



## Syllabus

Syllabus is prepared for blended learning e-course which consists of:

- f2f part - three two-day workshops of a total of 48 hours
- online period for mentoring that follows up each workshop

Language: English (presentations and materials partly translated for teachers into Croatian)

### Part I – Information about GLAT e-course

#### 1. Overall goals for GLAT e-course

- Participants will learn about innovative teaching methodologies in the ICT area such as PBL, IBL, GBL, teamwork.
- Participants will learn how to use digital didactic games (serious games) in different school subjects for encouraging algorithmic thinking, problem-solving skills, logic and creativity of their students.
- Participants will design and implement learning scenario, a document in which the teacher develops innovative ideas to carry out educational activities by means of modern teaching methods with the use of appropriate digital content and tools, in order to carry out educational activities by means of encouraging algorithmic thinking.

#### 2. Target group of participants

- Focus group of about 20 primary grade school teachers

#### 3. Required background knowledge

- Basics ICT skills
- No prior knowledge of programming is required

#### 4. Duration of the course

- 12 months

#### 5. Main learning outcomes

Participants will be able to:

- Describe principles of Game Based Learning
- Create learning scenarios in order to develop innovative ideas for carrying out unplugged activities
- Use Web 2.0 tools for creating content for unplugged activities, e.g. posters, leaflets...
- Apply digital didactic games into different school subjects
- Describe principles of Problem Based Learning and teamwork
- Create learning scenarios in order to develop innovative ideas for carrying out logical tasks and online quizzes
- Use Web 2.0 tools for creating logical tasks and online quizzes
- Describe principles of Inquiry Based Learning
- Understand basic concepts of programming

- Use simple game-based tools for learning programming
- Create learning scenarios in order to develop innovative ideas for applying programming concepts through game-based tools

## 6. Learning strategy

- The blended model of e-learning that combines f2f and online teaching methods (asynchronous content delivery methods, guided design, forums and discussion boards).
- All teaching methods will encourage individual activities, group activities, whole-group discussions.

## 7. Learning environment

- For the purpose of the course, a Moodle e-course “[Games for Learning Algorithmic Thinking](#)” is established in Moodle MoD LMS.
- All learning materials from the workshops’ f2f parts will be available on the learning platform as well as other necessary information and materials needed for the realization of the course.

## 8. Evaluation

- Completed versions of all the learning scenarios will be reviewed and implemented in the classrooms by the participants.
- Participants’ satisfaction with the education will be measured by the questionnaire and interviews that will give suggestions for the improvement of the syllabus.

# Part II – Learning outcomes and topics for f2f workshops

## 1<sup>st</sup> workshop – GBL and unplugged activities

### Dates

- Two days in a week from 3<sup>th</sup> of April 2018

### Learning outcomes

- Describe principles of Game Based Learning
- Create learning scenarios in order to develop innovative ideas for carrying out unplugged activities
- Use Web 2.0 tools for creating content for unplugged activities, e.g. posters, leaflet

### Topics

- GBL with examples of games in different school subjects
- Designing learning scenarios in written and graphical form ([LePlanner](#))
- Web 2.0 tools for multimedia content creation (e.g. for posters, leaflets)

### Practical part

- Exploring existing games
  - Creating examples of unplugged activities for different school subjects, providing propaedeutic for algorithms and programming.
- Developing the first version of the 1st learning scenario for an unplugged activity

### Partners involved

- TU, UL, SWU, UF + UNIRI

## 2<sup>nd</sup> workshop – PBL, online quizzes and logical tasks

### Dates

- Two days in a week from 27<sup>th</sup> of August, 2018.

### Learning outcomes

- Describe principles of Problem Based Learning and teamwork
- Create learning scenarios in order to develop innovative ideas for carrying out logical tasks and online quizzes
- Use Web 2.0 tools for creating logical tasks and online quizzes
- Apply digital didactic games into different school subjects
- ...

### Topics

- Problem based learning (PBL) with examples in different school subjects
- Teamwork
- Digital literacy (UKIM)
  - Digital content creation (general concepts)
  - Utilization of the digital tools within the process of problem solving
  - Online quizzes and logical tasks

### Practical part

- Exploring existing games
  - How to match games with learning outcomes
  - How to include games in the lessons
  - Evaluation of existing games - serious games evaluation framework
- Developing the first version of the 2nd learning scenario

### Partners involved

- TU, SWU, UKIM, UF + UNIRI

## 3rd Workshop - Games and Tools for Programming

### Dates

- Two days in a week from 7<sup>th</sup> of January, 2019

### Learning outcomes

- Describe principles of Inquiry Based Learning
- Understand basic concepts of programming
- Understand and use of activities for basic programming concepts
  - Use of unplugged activities (e.g. playing board games – “Robot Turtles”, moving objects on 2D grid, etc.)
  - Use of didactic computer games (e. g. “Running Marco”)
  - Use of “Scotto go” as a game tool for programming thinking learning
- Create unplugged activities
- Create simple programs (e.g. with “ScratchJr”)
  - Using “Micro:bit” to create educational topics for “AThinking”

- Develop interactive programs, taking inputs from sensors and controlling physical outputs such as light (e.g. with “Sphero SPRK+”)
- Use simple game-based tools for learning programming
- Create learning scenarios in order to develop innovative ideas for applying programming concepts through game-based tools
- ...

### Topics

- Inquiry based learning (IBL)
- Basic programming concepts (algorithms, sequence of instructions, conditional sentence, loop, variable)
- Game and tools for Programming
  - Practical case studies

### Practical part

- Exploring existing games
- Playing “Robot turtles” and/or other board games and activities
- Exploring “ScratchJr” (task cards, creating simple code)
- Exploring physical computing with “ Sphero SPRK+”
- Developing first version of the 3rd learning scenario

### Partners involved

- UKIM, SWU, UL, UF + UNIRI