

# Strengthening Teaching Competences in Higher Education in Natural and Mathematical Sciences



## Activity 3.3. Training of teaching staff for using new educational technologies

Final Conference, Belgrade, October 9-11, 2022



## Activity 3.3.

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As Activity 3.3. a large number of online and in-person training sessions were held, where the teaching staff were trained in new PPM principles.

Teachers who attended the trainings of professors from the universities of Banská Bystrica, Ostrava and Oviedo had the opportunity to apply their knowledge on a practical example and share their knowledge with colleagues from their universities who did not attend these trainings.



## Activity 3.3.

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For each of the trainings, in the following slides is shown, the precise number of participants, schedule of the training, as well as the goals and topics.

Big thanks to all the professors who participated as lecturers in these trainings. All training participants expressed great satisfaction with their participation and the knowledge they received from the lecturer.



## Activity 3.3.

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On the upcoming slides, you can find more about:

- **Online IT training, University of Oviedo**
- **Training University of Oviedo in Niš**
- **Final training in Oviedo**
- **University of B.Bystrica in Novi Sad**
- **Training University of Ostrava in Niš**
- **Training In Korçë**
- **Remote laboratories**
- **Training at University of Novi Sad**
- **Training at University of Kragujevac**

## Activity 3.3.

### Exchange of experiences in Oviedo



<b>Title:</b>	<b>Innovative teaching methodologies for mathematics and sciences</b>
<b>Schedule:</b>	<b>25<sup>th</sup> – 29<sup>th</sup> March 2019</b> <b>25 hours of training</b>
<b>Topics:</b>	<b>1) Institutional reception by the rector of the University of Oviedo</b> <b>2) The Innovation Center of the University of Oviedo (Dr. Aquilina Fueyo)</b> <b>3) The INIE: Institute for Educational Research and Innovation (Dr. Emilio Álvarez Arregui)</b> <b>4) ...</b>
<b>Participants:</b>	<b>44 total</b> <b>(27 from partner universities + 17 from the University of Oviedo)</b>



# Activity 3.3.

## Exchange of experiences in Oviedo



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## **Activity 3.3.**

### **Webinar University of Oviedo**



<b>Title:</b>	<b>Preparing and Creating Materials for ICT Training</b>
<b>Schedule:</b>	<b>9<sup>th</sup> – 11<sup>th</sup> December 2020 online</b>
<b>Topics:</b>	<b>1) Recording, editing and blending educational videos: OBS, OpenShot Editor and EdPuzzle</b>  <b>2) Blended and flipped learning</b>  <b>3) eXeLearning as a tool for creating digital content</b>  <b>4) R as a tool for creating randomize test models exportable to Moodle</b>
<b>Participants:</b>	<b>61 total (58 partner universities + 3 University of Oviedo)</b>



# Activity 3.3.

## Webinar University of Oviedo



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What would you like your students to do when you teach with a presentation?



Watching their  
devices?



Attending the  
lectura in the  
classroom or at  
home?



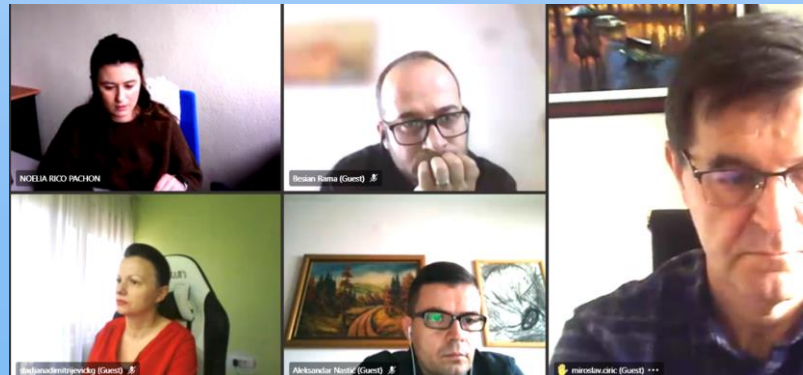
Following what  
you read?



Taking notes?



Paying  
attention?



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## Activity 3.3.

