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Editorial

Engineering Technologist

Editorial

Engineering must respond to innovation and change. The great innovations and technologies are generated in the centers and institutions of higher education, by modifying nature to meet our needs. Technology is a product of science and engineering and is associated with innovation, in which ideas become products or processes at the service of man. Engineering education must adapt to global change if it is to improve productivity and foster local and national economic development. Engineers of the next decade must have a technical or highly technological activity, and play leadership roles in academia, industry, and government. Areas of opportunity are in the generation of new products and processes related to nanotechnology, information technology, robotics and mechatronics, process automation, aerospace, food technology, bioengineering, biotechnology, etc. However, there are others related to transgenic food and nuclear technologies, which generate social controversy. Engineering technologists must be prepared to face these challenges and others that will be created due to globalization and population growth. Engineering technologists participate differently with engineers in our society, but both have the same roots. The boom of the engineers had its impulse in the industrial revolution; it was necessary to fill vacancies to meet the high demand in this area, and the engineers focused primarily on the production and maintenance of operating processes in the companies, which is still justified today. In the last decade, technological innovation has had a major role at a global level, since we have accepted that this is linked to the development of a country.

It has become necessary to link engineers and scientists with industry, given the economic and welfare significance that results from the application of knowledge in our society. But to be able to delimit the functions of a technologist engineer with respect to his counterpart engineer, we must remember some concepts: we can say that while science is the result of experimentation and generates principles, for example the laws of Newton, Hooke or thermodynamics, engineering is the process of creating something practical using these principles, for example the design of structures and machines, and technology is the result, it means, a useful product to third parties based on these principles (i.e. buildings, rockets, cars, and even toys), in a dynamic arrangement composed of scientific research, technological development, and the product itself. Technological engineers, besides having the training of engineers and being skillful in the processes of innovation and development of technologies, receive a preparation in administration, economics, social development, sustainability, and have general knowledge of culture that allows them to link events and ideas in a logical way, identifying the most favorable conditions to develop a good, either in the form of product, process or service of high value and world quality, for the community. This will require effective innovations that improve the quality of life of the society in which we live, but which in turn depend on the provision of an excellent education and preparation from the classrooms and university laboratories. Most important, however, is the generation of a university culture where innovation and technological development are favored, which fosters the creation of value. It is essential to consider that innovations and technologies are related to the academics (finding fundamental laws of nature), applied science (using fundamental laws of nature to create something useful to third parties), and business (using innovations to create value), whose practical integration is seldom successful for the creator, since they speak different languages, and entrepreneurial attitude is not granted to innovators and technologists.