SCENARIO		
Title	**LegoMindstroms robot programming**	
Summery	Students will be introduced to the definition of robotics, artificial intelligence, the possibilities of using robots in industry and in everyday life.	
Author/s	Edyta Michaluk Justyna Fidrocka	Date: 14/11/2019

Didactic objectives
General objectives: - learning the basic principles of programming LegoMindstroms robots **Detailed objectives:** - the ability to build robots - improving the ability to use instructions - ability to use LegoMindstroms set elements and software - shaping imagination and creative thinking
Physics☐ Mathematics☐ Information Technology☒ Robotics☒ Programming☐
Education Level: 10-12 years☒ 12-14 years☐
Problem Statement
How to build robots? How to configure the robot to work with a computer? How to program the robot to move, respond to touch, move?
BOM (Bill Of Materials needed)
- computer station for a group of students (3-4 people) - multimedia board with a projector for presentation - Internet access - sets of LegoMindtroms blocks for a group of students (3-4 people) - robot software (EV3)
Activity description
The scenario is planned for 4 lessons. **Course of classes:** 1. Organization in the classroom. Division of students into groups. 2. Analysis of the construction instructions of the TRACK3R robot.. 3. Selecting the necessary elements from the kits that will be used to build the robot. 4. Students in groups construct robots according to the instructions. In case of problems, they can count on the teacher's help. 5. Attempts to program the robot with a cube. Testing the capabilities of the TRACK3R robot.

6. Configuration of the set to work with a computer. EV3 software or extension in Scratch.
7. Programming the robot on the computer in accordance with the instructions - first movements, reaction to touch, movement.
8. Checking the program.
9. Correction of irregularities and errors.
10. Summary of the classes. Analysis of new skills. Self-evaluation of students.

Resources

Building instructions for the first TRACK3R robot from www.lego.com

Students' Evaluation

Evaluation tools:

- observation of students' work and their activities,
- observation work in groups,
- students' self-assessment - what I have learned, what I can, what I would like to know, what algorithm I can create.- wykonalność programu.

Bibliography

https://www.lego.com/cdn/cs/set/assets/blt5703aa5eb10dfc68/31313_TRACK3R_2016.pdf
https://www.lego.com/pl-pl/themes/mindstorms/learntoprogram
https://www.youtube.com/watch?v=ZbswbF7zckg
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W. Rychlicki, LegoMindstroms EV3 Programowanie robotów, wyd. Helion

Scalability

Students who are more advanced in robotics and LegoMinstroms can build their own robots and create their algorithms.

More information

Scenario was created as part of the project "InnoExperiment - Innovative Approach to Teaching through Experiment" carried out under Key Action 2. Erasmus +. The scenario will be made available on the project platform.