



Co-funded by the Erasmus+ Programme of the European Union

# PROJECT HISTORY AND EVALUATION

- rationale, objectives, partnership

JELENA IGNJATOVIĆ

**University of Niš** 

Faculty of Sciences and mathematics



Co-funded by the Erasmus+ Programme of the European Union

Strengthening Teaching Competences in Higher Education in Natural and Mathematical Sciences

Ref. No: 598434-EPP-1-2018-1-RS-EPPKA2-CBHE-JP (2018-2467)

Programme: Erasmus +

Key action: Cooperation for innovation and the exchange of good practices

Action: Capacity Building in Higher

Education

**Acronym: TeComp** 

# Quality of the project implementation - objectives

To enhance professional competences and skills



To deliver new/modernized courses in PPM and technology enhanced learning



To develop
platforms for
wider integration
of ICT in T&L



To develop and improve resources of Albanian and Serbian universities enabling them to offer competitive education, research and innovation for ever-growing need in the field of natural and mathematical sciences



# CBHE aims and objectives fulfilled



To improve the quality of higher education at higher education institutions in Serbia and Albania.

To enhance universities' comparability and competitiveness in Europe and beyond.



Upgrade educational infrastructure as a basis for wider integration of modern pedagogical principles and technologies in teaching and learning.

Improve the level of competences and skills in HEIs by developing new and innovative educational courses.





Curriculum development

#### **Achieved outcomes**



Which measures and actions are required for quality enhancement of T&L processes?

Upgrading educational infrastructure

Training of teaching staff for harnessing pedagogical and methodical principles and new modes of T&L

Increasing level of IT competencies of university staff and developing new teaching methodology

Development of methodology and platforms for wider integration of ICT in teaching and learning







Quantitative analysis of teaching competences of young, newly hired university teachers at the PC HEIs;

Detailed analysis of the use of modern educational technologies in T&L at the PC HEIs

### **POST MORTEM**



Luiz Seiti, Head of IRO

Institution: "Egrem Cabej"University of Gjirokastra-International Relations and Scientific Research Office

Research field and areas: English teaching, Accounting & Finance, PhD candidate in English language





Dr Romeo Mano, Full Professor

Institution: "Egrem Cabej" University of Gjirokastra-Faculty of Natural Science

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Research field and areas: Mathematics, Statistics, Probability, Applied Mathematics, Teaching Methodology and

Pedagogy in the field of Mathematics



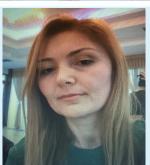
Dr Isidor Kokalari, Full Professor

Institution: "Egrem Cabej"University of Gjirokastra-Faculty of Natural Science

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Research field and areas: Biophysics. Non ionizing radiation of mobile telephony, Modelling of cardiovarcular system,

Methodology and Pedagogy of teaching of Physics



Irma Gjolleshi, Head of IRO

Institution: "Egrem Cabej"University of Gjirokastra -Inernational Relations and Scientific Research Office

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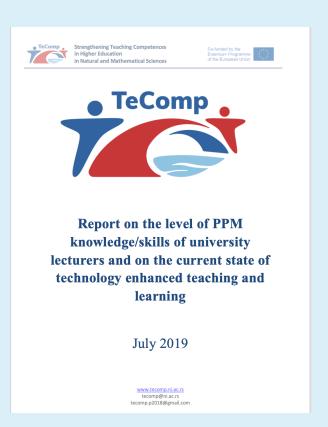
Research field and areas: TESOL Methodology, Integration of Critical thinking in the Exploration of Cultures in areas

where English is spoken as a second language





- Report on the level of PPM knowledge/skills of university newly hired teachers at the PC HIEs
- 2. Report on the current state of technology enhanced teaching and learning at the PC HIEs







UNI, Serbia

The survey was filled in by 31 lecturers, 14 (45.16%) of whom were women and 17 (54.48%) men.

**UB**, Serbia

The survey was filled in by 57 lecturers, 65.45% of whom were women and 34.55% men.

UNS, Serbia

The survey was filled in by 30 lecturers, 22 of whom were women (73.3%) and 8 men (26.7%).

UNIKG, Serbia

The survey was filled in by 47 lecturers, 29(65.91%) of whom were women and 15 (34.09%) men. .





#### UNIKO and ECUG, Albania

The survey was completed by 96 lecturers from universities, 53 (55.21%) of whom were women and 43 (44.79%) were men.

