



REPORT ON THE ACTIVITY 2.4
Guidelines for the technological
enhancement of teaching and learning
OF THEWORK PACKAGE 2
Upgrading educational infrastructure at the
PC HEIs



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

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





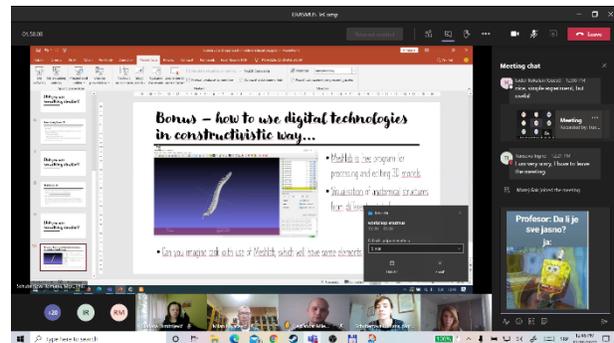
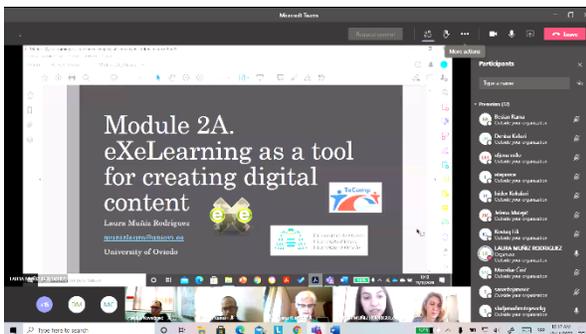
Project acronym:	TeComp
Project full title:	Strengthening Teaching Competences in Higher Education in Natural and Mathematical Sciences
Project No:	598434-EPP-1-2018-1-RS-EPPKA2-CBHE-JP
Number of grant contracts	2018-2467/001-001
Web address of project	www.tecomp.ni.ac.rs
Funding Scheme:	Erasmus+
Coordinator Institution:	University of Niš
Coordinator:	Prof. dr. Jelena Ignjatović
Project duration:	15.11.2018. – 14.11.2022.
Work package:	WP2 – Upgrading educational infrastructure at the PC HEIs
Lead organization of WP4:	P4 – UNIKG
Version of the document:	v.03
Status:	Final
Dissemination level:	Internal

Aim of Task 2.4 activity was preparation of guidelines and instructions for wider integration of ICT in teaching and learning.

Work on task 2.4 was organized simultaneously with work on task 2.2, because of many similarities and it is natural that those tasks complement each other. Task brainstorming and collecting ideas started during visits of partners in EU in year 2019 and then continued during webinars organized by partners from UNIOVI and UMB in December 2020.



Figures 1-2. Photos of the visit to University of Oviedo, Spain



Figures 3-4. Photos of the webinars prepared by University of Oviedo, Spain, and Matej Bel University in Banská Bystrica, Slovakia

After those trainings partners from Serbia begun to work intensively on preparation of the guidelines for the technological enhancement of teaching and learning.

The same Editorial board, as for task 2.4, was entrusted with the management of the process of collecting and reviewing teaching materials, as well as the selection of materials for printing and the design of volumes.



Draft versions of teaching and learning materials, each of them in Serbian and in English, were collected till LCM in Kragujevac in June 2021. At that meeting Editorial board defined review process and schedule of activities. During the summer 2021 review process was ended. Reviewers for individual themes were TeComp team members from UB, UNS, UNI, UNIKG. There were involved 1 male and 5 females:

1. Goran Radojev,
2. Jelena Ignjatović,
3. Andreja Tepavčević,
4. Slađana Dimitrijević,
5. Ivana Radojević,
6. Andrijana Zekić.

Reviewers for hole volume were 1 male and 1 female TeComp team member from UNIOVI (Luis J. Rodríguez Muñiz) and UO (Petra Murinova).

Kriterijum	ocena
Adekvatnost naslova	
Jasnoća pisanja	
Čitljivost	
Ispravnost i prikladnost strukture	
Popularnost teme	
Doprinos razvoju nastavničkih kompetencija	
Primenjivost sadržaja	
Zanimljivost sadržaja	
Materijal sadrži značajan broj korisnih primera.	

Naziv materijala:
 Ime recenzenta:
 Ocena prema kriterijumima
 Molimo upišite ocenu: 5 - odlično / 4 - dobro / 3 - prosečno / 2 – ispod proseka / 1 – slabo

Pozitivne strane materijala.
 Negativne strane materijala i preporuke za otklanjanje.
 Da li materijal predstavlja dobru i jasnu osnovu za obuku i sticanje nastavničkih kompetencija?