### Online IT training, University of Oviedo



<b>Title:</b>	<b>Boosting Technologies in Higher Education</b>
<b>Schedule:</b>	<b>15<sup>th</sup> – 17<sup>th</sup> December 2021 online (12,5 hours training)</b>
<b>Topics:</b>	<b>1) Attractive approach: active participation and creative 2) Motivating resources: gamification, augmented reality, and robotics 3) Project-based learning tracking from a Technological perspective 4) Guided individual practice</b>
<b>Participants:</b>	<b>61 total (58 partner universities + 3 University of Oviedo)</b>

# Activity 3.3.

## Online IT training, University of Oviedo



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### Creative presentations

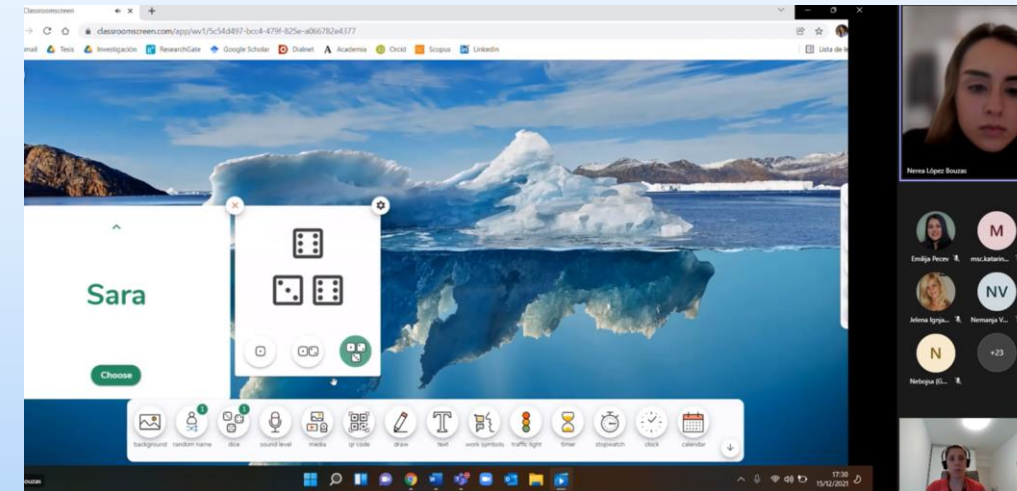
**Canva**  
Beautiful presentations

**Pexels**  
Photo bank

**FreePick**  
Photo bank

**Mindomo**  
Mind maps

**Coggle**  
Mind maps



Canva	Pexels and FreePick	Mindomo and Coggle	Perusall	Mentimeter, ClassMaker and...
...erea López-Bouzas 7d students to make an infographic on cell types	Anonymous 14h Make interactive presentation	Anonymous 14h Use to recapitulate knowledge at the end of the field	Anonymous 14h Assigning readings and engaging the reading material.	Anonymous 14h I would use Men... the end of class get the feedback students unders... and knowledge...
Anonymous 14h ...e infographic on ...tions of axiomatic ...roaches to the Set ...ory	Anonymous 14h Using an image that is difficult to draw by hand or in one of the available tools	Anonymous 14h I would use it in class for the students to create the mindmap in order to sistemize the topic such as	Anonymous 14h Developing discussion about interesting topic or some problem that is not easy solvable	Anonymous 14h



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## Activity 3.3.

### Training University of Oviedo in Niš



<b>Title:</b>	<b>Boosting Technologies in Higher Education II</b>
<b>Schedule:</b>	<b>28<sup>th</sup> – 30<sup>th</sup> March 2022</b> <b>5,5 hours of training</b>
<b>Topics:</b>	<b>1) Searching, designing, and editing educational images, audios, and videos</b>  <b>2) Designing graphs for data visualization</b>  <b>3) Designing and assessing different type of formative tasks: self-assessment, peer assessment, group discussion and problem-based tasks</b>
<b>Participants:</b>	<b>42 total</b> <b>(38 partner universities + 4 University of Oviedo)</b>

