



3rd workshop – Games and tools for programming

Session 4: Implementing Computational Thinking with Game-Based Learning

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Expected Learning Outcomes

1. Recognize the elements and process of computational thinking.
2. Use competitive and collaborative games with elements of coding in their classroom

Teaching Methods/Approaches

1. Teacher presentation and instructions
2. Participant self-directed/individual activity
3. Peer Evaluation and collaboration
4. Group Activity

Sources of training materials

1. Computational Thinking: <https://code.org/curriculum/course3/1/Teacher> (4.1.2019.)
2. micro:bit ideje: <https://microbit.org/hr/ideas/> (4.1.2019.)
3. BBC micro:bit edukacijski materijali: <http://izradi.croatianmakers.hr/bbc-microbit-uvodna-stranica/> (4.1.2019.)

Duration: 180 minutes



Topic/Sub-topics	Learning Objectives	Evaluation
1. HOW TO INTRODUCE PROGRAMMING IN YOUR CLASSROOM FROM TEACHER PERSPECTIVE	<i>Participants will understand the elements and the process of computational thinking</i>	1. Learners explore and analyze applications of computational thinking within the class in order to point out benefits of introduction of computational thinking (work in small teams).
1.1 Introduction for cycles for learning how to code with focus on computational thinking	1. Identify the concepts of decomposition, pattern making, abstraction, algorithm, cooperative and competitive learning approach.	
1.2 Video Presentation and discussion of game based learning tool	2. Understand the role of games in development of computational thinking; introducing way to incorporate technology and digital tools in engaged way.	
1.3 Introduction of micro:bit as tool (basic concepts, how to it differs from Scratch)	3. Explore the functionalities and features of micro:bit, Introduction to micro:bit development environment, Introduction to basic event driven programming.	
2. HOW TO APPLY CRITICAL THINKING USING MICRO:BIT IN DIFFERENT SCHOOL SUBJECTS	<i>Participants will be able to introduce competitive and collaborative games with elements of coding in their classroom</i>	2. Learners explore and analyze examples of micro:bit projects and explore possibility to apply them in their classes by active participation of the students in the class (work in small teams).
2.1 Demonstration of using simple micro:bit application for different school subjects	1. Exploring existing application suitable for different classes; Introduction to project based learning using micro:bit.	
2.2 Developing and adopting micro:bit application for different school subjects	2. Learning how to understand and alter micro:bit code in order to better match learning outcome .	