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ChemTeach REPORT

EDUCATIONAL COURSE FOR HIGH SCHOOL TEACHERS IN BANJA LUKA

Faculty of Natural Sciences and Mathematics, University of Banja Luka, Banja Luka, Bosnia and Herzegovina

Banja Luka, March 25–29, 2024

ChemTeach REPORT

Educational course for B&H high school teachers in Banja Luka

Faculty of Natural Sciences and Mathematics, University of Banja Luka

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WP2: DEFINITION OF NEEDS

Activitiy: Educational course for B&H high school teachers in Banja Luka

Report prepared by: Gimnazija Banja Luka

Erasmus+ Project

Improvement the quality of chemistry teaching in VET in Bosnia and Herzegovina

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CONTENT

INTRODUCTION

The Educational course for B&H high school teachers in Banja Luka, a key activity of the ChemTeach project (Improvement the quality of chemistry teaching in VET in Bosnia and Herzegovina, Project No. 101129417) , was successfully held at the Faculty of Natural Sciences and Mathematics in Banja Luka, Bosnia and Herzegovina, from March 25th to 29th, 2024.

The conference's core focus was a thorough needs assessment of schools, the labor market, and teachers through workshops and discussions. The project aims to improve chemistry teaching by educating VET teachers, preparing materials using everyday life examples and low-budget "green experiments," and promoting chemistry to talented students.

Monday, March 25,2024 (Day 1)

The first day was dedicated to the formal opening and the critical Needs assessment of schools and labour market.

- Session I - Presentation of the ChemTeach Project: The day began with registration, introductory speeches from the Faculty of Natural Sciences and Mathematics, UNIBL, and a presentation of the ChemTeach project by Prof. Dr. Ivan Špank, the project coordinator. Prof. Dr. Milica Balaban discussed the role of the University of Banja Luka, followed by presentations from representatives of the partner schools (MedSBL, GIMNBL, TSBL) on their role in the project.
- Session II - Needs Assessment with Business Representatives: The key session was a discussion with business representatives (including the Public Health Institute of the Republic of Srpska, Vodovod Banja Luka, and Colorit). This discussion highlighted the lack of chemical technicians and the necessity for the standardization of qualifications and occupations in the sector. The day concluded with closing remarks and a lunch.

Tuesday, March 26,2024 (Day 2)

Day 2 shifted focus to the Needs assessment of school teachers, specifically addressing the Modern curriculum.

- Session III - Needs Assessment of School Teachers – Modern Curriculum: The session, led by Prof. Dr. Milica Balaban, included a presentation on the elements of a modern curriculum.
- Workshop and Discussion: Participants engaged in a workshop on Curriculum analysis, working in teams mentored by UNIBL staff. The discussions revealed that the current curriculum has numerous flaws, particularly that learning outcomes are not well-defined and that more attention must be directed toward the fundamental concept of learning and teaching.

Wednesday, March 27,2024 (Day 3)

Day 3 focused on practical teaching methodologies, specifically laboratory experiments.

- Session IV - Teaching using laboratory experiments: Prof. Dr. Saša Zeljković delivered a presentation on Experiments in chemistry teaching.
- Workshop: Teaching in the ChemLab: The practical component involved a workshop where teams, mentored by UNIBL, worked to propose laboratory groups from specific areas. A key takeaway was the emphasis on the possibility of performing exercises using chemicals from everyday life.

Thursday, March 28,2024 (Day 4)

The fourth day concentrated on the integration of digital skills into chemistry teaching.

- Session V - Digital skills in chemistry teaching: Prof. Dr. Saša Zeljković led the session with a presentation on Digital skills in chemistry teaching.
- Workshop: Open digital tools for teaching chemistry: The workshop provided practical exposure to available digital tools, with teachers working in teams under UNIBL mentorship. The day concluded with further discussion with teachers and the distribution of surveys.

Friday, March 29,2024 (Day 5)

The final day focused on an academic visit and concluding the conference.

- Session VI - Faculty and Labs visit: Professors from UNIBL provided a tour of the Faculty, showcasing the laboratories, devices, and accessories they work with.
- Closing Remarks: The conference concluded with a final session to formalize the conclusions of the conference.

COMPETENCES GAINED AND KEY INSIGHTS

The educational course successfully achieved its goal of professional development and needs assessment, resulting in competencies and insights across three key areas:

1. Curriculum Insights and Pedagogical Skills:

- Modern Curriculum Analysis: Ability to recognize and articulate flaws in the existing curriculum, such as poorly defined outcomes.
- Active Pedagogy: Understanding the need to shift from traditional frontal teaching to more active, student-centered methodologies.

2. Digital and Laboratory Methodologies:

- Digital Literacy and Tools: Knowledge of open digital tools and multimedia for creating engaging lessons.
- Low-Budget Experiments: Practical knowledge of conducting experiments using chemicals from everyday life.
- Innovative Experiment Integration: Adopting the practice of integrating experiments into lesson introductions, rather than solely after theoretical explanations.

3. Industry Connection Competencies:

- Curriculum Alignment: Understanding the urgent need to align educational programs with labor market demands.
- Standardization Needs: Recognizing the challenge of inconsistent regulations and the necessity of creating a standard of qualifications and a standard of occupation for chemical technicians.

- Lifelong Learning Advocacy: Emphasizing the value of lifelong learning and using internships in the industry to bridge the school-to-work gap.

CONCLUSION

The Educational course was a significant success in uniting educators and business leaders to confront the challenges in chemistry teaching. It clearly highlighted the demand for curriculum modernization, digitalization of teaching, and the introduction of more practical work to bridge the gap between educational outcomes and labor market needs. This positive experience confirms the value of such events for continuous professional development.