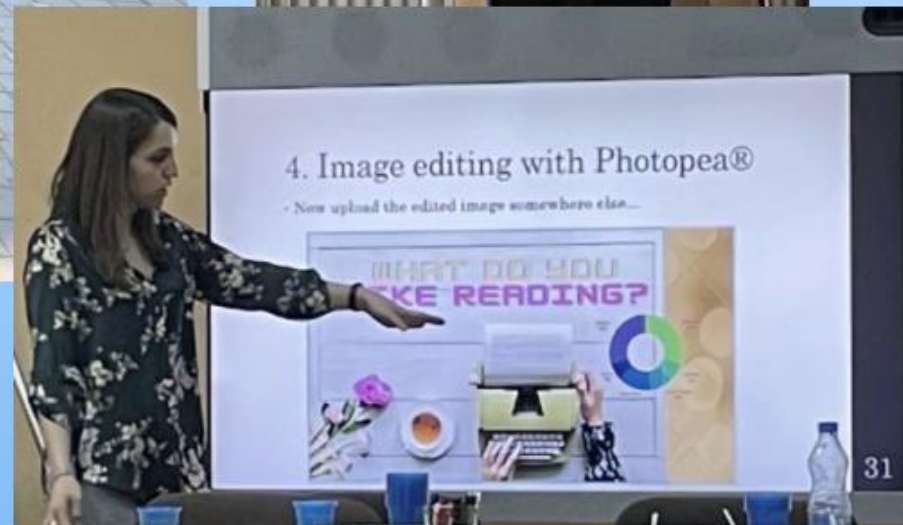


## Activity 3.3.

### Training University of Oviedo in Niš



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## Activity 3.3.

### Final training in Oviedo



<b>Title:</b>	Observing innovative practices
<b>Schedule:</b>	26 <sup>th</sup> – 30 <sup>th</sup> September 2022 24 hours of training
<b>Goals:</b>	<p>To share the experience of the implementation of new technological tools in several types of lectures and university degrees</p> <p>To hold some institutional visits to reinforce the contact between the University of Oviedo and the partner universities for guaranteeing the sustainability of the project results</p>
<b>Participants:</b>	25 total (16 partner universities + 9 University of Oviedo)



# Activity 3.3.

## Final training in Oviedo



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### L0. Natural Deduction

$\wedge I$	$\frac{A \quad B}{A \wedge B}$	$\wedge E$	$\frac{A \wedge B}{A} \quad \frac{A \wedge B}{B}$
$\vee I$	$\frac{A}{A \vee B} \quad \frac{B}{A \vee B}$	$\vee E$	$\frac{A \vee B \quad A \rightarrow C \quad B \rightarrow C}{C}$
$\rightarrow I$	$\frac{\boxed{A} \dots B}{A \rightarrow B}$	$\rightarrow E$	$\frac{A \quad A \rightarrow B}{B}$
$\leftrightarrow I$	$\frac{A \rightarrow B \quad B \rightarrow A}{A \leftrightarrow B}$	$\leftrightarrow E$	$\frac{A \leftrightarrow B}{A \rightarrow B} \quad \frac{A \leftrightarrow B}{B \rightarrow A}$
$\neg I$	$\frac{\boxed{A} \dots B \rightarrow \bot}{\neg A}$	$\neg E$	$\frac{A \quad \neg A}{\bot}$



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## Activity 3.3.

### Final training in Oviedo



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# Activity 3.3.

## University of Oviedo



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**Dr. Luis Jose Rodríguez Muniz**



**Dr. Susana Irene Díaz Rodríguez**



**Dr. Noelia Rico**



**Dr. Laura Muñiz Rodríguez**



## Activity 3.3.

### University of B.Bystrica in Novi Sad



<b>Title:</b>	Teacher training
<b>Schedule:</b>	20 <sup>th</sup> – 23 <sup>st</sup> March 2022
<b>Topics:</b>	<p>Some good practices for students instruction</p> <p>Problems in mathematics university teaching</p> <p>Strengthening of the competencies of students at computer science</p> <p>Teaching of the biological subjects, their connection to research and practice</p> <p>Palynology – Use today to know the past</p> <p>Microbial ecology of water and soil</p> <p>Soft introduction into infinitesimal calculus</p>
<b>Participants:</b>	26 total

# Activity 3.3.

## University of B.Bystrica in Novi Sad



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## Activity 3.3.

### University of B.Bystrica in Novi Sad



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# University of Basnak Bystrica



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**Vladimir  
Janis**



**Katarína  
Trnková**



**Romana  
Schubertová**



**Boris  
Tomášik**



**Lukas  
Laffers**



**Ingrid  
Turisová**



**Alžbeta  
Michalíková**



## Activity 3.3.

### Training University of Ostrava in Niš



<b>Title:</b>	<b>Oedagogical training</b>
<b>Schedule:</b>	<b>25<sup>th</sup> – 31<sup>st</sup> March 2022 in person</b>
<b>Topics:</b>	<b>Presented five lectures for the master study students and to the teachers as well.</b>
<b>Participants:</b>	<b>42 total</b>





## Activity 3.3.

### Training University of Ostrava in Niš



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## Activity 3.3.