#### **FINDINGS:**

#### For Serbia:

- ✓ Regardless of their experience, the teaching staff spends the most time on research i.e. science
- ✓ Class preparation takes less time than the class realization
- ✓ Older teaching staff spends more time working compared to their younger colleges
- √ 35% to 40% of the time is spent on class preparation and realization
  50% of their time on class preparation and realization





#### For Albania:

- ✓ Compared to colleges in Serbia, the teaching staff at two
  Albanian universities spends less time on research, than on class
  preparation and realization
- ✓ Teaching staff spends 50% of their time on class preparation and realization

#### For Serbia

- ✓ More experienced teaching staff take courses in the teaching methodology and Electronic learning methodology more often
- ✓ Less than one-fourth of the teaching staff has realized a part of their class in English





✓ More experienced teachers have participated in workshops about innovative technologies in teaching to a greater extent, and more often discuss about class quality with students

#### For Albania

- ✓ Compared to Serbia, in Albania younger teachers have participated in courses in teaching methodology to a greater extend
- ✓ Less than one-sixth of teachers have realized a class in English
- ✓ As in Serbia, more experienced teachers have spent more time on workshops, and have discussed class quality with students to a greater extend













Romeo Mano



Nebojša Jasnić



LOTEIC LROHOIII

Lorenc Ekonomi





Reviewing experiences in the use of PMT in T&L at the EU HEIs

Report on the practice in T&L at the EU HEIs

Visits of the representatives of PC partner institutions to UNIOVI, UMB and UO -organized EU universities-presented their experiences in using new pedagogical and methodological methods and demonstrated the level of integration of ICT Reports of all EU partners - collected into a joint report





Maria C Canadas





Romeo Mano



Martin Valcke



**Vladimir Janis** 





Irina Perfilieva



Petra Murinova







# Comparative analysis performed

Joint report based on collected data

#### MAIN RECOMMENDATIONS:

- ❖ Insufficient time dedicated to class preparation leads to the dominant use of the frontal approach since it requires less preparation time, consequently, it is necessary to direct the teaching staff to use other teaching methods, providing students with a more central role
- It is necessary to prepare materials and workshops that highlight the challenges, possibilities, and importance of improving HE teaching
- \* The younger teaching staff is missing formal education and training in the field of teaching methodology that needs to be complemented through appropriate workshops and training





- ❖ Due to the lack of basic methodology courses, it is necessary to develop training at different levels from basic to advanced
- Improving ICT knowledge and skills in the learning process is more than necessary.
- It is necessary to prepare material and organize training related to the implementation of ICT in the teaching process.



Zorana Lužanin



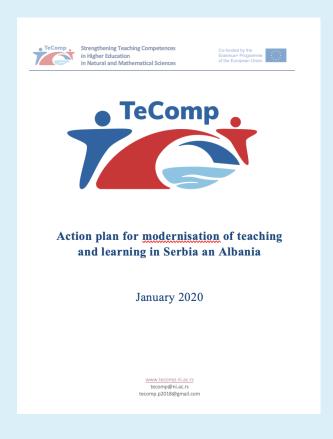
Sladjana Dimitrijević







# Action plan for modernisation of T&L at the PC HEIs Adopted at the LCT meeting- Novi Sad, January 2020











Dr Srećko Trifunović, Full Professor

Institution: University of Kragujevac-Faculty of Science

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Research field and areas: Inorganic chemistry

Dr Ivana Radojević, Assistant Professor

Institution: University of Kragujevac-Faculty of Science

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Research field and areas: Microbiology, Microbial ecology,

Bioremediation, Methodology of scientific research.









Dr Slađana Dimitrijević, Assistant Professor Institution: University of Kragujevac-Faculty of Science

E-mail: sladjana.dimitrijevic@pmf.kg.ac.rs

Research field and areas: Stochastics, Fractional differential equations, Fix point

theory, Mathematics Education and Teaching Methodology in

**Mathematics** 



Dr Milan Kovačević, Full Professor

Institution: University of Kragujevac-Faculty of Science

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Research field and areas: Applied optics and photonics, Plasma physics, Physics

**Education**, **Biophysics**.



Dr Ana Kaplarević Mališić, Assistant Professor

Institution: University of Kragujevac-Faculty of Science

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Research field and areas: Computer Science, High-performance computing, Computer modeling and simulation, Teaching Methodology in Computer Science.



Upgrading educational infrastructure at the PC HEIs— Associate Universities equipped with technology-enhanced learning spaces

