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LABORATORIES TRAINING MECHATRONIC AND INFORMATION TECHNOLOGIES FOR TRAINING OF ENGINEERS IN ECUADOR

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Abstract

There are two main problems in higher education in Ecuador. The first is that the new graduate engineers have a theoretical basis in physics, mathematics, control, theory of engineering but have no practical skills. The second major problem is that universities have no academic labs updated according to changes in the world of production, technological developments, telecoms and the information society. In response to these problems, a laboratory training mechatronic is proposed. The objective of training in mechatronics laboratories is to integrate people with different skills and techniques to interact in a changing society through the influence of technologies.

Introduction

Today the use of industrial and service applications with intelligent systems have increased rapidly. These applications can recognize patterns and make decisions based on these patterns and in certain circumstances. These applications include products that combine information technology, sensors, actuators and system of vision and hearing to meet the needs of consumers. But this new technology has not been accompanied by the incorporation of qualified professionals to exploit, or modify it, much less to produce new technology based on the existing one.

In Ecuador, we have tried to meet this problem by creating Mechatronics career in some universities. But new technology involves not only professionals in mechatronics, but engineers from different specialties, so it becomes essential to provide university students with comprehensive training in theory and in practice. Therefore it is necessary to implement laboratory training mechatronic (LTM) within universities. LTM is a place equipped with various modules with measuring instruments and equipment where students develop their skills and abilities according to requirements of modern technology.

In a LTM students acquire skills in various areas of engineering: process, designing, maintenance of high-tech equipment, automation production lines. Engineers will be ready to work in any industry small, medium or large and will be able to propose creative solutions, make technological innovations and contribute to the continuous improvement of a product or process.

It is important to clarify that mechatronics is not a new technology; rather it is "the synergistic integration of physical systems with information technology." Mechatronics can be interpreted as the best practice for the synthesis of engineering systems, and covers a wide area and range of automation and control of manufacturing processes in industrial and in everyday products and appliances. These labs enable students to integrate and use a wide range of technologies such as electric actuators, sensors, control technology, distributed control, image processing techniques, programming, and design as well as information and communication technologies (ICT.).

Conclusion

With the inclusion of the LTM and the use of ICT tools in the universities of Ecuador, students will be prepared according to the industry standard, in use, the technology and processes used in manufacturing integrated systems and automation systems industrial processes.

The training in LTM contributes to the development of education, science, research, testing and demonstration of automatic control systems for industry, agriculture and medicine.