Title of the material: Strengthening teacher competencies. DIGITAL COMPETENCES
Reviewer name: Luis J. Rodriguez Muñiz
Evaluation according to the following criteria
 Please enter a rating: 5 - excellent/ 4 - good / 3 - average / 2 – under average/ 1 – poorly

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

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

Negative sides of the material and recommendations for their elimination.
 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?
 I think so. Materials are clear, exhaustive and constitute a helpful tool for novel teachers to get introduced into digital tools and skills for teaching.

Figures 5-6. Review form and Review of Volume **STRENGTHENING TEACHER COMPETENCES - DIGITAL COMPETENCES**

Publishing process was the same as for task 2.2 and, at the end of year 2021, it resulted with the volume **STRENGTHENING TEACHER COMPETENCES - DIGITAL COMPETENCES** (in Serbian



and in English). There are 7 themes (146 pages), written by 10 authors (3 males and 7 females) from 4 universities (UNI, UNS, UB, UNIKG):

1. Jelena Ignjatović: **Creating interactive teaching materials,**
2. Slađana Dimitrijević, Ana Kaplarević Mališić: **Blended learning with special reference to the Flipped classroom,**
3. Nebojša Jasnić, Siniša Đurašević: **Modernization of teaching and learning biology,**
4. Tatjana Anđelković, Ivana Kostić: **Remote access to analytical instruments in chemistry higher education – From idea to realization,**
5. Goran Radojev: **Visualization problems using GeoGebra and Wolfram Mathematica,**
6. Đurđica Takači: **Mathematics contents in dynamic geometry environment**
7. Sana Stojanović Đurđević: **Theorem prover Isabelle in the teaching of natural and mathematical sciences.**



Figures 7-8. Cover pages in Serbian and English version of Volume **STRENGTHENING TEACHER COMPETENCES - DIGITAL COMPETENCES**

During the spring 2022 partners from Albania, translated it in Albanian. 4 staff members (Lorenc Ekonomi, Denisa Kafazi, Msc. Silvja Çobani, Ardian Çërava) from Fan S. Noli University Korce were involved in translating the materials.

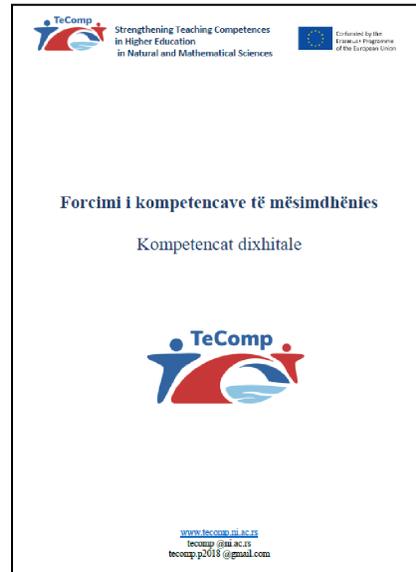


Figure 68. Cover page in Albanian version of Volume **STRENGTHENING TEACHER COMPETENCES** - DIGITAL COMPETENCES

A lot of additional training materials in the form of PowerPoint presentations were created by the instructors during the related activities within WP3.

SUMMARY FOR TASK 2.4

Title	Universities equipped with technology-enhanced learning spaces	
Type	<input checked="" type="checkbox"/> Teaching material <input checked="" type="checkbox"/> Learning material <input checked="" type="checkbox"/> Training material	<input type="checkbox"/> Event <input type="checkbox"/> Report <input type="checkbox"/> Service/Product
Achieved goals	Guidelines and instructions for wider integration of ICT in teaching and learning were given in the booklet for digital teacher competences. They were used for the trainings organized within WP3.	
Conclusion	Aims are completely achieved.	
Sustainability	Prepared material stays available to the teaching staff and presents a good base for their further professional development.	



WORK PACKAGE 2 – CONCLUSION REMARKS

All the TeComp team partners worked together to achieve expected deliverable/results/outcomes. Cooperation was constructive and intensive. Having in made analyses from WP1 and plans for WP3, all four activities (2.1, 2.2, 2.3, and 2.4) are planned, organized, and successfully completed. It can be concluded that the educational infrastructure at the PC HEIs was upgraded according to the plans and further development is enabled.