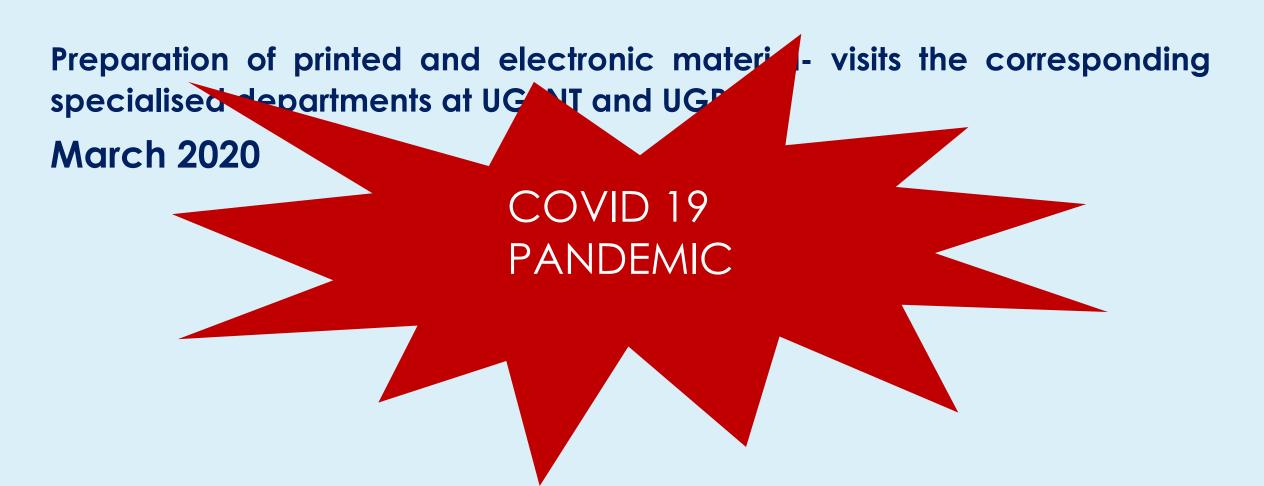
 technical infrastructure and laboratory equipment for educational purposes of the PC HIEs -purchased and installed







# Material for PPM training courses





# Interim report submitted- summarised completed and in progress activities

All the activities were postponed

New ways of teaching and working had to be implemented







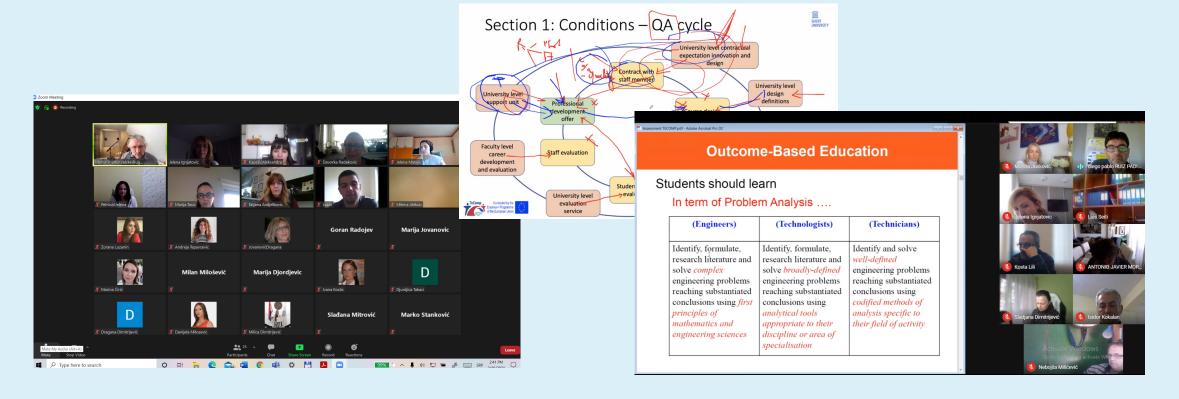






### Preparing material for PM training courses

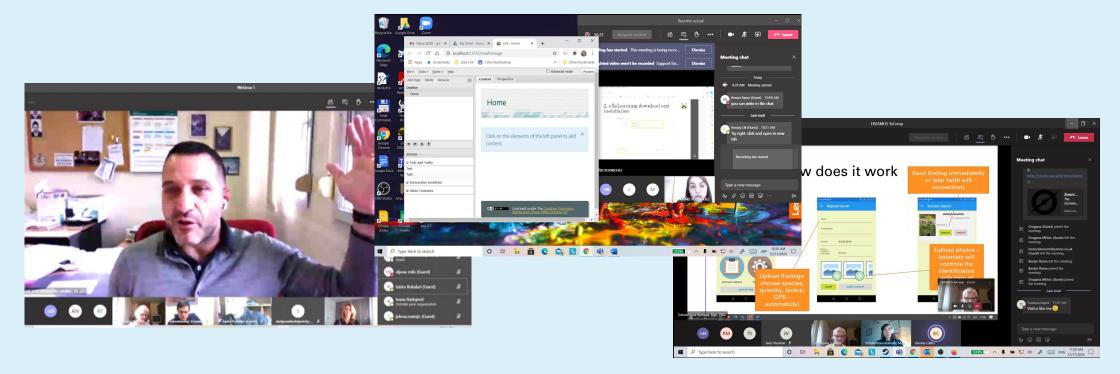
Experiences could not be collected during the visits, but the workshops given by teachers from UGHENT and UGR were organised





# Preparing guidelines for the technological enhancement of teaching and learning

Experiences could not be collected during the visits, but the workshops given by teachers from UNIOVI and UMB were organised







