

(Table 5.2) Course unit description

<b>Study program:</b> Mathematics
<b>Type and level of studies:</b> Undergraduate academic studies
<b>Course unit:</b> Innovations in Mathematics Teaching
<b>Teacher in charge:</b> Aleksandar Milenković, Assistant Professor
<b>Language of instruction:</b> English
<b>ECTS:</b> 6
<b>Prerequisites:</b>
<b>Semester:</b> Summer semester
<p><b>Course unit objective</b></p> <p>Acquisition of knowledge about mathematics as a teaching subject in the context of modern school practice. Deepening knowledge of mathematics teaching methodology with an emphasis on modern teaching methods and forms of work, contemporary teaching tools, and the purposeful integration of information technology. A detailed introduction to the topics covered in mathematics education at the pre-university level and the potential different approaches to implementing teaching, along with a critical reflection on these topics.</p>
<p><b>Learning outcomes of Course unit</b></p> <p>The student has acquired knowledge of the content and teaching methods in modern mathematics education at the primary and secondary school levels. Based on this, as a mathematics teacher, they can successfully prepare a math lesson tailored to the set objectives, select appropriate forms of work and suitable teaching tools, as well as correctly assess and motivate students in mathematics, thereby achieving the desired learning outcomes.</p>
<p><b>Course unit contents</b></p> <p>Familiarization with modern teaching methods (active learning, problem-based learning, project-based learning, heuristic teaching, cooperative learning, STEM education, blended learning, distance learning), all of which emphasize student activities while shifting the teacher's role into that of an organizer and moderator of activities. Application of these methods in mathematics teaching, noting their advantages and disadvantages. Integration of information technologies to enhance teaching, both for content delivery and for evaluating student knowledge, as well as the entire teaching process.</p> <p>Methodological development of selected topics from primary and secondary school mathematics instruction, with an emphasis on examples of good practices.</p> <p>Selection and implementation of a project where students (in small groups) will present a chosen mathematics teaching topic using different modern teaching methods. The expected outcome of the project is teaching plans for the chosen topic with specific teaching materials, which typically include an advanced level of technology use. Evaluation of the completed projects, with discussion and critical reflection from all course participants (instructor and students).</p>
<p><b>Literature</b></p> <ul style="list-style-type: none"> <li>• H. Goldstein, STEM Project-Based Learning, Assessment in Education, Sense Publishers, Rotherdam, 2013 2.</li> <li>• Z. Kukrik, Problemska nastava, Matematika i škola 15 (2002), 196-202 3.</li> <li>• J. Manninen, Blended Learning: Research Perspectives, Volume 2, Springer, 2014 4.</li> <li>• A. Stoica, Using Math Projects in Teaching and Learning, Social and Behavioral Sciences 180 (2015), 702-708 7.</li> <li>• N. Telegina, S. Drovosekov, D. Vasbieva, V. Zakharova, The Use of Project Activity in Teaching Mathematics, EURASIA Journal of Mathematics, Science and Technology Education, 15 (2019)</li> </ul>

<b>Number of active teaching hours</b>				Other classes:
Lectures: 60	Practice:	Other forms of classes: 15	Independent work:	
<b>Teaching methods</b> Theoretical teaching, project-based learning, independent student work, consultations				
<b>Examination methods (maximum 100 points)</b>				
<b>Exam prerequisites</b>	<b>No. of points</b>	<b>Final exam</b>	<b>No. of points</b>	
Practical classes	4	Written examination		
Tests		Oral examination	30	
Homework		Other		
Seminars	30			
Project	36			
<b>Grading system</b>				
<b>Grade</b>	<b>No. of points</b>	<b>Description</b>		
10	>= 91	Excellent		
9	81-90	Exceptionally good		
8	71-80	Very good		
7	61-70	Good		
6	51-60	Passing		
5	<=50	Failing		