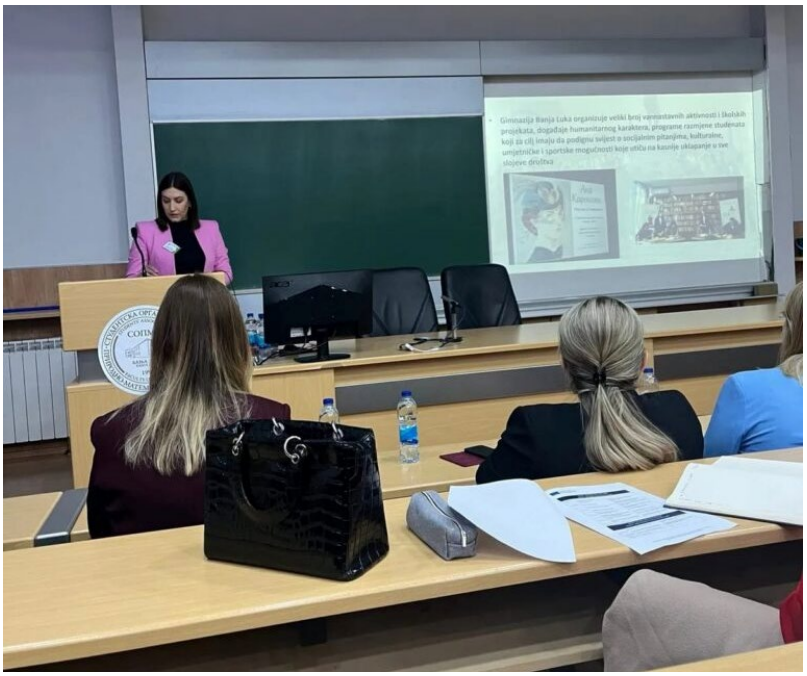

Figure 1. Presentation of schools

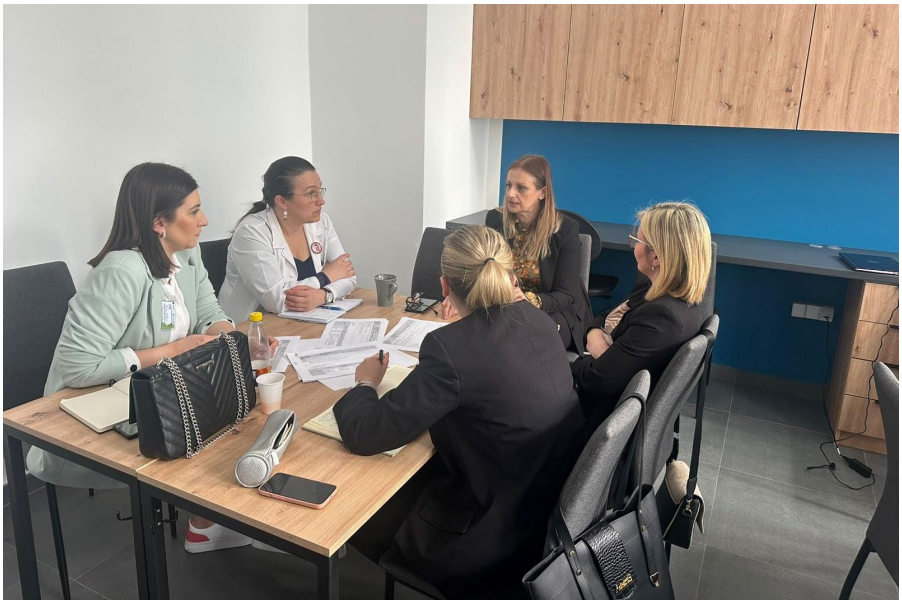

Figure 2. Modern Curriculum Analysis

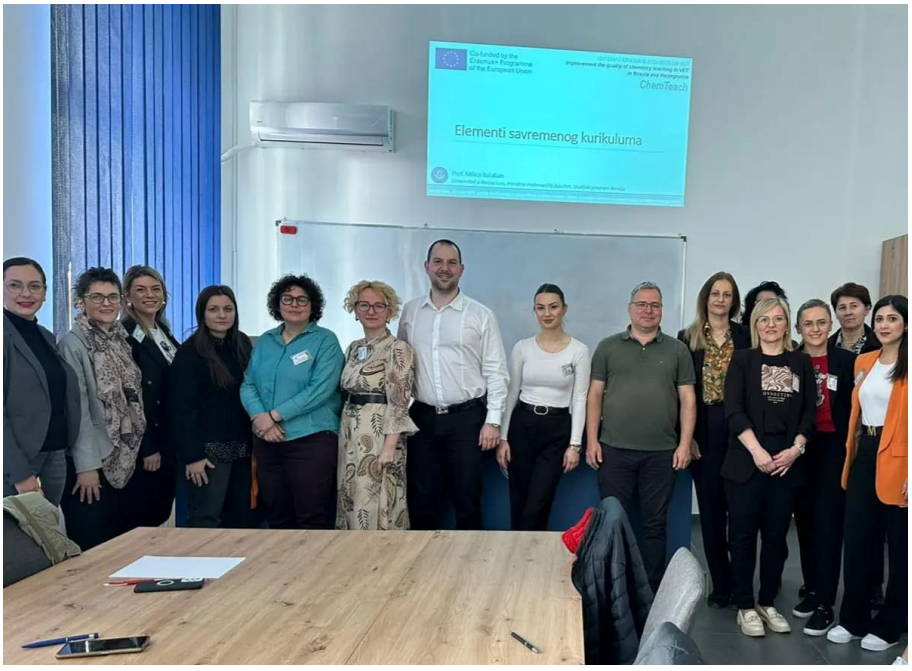

Figure 3. Discussion with participants of ChemTeach Project