena Ignjatovic	Admin	✓

Adding students / professors is done within the part **Manage users/Manage students** (professors + administrators).

By clicking on **add new** user administrator can see a form consisting of

Adding professors / administrators and students



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Learning Key Admin

ENG / SRB

Content

- Pages
- NiS
- Belgrade
- Novi Sad
- Kragujevac
- Gjirokaster
- Korçë
- Manage classrooms
- Manage tests

Administration

- My profile
- Manage users
- School configuration
- Curriculum builder

Students

- Manage Students
- Manage groups
- Test results

Add Professor

[← Back](#) [Save](#)

Username

Email

Name

Role

Password

Active

- ❖ username of the new user on the platform (must be a unique username),
- ❖ e-mail address,
- ❖ full name,
- ❖ role,
- ❖ temporary password
- ❖ status whether the user is immediately active on the platform and can use all functionalities

Temporary password can be changed by the user on the first login

Knowledge base -Professor:

1. Management content

- ❖ **Unit builder** - Create a new unit - Cover images of top units, attachments, difficulty and reading time
- ❖ **Creating elements and sections / creating learning content**
- ❖ **Creating homework and tests**
- ❖ **Adding students to units and managing dependencies**

2. Schedule classes in the calendar

- ❖ **Availability booking system** - Set the availability of professors
- ❖ **Free booking system**
- ❖ **Management of created classrooms** (classroom layout, professor's facilitation tools) and always open class

3. Adding students and reviewing student analytics

4. Group management

5. My profile and top menu



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Unit builder (VERY IMPORTANT)



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Content creation is done from the navigation bar. The entire content is structured through levels (branching of the content structure). The name of the main content level is entered by the administrator within the project settings. Clicking on the main hierarchical level of content opens a menu on the right with a list of existing levels and the ability to add a new one to add a new one (add new, no.1).

Selecting an existing one or adding a new one opens a page for editing a specific level and adding content.

Unit builder (VERY IMPORTANT)



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A screenshot of the 'Unit builder' web application. The interface is divided into a left sidebar with navigation options, a central form for course details, and a bottom section for unit management. Five numbered callouts point to specific features: 1. A blue arrow points to the 'Name of the course:' label. 2. A blue arrow points to the 'Select image' button in the image upload section. 3. A blue arrow points to the 'Reading time' input field, which contains the number '0'. 4. A blue arrow points to the 'Difficulty' dropdown menu, which is currently set to 'Not set'. 5. A red arrow points to the '+ Subject' button in the bottom navigation bar. The form fields include: 'Name of the course:', 'Name of the study programme:', 'Level of the study (BSc/MSc/PhD):', 'Elective or obligatory:', 'Professor in charge:', 'E-mail of professor in charge:', and 'Name of the lecture that is/will be modernized:'. The bottom section shows a unit titled '2: Unit' with the subject 'New unit' and an 'Edit' button. The bottom navigation bar contains buttons for '+ Add element', '+ Test', '+ Add section homework', and '+ Subject'.

The main levels displayed in the grid view have the ability to upload a cover photo (thumbnail image, no. 2).

Also, the professor can enter the time needed for reading (picture no. 3) and how complicated this area is for learning/mastering the material (picture no. 4).

Clicking on the +Subject (picture no.5) button professor can create a new course

Unit builder (VERY IMPORTANT)



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The screenshot displays the 'Unit Builder' interface. On the left is a navigation sidebar with sections for 'Learning Key Admin', 'Content', 'Pages', 'Administration', and 'Students'. The main area is titled 'Edit Subject' and contains a form with fields for 'Title' (Data structures and algorithms), 'Publication Date' (2021-06-13 21:14:18), 'Reading time' (0), and 'Difficulty' (Not set). Below the form are buttons for '+ Add element', '+ Test', '+ Add section homework', and '+ Lecture'. A red arrow points from the '+ Add element' button in the main form to a dropdown menu that is open over the same button in a zoomed-in view on the right. The dropdown menu is titled 'CHOOSE ELEMNT' and lists options: 'Headline', 'Text', 'Video', 'Presentation', and 'add_file'. The zoomed-in view also shows 'Save', 'Delete', and 'View online' buttons.