# Material for PPM training courses

# Editorial board- adopted at LCT meeting (March 2021)

- 1. Miroslav Ćirić
- 2. Sladjana Dimitrijević
- 3. Siniša Đurašević
- 4. Andrijana Žekić
- 5. Zorana Lužanin



Miroslav Ćirić

Sladjana Dimitrijević



Siniša Crvenković

Zorana Lužanin



Andrijana Žekić



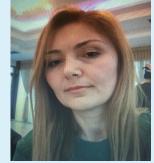
# Material for PPM training courses

Guidelines for the technological enhancement of teaching and learning - printed in tree languages Serbian, Albanian and English









Irma Gjolleshi



Romeo Mano



Isidor Kokalari





www.tecomp.ni.ac.rs tecomp@ni.ac.rs tecomp.p2018@gmail.com

Ardiam Cerava











Lorenc Ekonomi









# Internal and external (EU partners) reviewing

Training material was reviewed by:

- 1. María C. Cañadas
- 2. Luis Jose Rodriguez Muniz

Reviewer name: Luis J. Rodríguez Muñiz

Please enter a rating: 5 - excellent/ 4 - good / 3 - average / 2 - under average/ 1 - poorly

Title of the material: Strengthening teacher competencies, DIGITAL COMPETENCES

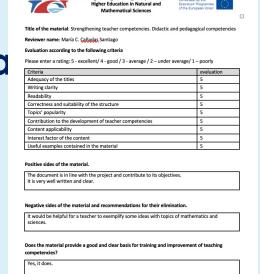
Criteria	evaluation
Adequacy of the titles	4
Writing clarity	5
Readability	5
Correctness and suitability of the structure	5
Topics' popularity	5
Contribution to the development of teacher competencies	5
Content applicability	5
Interest factor of the content	5
Useful examples contained in the material	5

The way in which the material summarizies a great amount of educational research studies into readable document. The insertion of clickable links as examples is also a positive point. The examples adapted to different subjects are also interesting.

It is not properly negative, but I missed the use of embedded clips instead of linking them, being a document about digital technologies it would be an exemplary practice

Does the material provide a good and clear basis for training and improvement of teaching competencies?

introduced into digital tools and skills for teaching

















Creating material for providing language support for teaching staff

-Capability of important for t

Material for the teaching staff

Prepared by:

Dr Biljana Mišić Ilić, Full Professor

Dr Jasmina Đorđević, Associate Professor

Nikola Tatar, M.A., English language instructor

the PC HEIs

the proficiency of









Dr DRAGAN ANTIĆ, RECTOR, Full Professor

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Research field and areas: Modeling and Simulation, Control systems, Sliding Mode Control





Dr Jelena Ignjatović, Assistant Professor

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Research field and areas: Theoretical Computer Science –Fuzzy Set Theory, Fuzzy automata theory, Ordered sets and lattices, Social Networks, Data Analysis



Dr Miroslav Ćirić, Full Professor

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Research field and areas: Mathematics and Computer Science – Semigroup Theory, Ordered Algebraic Structures, Fuzzy Set Theory, Linear and Multilinear Algebra, Matrix Theory, Mathematical Logic, Social Networks, Theory of Computing, Data Analysis



Jelena Matejić, Assistant

Institution: University of NIš - Faculty of Science and Mathematics

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Research field and areas: Computer Science





Dr Aleksandra Arsenijević, Associate for finance on projects

Institution: University of Niš

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Research field and areas: Accounting, Auditing and Financial Management



Dr. Tatjana Anđelković, Full Professor

Institution: University of Niš, Faculty Science and Mathematics,

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Research field and areas: Environmental chemistry; Environmental and food

safety control; Teaching chemistry methodlogy



14 trainings were organized (5 online, 7 in person, 2 blended)



# PROFESSIONAL DEVELOPMENT OF TEACHING STAFF Organised trainings



Training	Venue	Date	Realised	Reports done
Ghent university training - PPM	onlne	15/02/21 - 17/05/21	YES	YES
Serbian and Albanian training (combined with LCT meeting Activity 7.3)	P6-UNIKO (Albania)	13/09/21 - 17/09/21	YES	YES
Granada university training - PPM	online	01/12/21 - 14/12/21	YES	YES
Oviedo university training - IT (first part)	online	15/12/21 - 17/12/21	YES	YES
Serbian and Albanian training - PPM	Blended P1-Uni	20/12/21 - 24/12/21	YES	YES
Serbian training – PPM & IT	online (P3-NS)	20/02/22 - 22/02/22	YES	YES
English training (Serbia ad Albania)	online	04/03/22 - 23/03/22	YES	YES
Banska Bystrica university training - IT	P3-UNS (Serbia)	20/03/22 - 24/03/22	YES	YES
Ostrava university training – IT (combined with Inter-project coaching Activity 5.4)	P01-UNI (Serbia)	28/03/22 - 01/04/22	YES	YES