### Training University of Ostrava in Niš



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**Prof. Dr. Irina Perfilieva**

Full Professor,  
Institute for Research and Application of Fuzzy Modeling  
University of Ostrava, Czech Republic



**Prof. Dr. Petra Murinova**

Associate Professor,  
Institute for Research and Application  
of Fuzzy Modeling,  
University of Ostrava, Czech Republic



## Activity 3.2 & Activity 3.3. Training In Korçë



<b>Title:</b>	Training In Korçë
<b>Schedule:</b>	12 <sup>th</sup> – 18 <sup>th</sup> September 2021
<b>Topics:</b>	Modernization of teaching Preparing of teaching materials Using blended learning Flipped classroom Remote access laboratories
<b>Participants:</b>	26 teachers (UNI, UB, UNS, UNIKG, UNIKO, ECUG)



## Activity 3.3.

### Training In Korçë



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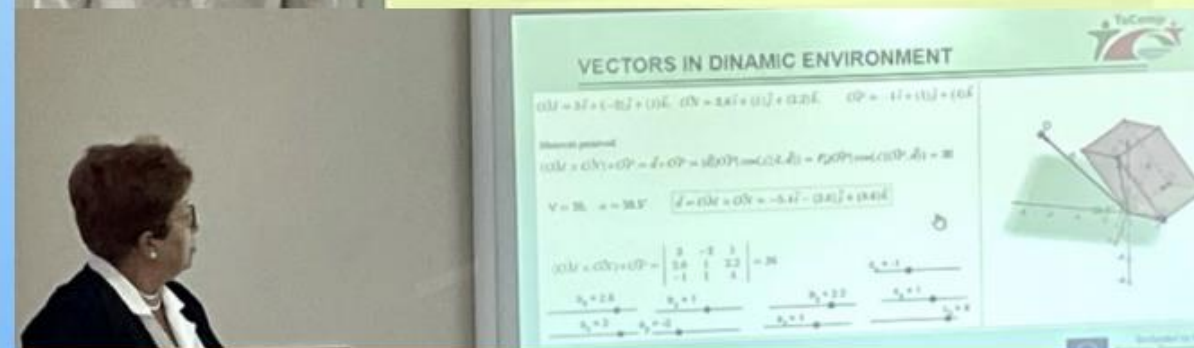
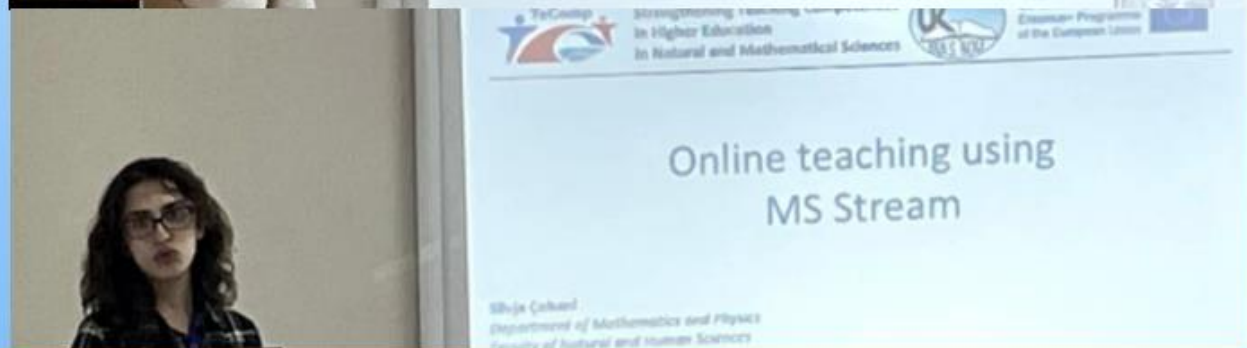
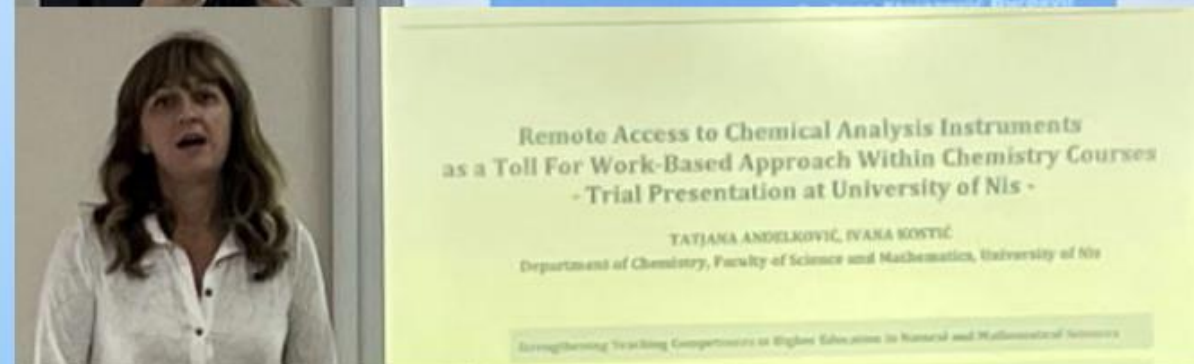
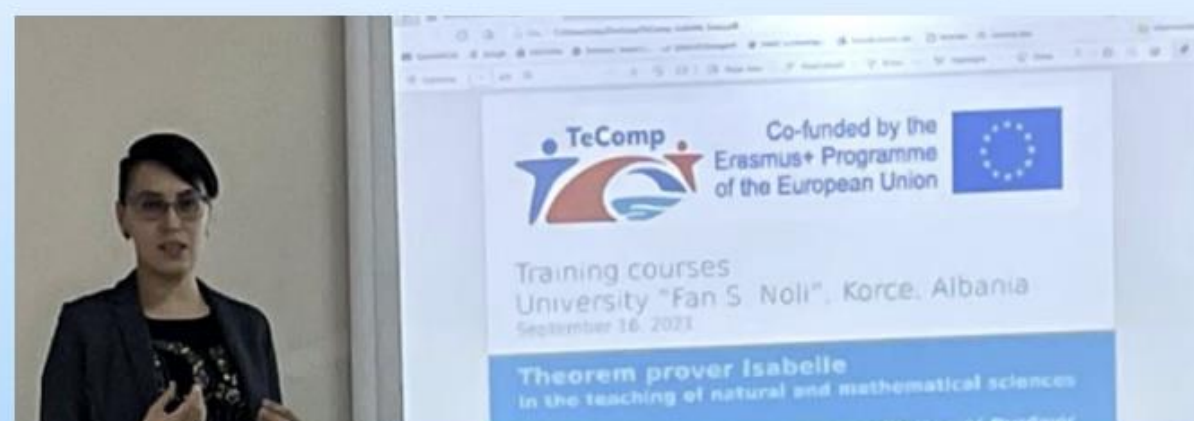