- ❖ A subtitle is a short text that can separate the relevant sections.
- ❖ The text element opens a field in which text, image, table can be entered... All text can be formatted, stylized... (options as in word)
- ❖ The video field will ask for the url of the youtube video. By briefly copying and pasting the url, the video from youtube will be shown to the students

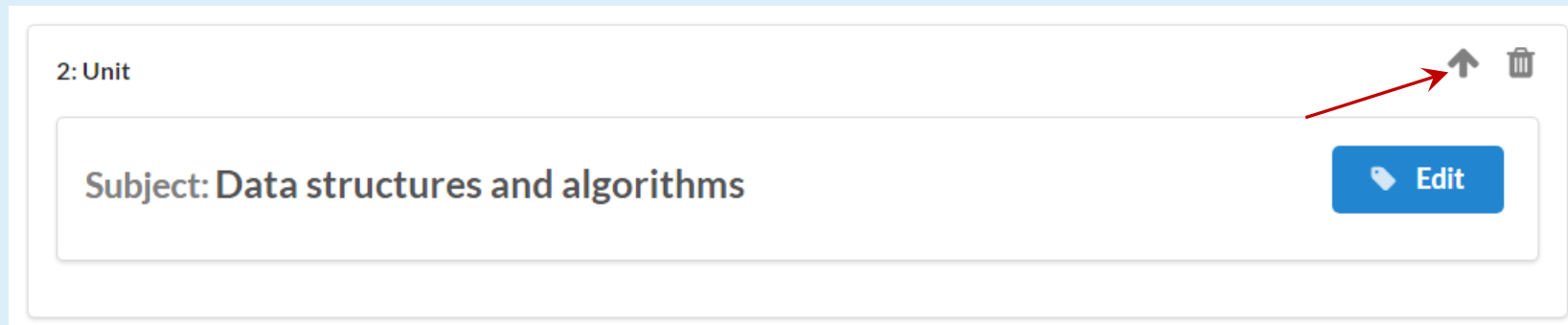
Unit builder



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- ❖ Presentation - here you can “upload” a presentation or a pdf or word document and students will be shown a browser of that file on the platform itself



The professor can change the order of the units by using the arrows in the upper right corner of each section

Adding homework is done by clicking on the add homework button

The homework has the ability to upload documents as an attachment to it, which can be useful as a template that students need to fill out and return it back for a review.

Also, the homework has a date of publication and a deadline for submitting that the professor can enter. It is presented to the student as a reminder that the homework should be done and sent for assessment.

Unit builder

The screenshot displays the 'Unit builder' interface. On the left is a dark blue sidebar with the text 'Niš' and a document icon. Below it are menu items: '1. Mathematics and Informatics', '- Data structures and algorithms' (with a cursor icon), '2. Chemistry', '3. Physics', '4. Biology & Ecology', and '+ Add new'. The main content area has a dark blue header with icons for home, list, calendar, monitor, and user profile. The main title is 'Edit homework'. Below the title is a row of four buttons: 'Save' (green), 'Delete' (red), 'View online' (blue), and 'Results' (blue). A large text input field is labeled 'Title'. To its right are two date input fields: 'Published date' (2021-06-13 22:16:32) and 'Deadline date' (2021-06-15 22:16:32). At the bottom of the main area are two buttons: '+ Add element' and '+ User upload' (with a file icon).

By clicking on the field for **user upload**, the students will see a window in which they will be able to attach the file that they need to send to the professor for review. If it is necessary to submit several files, the professor must create several input fields, because one field can contain only one file.

Unit builder

After the deadline for homework or after uploading by a student, the professor can evaluate the work in the homework results section.

Homework assessment is done by choosing the appropriate grade. The grades offered in the drop-down menu are the grades previously defined by the administrator.

The image displays two overlapping screenshots from a software interface. The left screenshot, titled 'Edit Subject', shows a form for editing a subject. The title is 'Data structures and algorithms'. Below the title, there are buttons for '+ Add element', '+ Test', '+ Add section homework', and '+ Lecture'. The right screenshot, titled 'Manage tests en', shows a form for creating a new test. A red arrow points from the '+ Test' button in the 'Edit Subject' window to the 'Enter test name' input field in the 'Manage tests' window. The 'Manage tests' window also shows 'Test settings' (Test type: Test type, Date: Date), 'Test grades' (Grading system), and a rich text editor for the test content. Other fields include 'Password', 'Test time', 'Question count', and 'Random sort order'.

Adding tests -- 3 types of tests

Test - type of test that is most similar to a school test

The duration of the test refers to the total time of making the test, Until the student completes the test by the end, the correct answers are not displayed, the questions to which the student gave the answers are marked with an asterisk within the question navigation.