# PROFESSIONAL DEVELOPMENT OF TEACHING STAFF Organised trainings



Training	Venue	Date	Realised	Reports done
Oviedo university training (second part) (combined with Inter-project coaching Activity 5.4)	P01-UNI (Serbia)	28/03/22 - 01/04/22	YES	YES
Serbian training - IT	Blended P04-UNIKG	28/04/22	YES	YES
Training visit to Granada - PPM	P10-UGR	14/05/22 - 20/05/22	YES	YES
Ghent university training – PPM	Blended P01-UNI	12/09/22 - 14/09/22	YES	YES
Training visit to Oviedo – IT (combined with Activitie 6.4)	Blended P1-Uni	20/12/22 - 30/12/22	YES	YES

## PROFESSIONAL DEVELOPMENT OF TEACHING **STAFF**



**Curriculum development** 

New courses are acreditated

Existing courses have been modernised

LearningKey platform for online teaching end learning was established and updated

https://teacher.tecomp.ni.ac.rs/login



Dimitrije Popović

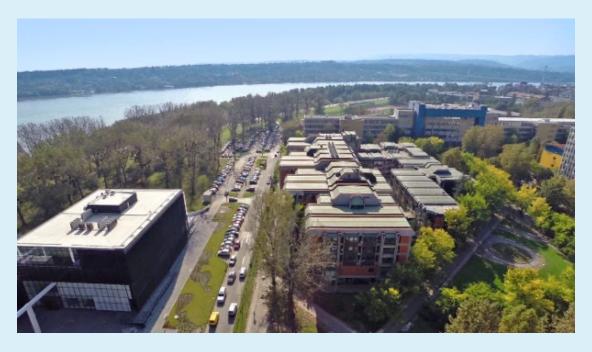


Milan Pašić



Jovan Kocić







Dr Andreja Tepavčević, RECTOR, Full Professor Institution: University of Novi Sad-Faculty of Science

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Research field and areas: Mathematics, Algebra, Universal Algebra and Lattice Theory, Fuzzy Set Theory and Applications





Dr Zorana Lužanin, Full Professor

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Research field and areas: Optimization, Mathematical and Statistical modeling,

**Education-Teaching of mathematics** 



Dr Goran Radojev, Associate Professor

Institution: University of Novi Sad-Faculty of Science

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Research field and areas: Numerical analysis, Numerical methods for ODEs and PDEs,

**Computational mathematics** 

Dr Jasna Atanasijevic, Associate Professor

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Research field and areas: Empirical economics, Governance, Public policy analysis,

Applied econometrics.

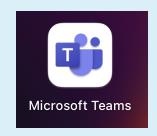


MSc. Đurica Salamon, Secretary of Department of Mathematics and Informatics Institution: University of Novi Sad-Faculty of Science

