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INTERACTIVE LESSON WITH USING OF A ROBOTIC COMPLEX

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Анотація

У роботі визначено актуальність та представлено приклад використання робототехнічного комплексу LEGO Mindstorms NXT2.0 під час вивчення дисципліни: «обчислювальна техніка та програмування».

Ключові слова: інтерактивні технології, інновації, робототехнічний комплекс, програмування.

Abstract

The paper identifies the relevance and presents an example of the use of robotic complex LEGO Mindstorms NXT2.0 during the study of the discipline: "computer engineering and programming".

Key words: interactive technologies, innovations, robotic complex, programming.

Using of modern computer systems, modern robotics devices during training is an important part of the training of qualified specialists. One of the multifunctional robotic complexes is the LEGO Mindstorms NXT2.0. This complex is one of the most modern and affordable programmable robots. The program of the discipline "Computer Engineering and Programming" studies the structure of computers and basic programming skills.

The purpose of my work is to develop an interactive lesson using the robotic complex (RC) LEGO Mindstorms NXT2.0 [1].

An important component of the introduction and application of interactive technologies is the teacher's ability to apply them based on the skills, knowledge, nature of the audience [2]

The educational purpose of the lesson is to study the structure and principle of operation of the main hardware components of RC, the study of programming methods and the ability to program RC. The developmental purpose of the lesson is the development of observation and analytical thinking in students, the ability to work in a team, the formation of the ability to draw conclusions.

To assess students' own theoretical knowledge, tests developed on the relevant topic of the lesson can be used, such as:

- acquaintance with the main components of the LEGO Mindstorms NXT 2.0 designer;
- means for the robot to obtain information from the outside world;
- NXT-G language capabilities, basic functions and operations in NXT-G language.

A competition among students will be held to assess the practical application of theoretical knowledge. To do this, the group is divided into 4 subgroups. The practical task is as follows. Students need to program the RC in such a way that it performs all actions on the test site according to the instructions provided by the teacher. The winner will be the subgroup that will show intelligence, concentration during the competition and program RC so that it performs as accurately as possible the operations specified in the instructions. The assessment of student knowledge will consist of two assessments, for a theoretical task and a practical task.

The use of RC will lead to greater involvement and interest of students in the study of theoretical and practical knowledge of the discipline. Because gaining practical programming skills and teamwork skills is used today in many engineering professions.

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