# Activity 3.3.

## Training In Korçë



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## Activity 3.3.

### Remote laboratories



Title:	Problems and solutions in Chemistry Instrument Teaching by Remote Access Laboratories
Schedule:	13 <sup>th</sup> April 2022
Topics:	<ol style="list-style-type: none"><li>1) What are Remote Access Laboratories (RAL)? Advantages of RAL (pros);</li><li>2) Disadvantages of RAL (cons);</li><li>3) How to organize RAL (Personal and Technical background);</li><li>4) How to organize class with RAL (needed time for the analysis, parameters selections to be controlled by students, samples selection);</li><li>5) Micro-class as example (5 minutes): lecture slides – demonstrator + instrument – AnyDesk chromatogram – slide conclusion.</li></ol>
Participants:	UNI, UNS, UB, UNIKO



## Activity 3.3.

### Remote laboratories

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**Dr Tatjana Anđelković,**  
Full Professor  
Faculty of Sciences and Mathematics,  
University of Niš



**Dr Ivana Kostić Kokić,**  
Research Associate  
Faculty of Sciences and Mathematics,  
University of Niš

## **Activity 3.2. & Activity 3.3.**

### **Training at University of Novi Sad**



<b>Title:</b>	Training for young teaching staff of University of Novi Sad
<b>Schedule:</b>	21 <sup>st</sup> – 25 <sup>th</sup> January 2022 online and last day face-to-face
<b>Topics:</b>	<ol style="list-style-type: none"><li>1) Where did the thirst for knowledge go?</li><li>2) Monitoring knowledge and student assessment</li><li>3) About textbooks and teaching materials</li><li>4) Visualization of problems using GeoGebra software</li><li>5) Visualization of problems using Wolfram Mathematica software</li></ol>
<b>Participants:</b>	35 total (20 females and 15 males) Younger assistants, assistants and assistant professors from the Faculty of Sciences, University of Novi Sad.