E-mail: <u>djurica.salamon@dmi.uns.ac.rs</u>

Research field and areas: administrative staff, Applied statistics

#### Pilot courses delivered



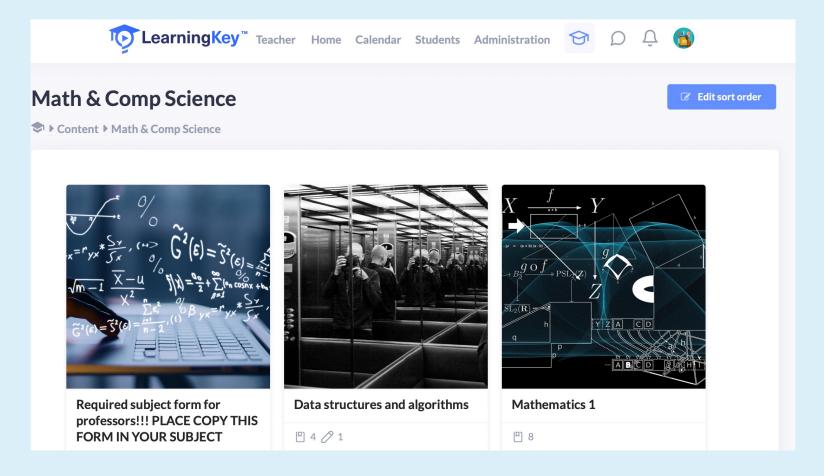








## LearningKey platform implemented











Ana Kaplarević-Mališić

## Platform for peer assessment

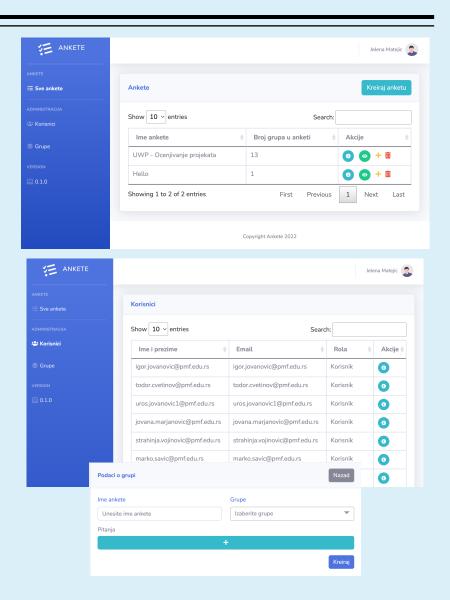


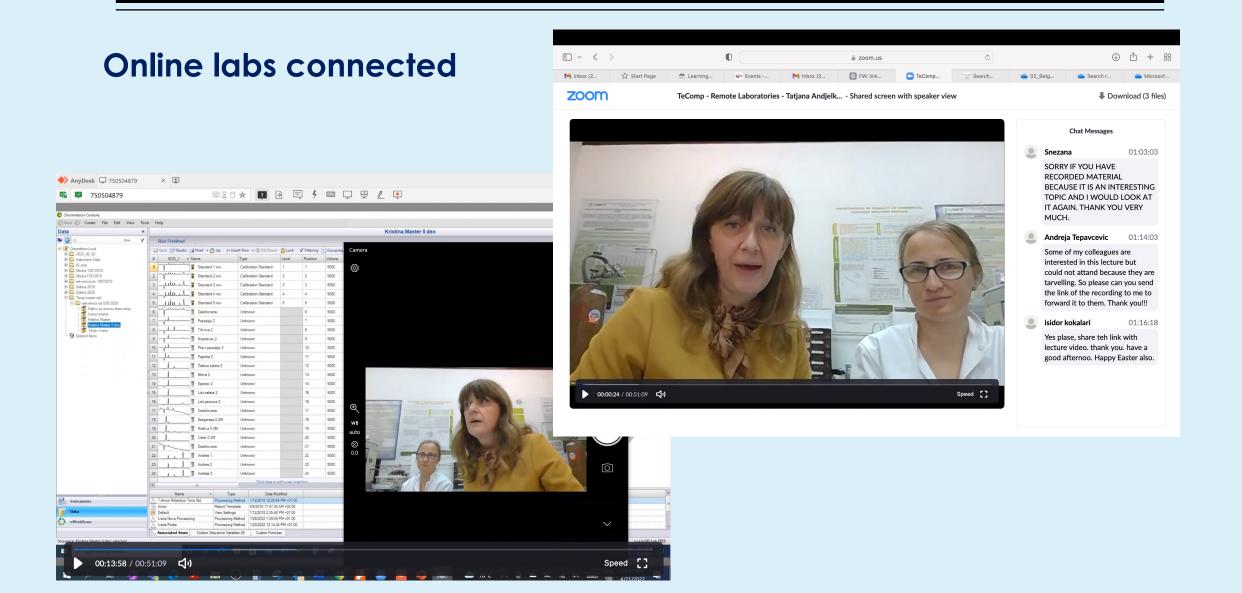


JELENA MATEJIĆ



**NEMANJA PETROVIĆ** 











Dr Lorenc Ekonomi, Full Professor Institution: University of Korça-Faculty of Nature and Human Sciences E-mail: lekonomi@unkorce.edu.al Research field and areas: Statistics, Probability, Mathematical Analysis





Msc. Ardian Cerava

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Research field and areas: IRO, Environmental Economics, Econometrics, Farm

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MSc. Silvja Çobani

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Research field and areas: Metric Spaces



## **Quality Assurance and Monitoring Board (QAMB)**

**Quality Assurance and Monitoring Board (QAMB) -** The team is a direct support to the Project Coordinator in monitoring and assessing the quality of the project and its results, as well as development of Quality Control and Monitoring Plan. Quality Assurance and Monitoring Board consists of the following members, coming from Partner Countries:

- 1. dr Zorana Jančić, University of Niš, Serbia
- 2. dr Aleksandar Nastić, University of Niš, Serbia
- 3. dr Nebojša Jasnić, University of Belgrade, Serbia
- 4. Prof. dr Zorana Lužanin, University of Novi Sad, Serbia
- 5. dr Slađana Dimitrijević, University of Kragujevac, Serbia
- 6. dr Romeo Mano, University Gjirokastra, Albania
- 7. Ardian Cerava, Fan S. Noli University Korçë, Albania























# Internal work quality standards and procedures Draft- adopted at LCT Belgrade, July 2019















Inter-project coaching organised

Ongoing project – "An inte education- inAmath"