Immediately after the student finish the test, the number of points he got, the maximum number of points and the grade is displayed.

Quiz - A quiz is also a type of test for self - assessment, but differs from the test type in duration. The duration is tied to a specific question and is entered in seconds and the student immediately after the answer knows whether the answer is correct or not and so goes on through the questions. The student cannot return to the questions he has already answered

Practice - This is a test that is intended for practice and does not have analytics. The logic is the same as with the Quiz type of question only that at the end student gets a mark but it is not entered in the database and this type of test can be done an unlimited number of times.



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Adding students

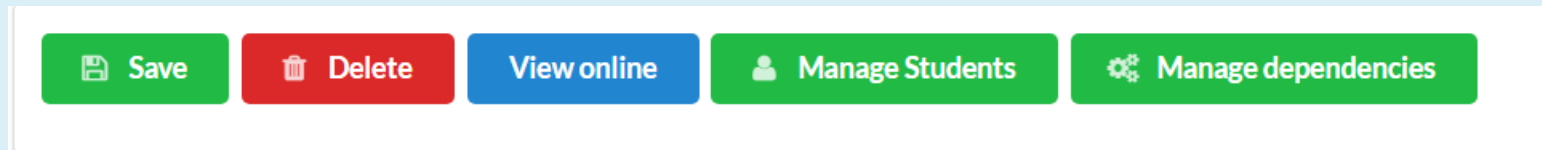


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After clicking on one of the main teaching units from the menu, the page for managing that teaching unit will open.


The following options are listed at the top of the page:



Clicking the **Manage Students** button opens a menu with an overview of group or individual student choices. Each person involved within this page has access (see) all lessons and the entire content structure created within this main unit (all homework, tests, materials...)

Manage Students ✕

Groups:

 Entries not found

Students:

	Name <input type="text" value="Filter"/>	Groups	Active on course
1	Dimitrije Popovic		<input checked="" type="checkbox"/>

Adding students



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By clicking on the **Manage dependencies** button, the professor can make a dependent relationship between the teaching units.

The administrator sets what a particular dependency entails.

Scheduling appointments in the calendar

Learning Key Admin

ENG / SRB

Content

Pages

NIS

Belgrade

Novi Sad

Kragujevac

Gjirokaster

Korçë

Manage classrooms

Manage tests

Administration

My profile

Manage users

School configuration

Curriculum builder

Students

Manage Students

Manage groups

Test results

7 Jun 2021 – 13 Jun 2021

DAY WEEK MONTH

Mon, June 7 Tue, June 8 Wed, June 9 Thu, June 10 Fri, June 11 Sat, June 12 Sun, June 13

06:00

07:00

08:00

09:00

10:00

11:00

12:00

13:00

14:00

15:00

16:00

17:00

18:00

Starts at: 07:00

7/6/2021

Class type: Choose type

Ends at: 07:00

New event

Students (/)

Professor

Jelena Ignjat...

Discussion

Please create the class first

Save changes

By double-clicking on a free appointment in the calendar, the teacher schedules appointments

Classroom layout and professors' tools



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There are 2 classroom layouts for administrators to choose from:

1. Webinar layout

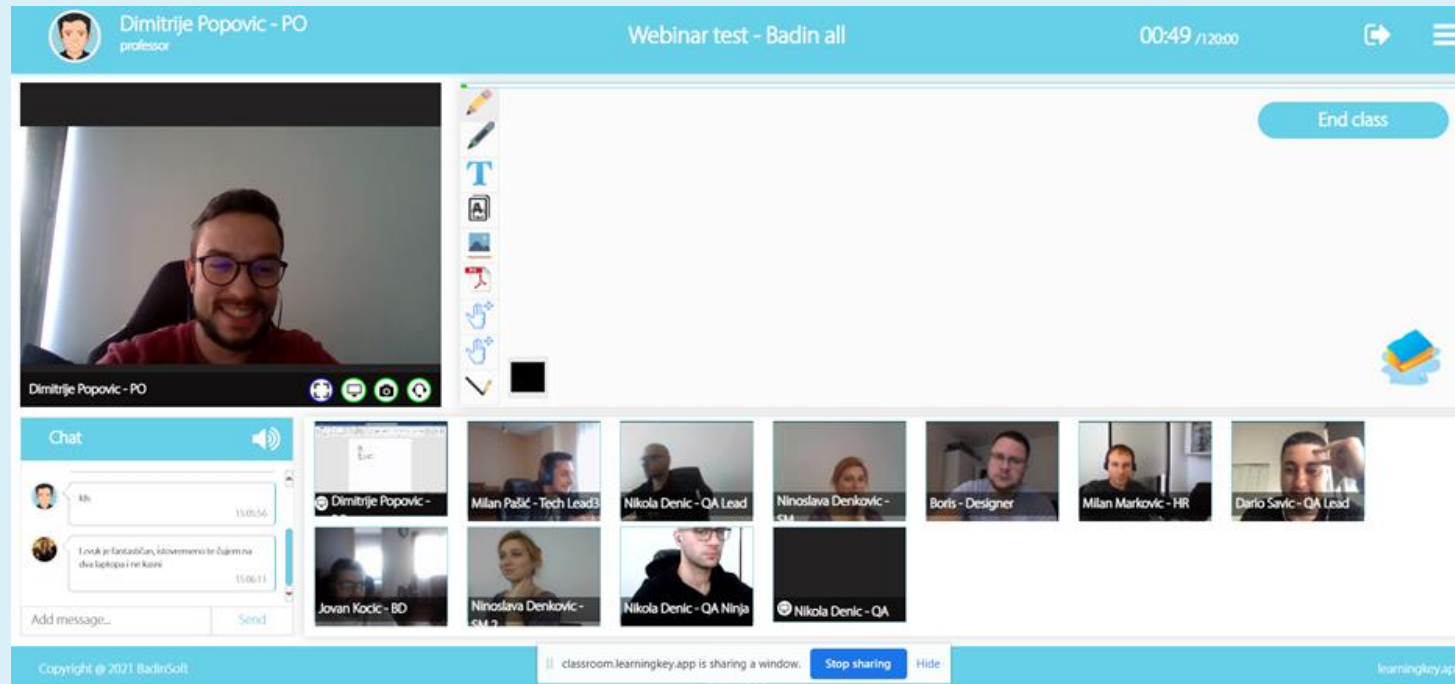
Classroom layout for groups with more students - the maximum number of students is 40+ professors. Within this classroom layout, students are listed in the lower part of the screen.

Students' cameras are of lower resolution so that the quality of classes is good for students with weaker internet.

The professor has full control over the classroom, his camera is always seen in excellent quality.

By enlarging a certain student, the professor puts of that student's camera instead of the board, in addition, the resolution of that "enlarged" student is in high quality.

Classroom layout and professors' tools



2. Virtual classroom layout

Within this type of classroom, students are listed on the right side while the board is in the central part of the screen.

The maximum number of users within this type of class is determined by the administrator.

Classroom layout and professors' tools



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A screenshot of a virtual classroom interface. At the top, a blue header bar contains the name "Marco Professor" on the left, "Balance Sheet" in the center, and a timer "00:00 / 45:00" on the right. Below the header, the main area is divided into three sections. On the left is a video feed of Marco, who is waving. Below his video is a chat window with four messages: "Hello dear Students" (21:42:36), "How are you today?" (21:42:41), and "Hi teacher, I am doing well, thank you. Looking forward to today's lesson" (21:45:54). The central section is a whiteboard displaying the cover of the book "Preschool English Learners: Principles and Practices to Promote Language, Literacy, and Learning. A Resource Guide. Second Edition." The whiteboard has a toolbar on the left with various drawing and editing tools, and a "Start class" button in the top right corner. On the right side of the whiteboard is a vertical stack of three video feeds: Thorsten Forel (waving), Maria López (waving), and Paul Martin (silhouette). A "Clear whiteboard" button is located at the bottom right of the whiteboard area.

My profile and top menu



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Within the initial professor page, the upper right menu is displayed as follows:




The first icon indicates the home page, the second the testing platform, the third the calendar, and the fourth the list of active classrooms.

Professor profile picture is a page of a profile within which the professor can change his password, mail, profile picture

My profile

[Save](#)

<p>Username</p> <input type="text" value="admin_nis"/>	<p>Profile photo</p>  <p>Browse</p>
<p>Email</p> <input type="text" value="dicavozd@gmail.com"/>	
<p>Name</p> <input type="text" value="Jelena Ignjatovic"/>	
<p>Password</p> <p>Change password</p>	