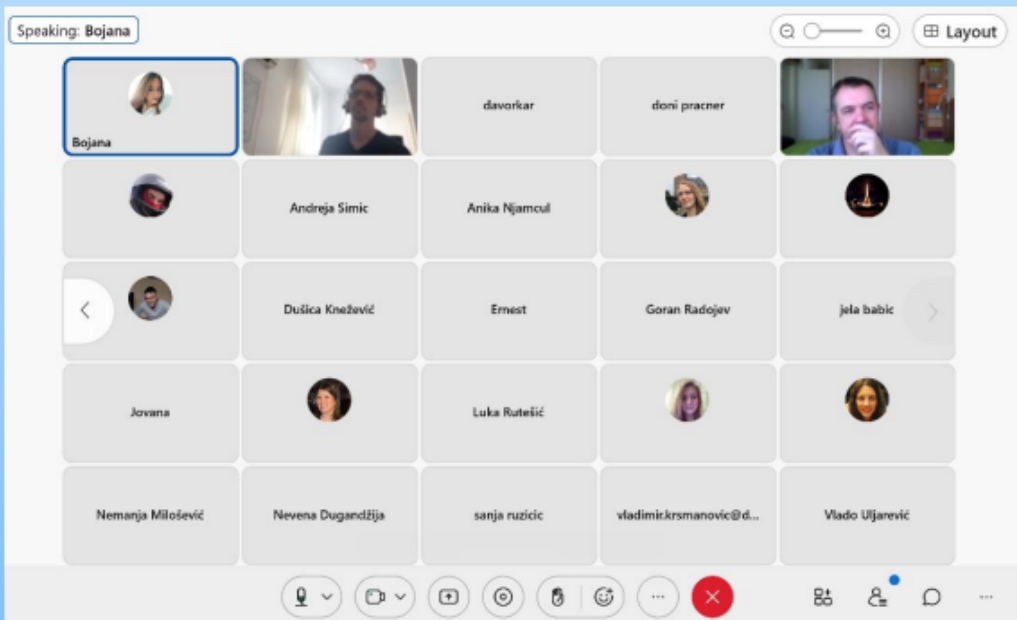
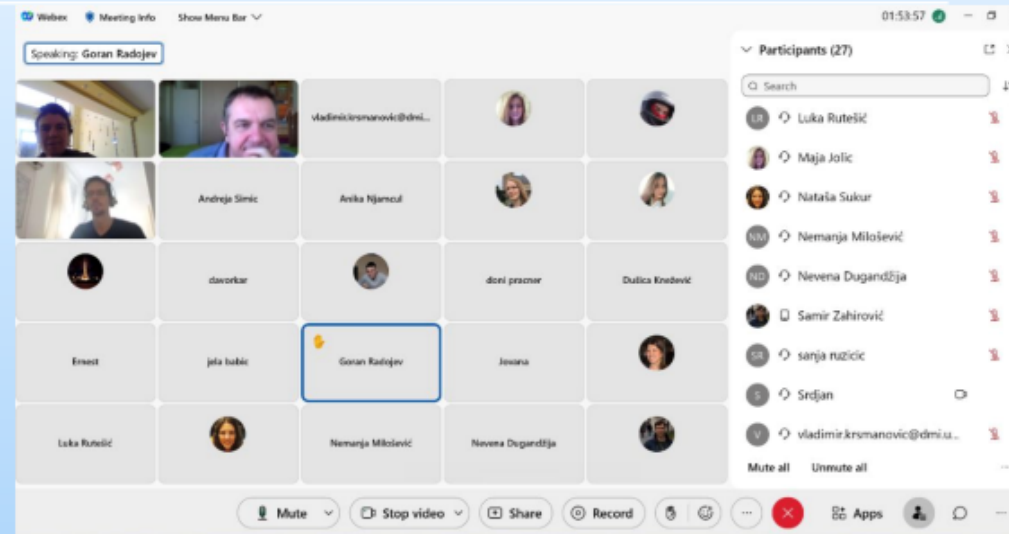
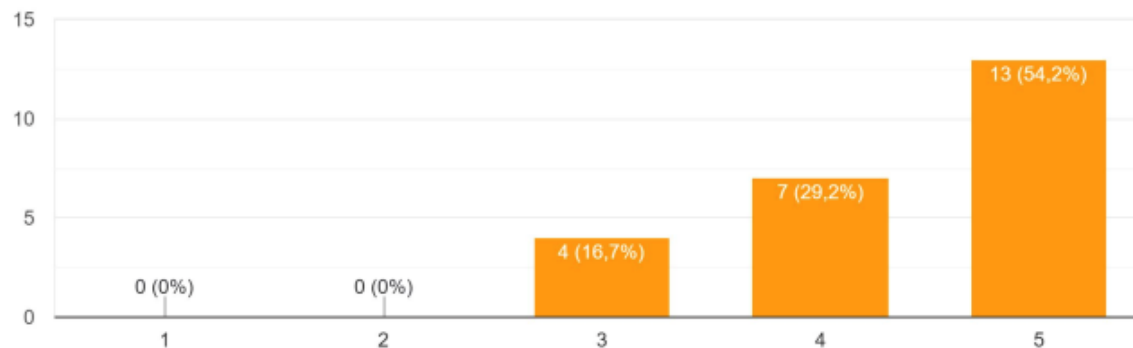
# Activity 3.2. & Activity 3.3. Training at University of Novi Sad



