Learning practical skills through hands-on experience in robotic and drone technologies

Implemented by:
LEPL College "Iberia"

Where:
Georgia

Status:
Launched in November 2020

Summary:
Students are supported to develop problem-solving and competitive skills and to embrace technological opportunities achieved through the creation of robots and drone technologies.

Overview

LEPL College "Iberia" was founded in 2006 and offers various educational programmes in multiple fields such as business and administration, engineering, information and communication technologies, manufacturing and processing, personal services and agriculture. The College provides qualification programmes and implements state programmes for vocational training, retraining for future employees and professional skills development programmes for schoolchildren.

Description

The intelligent greenhouse

The system is designed to incorporate cutting-edge technologies to create an optimal growing environment. This system allows for precise control over three key factors: soil moisture, air temperature and air humidity. By leveraging the power of the Arduino platform, this innovative system can detect when a plant requires watering and when heating or cooling is necessary to promote healthy growth and maximize yield. The plants receive the best care possible thanks to the Intelligent Greenhouse System.

The agronomical drone

The agronomical drone was created at the Innovative Technologies Lab, known as Fablab, an "Iberia" college department. Its primary purpose is to conduct remote inspections of vast agricultural areas and effectively eliminate pesticides.

Innovation through the creation of robots

A student camp entitled "Professional Education as the Best Space for Technological Innovations" was organized in partnership with the National Centre for the Professional Development of Teachers, the Ministry of Education and Culture of the Autonomous Republic of Abkhazia, and the Vocational Education School "Iberia". The Professional Skills Agency provided financial support for the camp which aimed to provide hybrid-format training on artificial intelligence while fostering innovation through the creation of robots. At the project's closing event, participants presented their robots to guests in attendance.

Objectives

The initiative aimed to provide vocational students with hands-on experience and knowledge in drone technology. The project enabled the students to develop their critical thinking skills and learn how to equip drones with various modules and sensors. They were also taught how to manage the drones through software codes in an autonomous mode. The participation of 40 vocational students from public schools in Abkhazia and 20 from vocational schools across Georgia enriched the project by adding diversity and fostering collaboration and cross-cultural exchange. Overall, the initiative was a great success and equipped the participating students with valuable skills and knowledge that they can use to pursue careers in the emerging field of drones.

Developing technical and soft skills in a cross-cultural environment

Incorporating technology into schools is a crucial factor in keeping students in keeping up-to-date with the ever-changing world. It not only enhances their learning experience but also equips them with the necessary skills required for the future job market. Schools should ensure that the students have access to modern technology and digital resources. Furthermore, the curricula should be updated to include technological advancements and innovative teaching methods. Vocational schools can play a vital role in promoting technological development by sharing their experience and knowledge with other schools. They can also collaborate with industries and organizations to provide students with practical experience in technology-related fields. This approach will prepare students for the future job market and boost the economy by providing skilled workers.

Several features make this an innovative initiative:

- Experimental learning;

- Multi-subject oriented learning;

- Technology used to support ecological issues; and

- The local community widely benefits from the project outcomes and their results.

Outcomes and impact

The students have been provided with a comprehensive understanding of drone technology enabling them to design and construct drones capable of performing sophisticated tasks independently. Their practical   experience in developing and operating drones, along with their knowledge of the regulatory framework governing the usage of drones, ensures their expertise in this field. Additionally, they have been trained in the best practices for safe and responsible drone operation. The students' proficiency in drone technology, combined with their passion for the field, will undoubtedly facilitate their contributions towards the advancement of the industry.

Challenges

Professional competencies

More workshops and training were provided to develop analytical, technological, informational and scientific competencies.

Entrepreneurship

Several meetings with business representatives helped to teach young people entrepreneurial skills.

Creativity and critical thinking

A creative and student-friendly atmosphere is crucial to helping students in their development.

Insights

The rapid pace of technological development poses a significant challenge for educational institutions in the contemporary era. Educators and trainers are expected to keep themselves abreast of the latest solutions, technologies, and possibilities while simultaneously encouraging their students to explore their curiosity and ambitions to learn, create and innovate responsibly and in an ecologically sustainable manner. Accomplishing this requires a multifaceted approach that incorporates modern pedagogical practices, adaptive learning technologies and a profound appreciation of the ethical and environmental implications of technological advancement. Successfully navigating this complex terrain demands a high degree of expertise, professionalism and dedication from educators and institutions alike.

Next steps

College Iberia Management will continue working on drone technology, new robotics projects and implement cutting-edge technologies into practical training and teaching methodologies.

Learn more

Nino Bakuradze, Public Relations Manager, LEPL College "Iberia" helped to compile this document.

For more information, please contact:
ninobakuradze133@gmail.com

To learn more about LEPL College Iberia, visit:
http://iberia.edu.ge/

Discover other practices

The **UNESCO-UNEVOC Innovative and Promising Practices database** presents successful projects tackling key themes in TVET, such as entrepreneurship, youth employment, the green transition, digitalization, private sector engagement and more.

Learn more on our website at:
http://www.unevoc.unesco.org/ promisingpractices

Questions or comments? Contact our team at:
unevoc-pp@unesco.org