Niš, March 2022 and Novi Sac

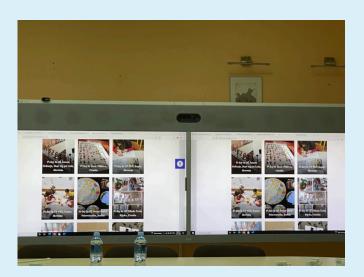






inAmath

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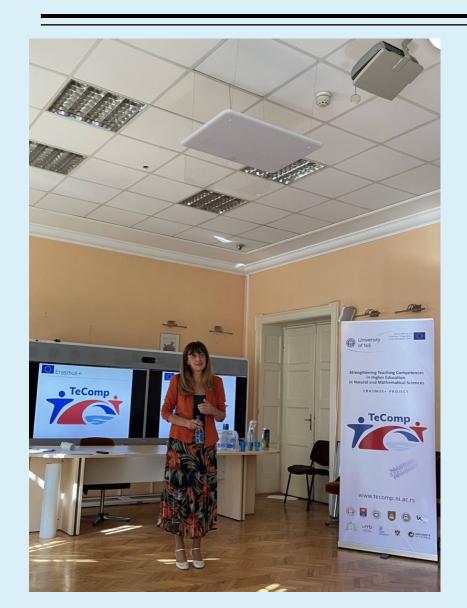


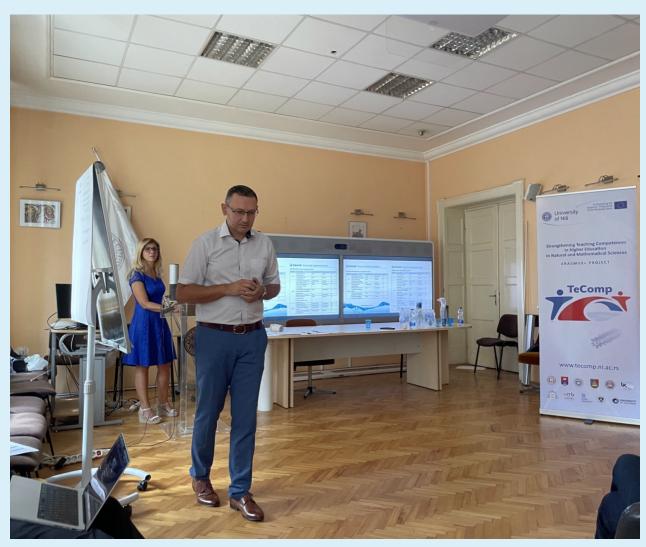


### Inter-project coaching organised

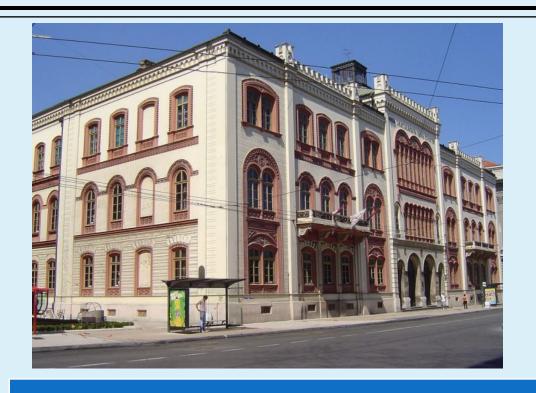
- Two successfully finished projects
- "ICT Networking for Overcoming Technical and Social Barriers in Instrumental Analytical Chemistry Education - NETCHEM"
- "Strengthening of master curricula in water resources management for the Western Balkans HEIs and stakeholders- SWARM"
  - Niš, September 2022













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Research field and areas: Physiology, Metabolism, Pharmacology,

Care and use of laboratory animals





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**Growth.Physics Education** 



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Mathematics and Computer Science, Operational Research



Dr Nebojsa Jasnic, Associate Professor

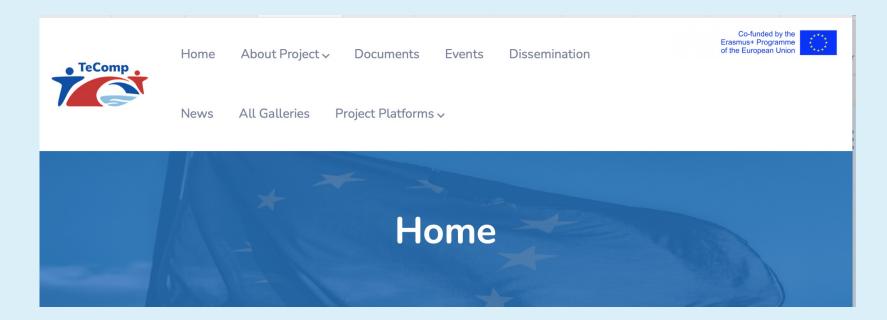
Institution: University of Belgrade-Faculty of Biology

E-mail: jasnicn@bio.bg.ac.rs

Research field and areas: Physiology, Endocrinology, Metabolism



Web site created and regularly updated <a href="https://www.tecomp.ni.ac.rs">www.tecomp.ni.ac.rs</a>