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Ocenite kvalitet video materijala kao uvodnog segmenta u radionicu.

24 odgovora



Ocenite kvalitet radionica.



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# Training at University of Novi Sad



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**prof. dr Dragan Mašulovic**  
University of Novi Sad



**prof. dr Andreja Tepavčević**  
University of Novi Sad



**prof. dr Zorana Lužanin**  
University of Novi Sad



**prof. dr Goran Radojev**  
University of Novi Sad



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## Activity 3.3.

### Training at University of Kragujevac



<b>Title:</b>	University Teaching – Can it be more efficient?
<b>Schedule:</b>	28 <sup>th</sup> April 2022 - Face to face workshop 29 <sup>th</sup> April 2022 – Online consultations 9 <sup>th</sup> May 2022 – Online consultations 23 <sup>th</sup> May 2022 – Online presentation of Workshop results and evaluation
<b>Topics:</b>	12 topics 11 University teachers
<b>Participants:</b>	50 total (University teachers and researchers)

# Activity 3.3.

## Training at University of Kragujevac



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**УНИВЕРЗИТЕТСКА  
НАСТАВА – МОЖЕ ЛИ  
ЕФИКАСНИЈЕ?**

**ИЗАЗОВИ САВРЕМЕНЕ НАСТАВЕ ПРЕ,  
ТОКОМ И ПОСЛЕ ПАНДЕМИЈЕ**

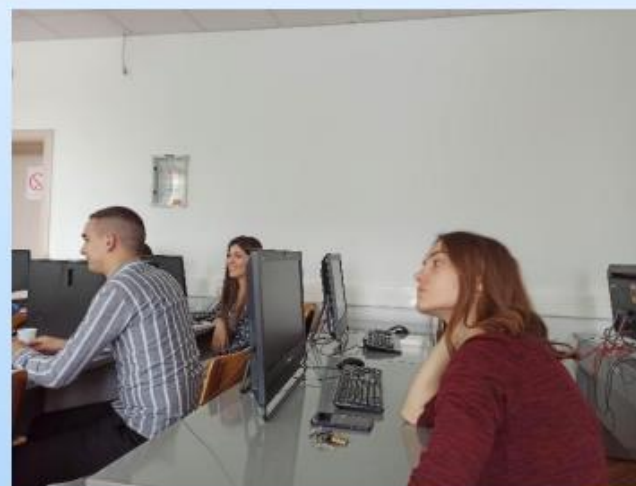
Драге колегинице и колеге,  
Позивамо вас на **СТРУЧНИ СЕМИНАР** у организацији  
типа **ЕРАСМУС+** пројекта **TeComp**. Циљ семинара је:

- да пружи кратак али информативан преглед  
иновативних наставних метода и употребе ИКТ у  
настави природних наука, математике и  
рачунарства, као и
- да организује дискусију о искуствима наставе на  
даљину и евентуалним променама које смо увели  
или ћемо трајно увести у наш рад услед тог  
искуства.