### Promo material distributed









#### Promo material distributed



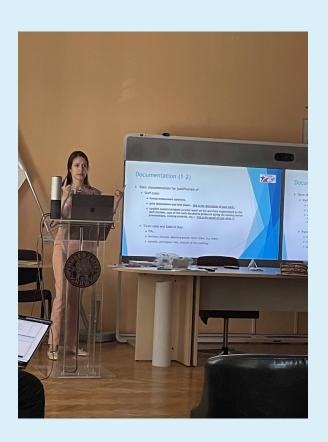






## Workshop in Niš, September 2022

#### Final Conference, October 2022











Workshop in Niš, September 2022

Final Conference, October 2022

https://drive.google.com/file/d/111MxjCftYOLYw5eCF5inq6SZ3Y5pe1jx/view









Co-funded by the Erasmus+ Programme of the European Union



October 9th -11th, 2022

University of Belgrade, Serbia rate building, Studentski trg 12-16, Belgrade, Serbia

Sunday, October 9th, 2022	
12:00	Gathering
12:15 - 13:30	Refinement of the activities performed by partners from Belgrade and Granada, Moderator Siniša Djurašević
13:30 - 14:30	Preparing the exhibition standt

Monday, October 10th, 2022		
09.30-10.00	Registration	
10.00:10:15	Welcome and official opening of the Final conference Rectorate of University of Belgrade	
10:15-10:30	Agenda overview - goal and expected outcomes of the meeting Siniša Đurašević, University of Belgrade	
10:30 - 10:55	The project's history and evolution - rationale, objectives, partnershi Jelena Ignjatović, University of Niš	
10:55 - 11:30	Coffee break, Group photo	
11:30-11:55	Preparation for strengthening teaching competences in the field of natural sciences and mathematics at the PC HEIs  Romeo Mano, Egrem Çabej University of Gjirokaster	
11:55 - 12:20	Upgrading educational infrastructure at the PC HEIs Sladana Dimitrijević, University of Kragujevac	
12:20 - 12:45	Professional development of teaching staff Jelena Matejić, University of Niš	
12:45 - 13:10	The formation of online learning environment Andreja Tepavčević, University of Novi Sad	
13:10 - 13:35	Quality assurance and monitoring Ardian Careva, Fan S. Noli University of Korce	
13:35 - 14:30	Lunch break	
14:30 - 14:55	Dissemination and exploitation Nebojša Jasnić (Siniša Djurašević), University of Belgrade	
14:55 - 15:20	Management of the project Jelena Ignjatović, University of Niš	





## CENTER FOR PROFESSIONAL DEVELOPMENT

The Center for Professional Development was established at the Faculty of Science and Mathematics, Nis, Serbia, on 12.02.2019.

The work of the Center is conditioned by the need to create an organisational presumption for the performance of Life Long Learning education.

The Center for Professional Development performs the following activities:

- development and implementation of trainings, Continuous Professional Development courses and modules, issuing certificates of completed training for the participants;
- organization of seminars and conferences dedicated to promoting the activities of the center and attracting new students;
- preparation and organization of workshops, courses and training for students and staff from faculties, universities, enterprises, etc.;
- coordination of cooperation with foreign universities within international projects in the field of Life Long Learning education;
- organization of training for acquiring competences from pedagogical, psychological and methodical disciplines, according to accredited programs;
- accreditation of Continuous Professional Development courses.



Faculty of Science and Mathematics, Nis, Serbia





#### Rulebook on CPD of teaching staff



Tatjana Andjelković

23.08.2022.

ПРЕДМЕТ: Предлог измена и допуна Правилника о раду и организацији Центра за професионално усавршавање

1. У члану 3., став 3, додати после В:

Г. Програм образовања високошколских наставника у области методике и педагогије високошколске наставе

- 2. Ставку под Г., променити у ставку под Д.
- 3. После члана 4, убацити члан 5, и извршити ренумерацију чланова који следе:

Право пријављивања за стицање образовања високошколских наставника у области методике и педагогије високошколске наставе имају сва заинтересована лица запослена на високошколским институцијама која имају потребе за стицањем нових вештина, знања и компетенција у области реализације високошколске наставе.

Приликом организовања обуке из става 1., овог члана, Факултет упућује и позив високошколским инситуцијама које су биле партнери пројекта Erasmus+ TeComp (Project No. 598434-EPP-1-2018-1-RS-EPPKA2-CBHE-JP) када обезбеђује on-line учешће ових иностраних учесника. У случају организације обуке са иностраним партнерима, званични језик обуке је енглески.

4. Члан 7 да гласи:

Делокруг рада Програмског савета је:

- утврђује предлог стратегијског плана Центра.
- утврћује предлог годишњег програма рада и план активности Центра.
- утврђује предлог финансијског плана Центра.
- подноси годишње извештаје Наставно-научном већу о свом раду,
- утврђује предлог програма обуке,





Aleksandar Bojić





#### The strategy for IQ of T&L developed









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#### DISSEMINATION OF THE PROJECT RESULTS

https://drive.google.com/open?id=10GBDBaaCra\_V5\_lmyK0enyjeqklm\_qyp&authuser=jekaignjatovic73%40gmail.com&usp=drive\_fs