**28. 04. 2022.**

**ПРИРОДНО-  
МАТЕМАТИЧКИ  
ФАКУЛТЕТ**

Семинар ће се одржати на ПМФ-у  
у четвртак 28. априла.  
Више о програму семинара и пријави за  
семинар можете наћи на веб-страни: [www.pmf.kragujevac.rs](https://www.pmf.kragujevac.rs)



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## Activity 3.3.

### Training at University of Kragujevac

#### Section for biology and ecology

1. Ivana Radojević, *Applications of selected digital tools and web resources in teaching of biology*
2. Snežana Branković, *Use of EPSON camera as a tool for improving teaching of botanic*



#### General part

At the end of this part of Workshop open panel discussion, with theme *Have we learn something new about teaching during pandemic?* was organized.



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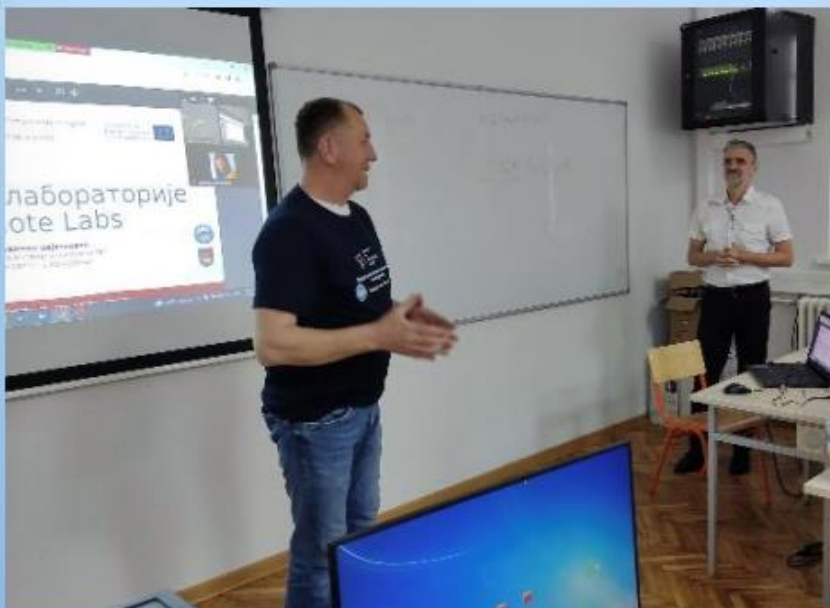


## Activity 3.3.

### Training at University of Kragujevac

#### Section for physics and chemistry

1. Vladimir Cvjetković, *Remote online laboratory in teaching of physics*
2. Jelena Đurđević Nikolić, *Use of virtual laboratory in teaching of chemistry*
3. Milan Kovačević, *Vision for use of experiments in teaching of physics in 2050*



#### Section for mathematics and informatics

1. Aleksandar Milenković, *Possibilities for use dynamic software GeoGebra in HE teaching*
2. Tatjana Tomović Mladenović, *Improvement of teaching by using software Wolfram Mathematica*



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# Activity 3.3.

## Training at University of Kragujevac

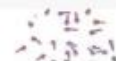


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### АБ ТОКСИНИ - неуротоксини

#### Тетанусни токсин - *Clostridium tetani*

Спречава ослобађање инхибиторних  
неуротрансмитера (глицин,  
**сталне продукције ацет**  
сталне контракције мишић  
спазам парализу.



Organisms enter through large, small, or even  
unperforated wounds. Some surface germs  
are most common, while organisms that  
have entered deeply



Strengthening Teaching Competences  
in Higher Education in Natural and  
Mathematical Sciences

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Univerzitet u Kragujevcu  
University of Kragujevac  
Prirodno-matematički fakultet  
Faculty of Science



#### SERTIFIKAT

#### CERTIFICATE OF ACHIEVEMENT

Ovim sertifikatom se potvrđuje da je  
This certificate acknowledges that

**Dragana Krstić**

USPEŠNO SAVLADALA PROGRAM STRUČNE OBUKE  
HAS SUCCESSFULLY COMPLETED THE TRAINING PROGRAM

*Univerzitetska nastava – Može li efikasnije?*  
*University Teaching - Can It Be More Efficient?*

Prof. dr Jelena Ignjatović  
Koordinator ERASMUS+ projekta TeComp  
Coordinator of ERASMUS+ project TeComp

31st May 2022

Prof. dr Marija Stanić  
Dekan Prirodno-matematičkog fakulteta  
Dean of Faculty of Science



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