

EDUCATION IN BIMEDICAL ENGINEERING IN THE REPUBLIC OF MOLDOVA

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The global medical devices industry with a turnover of more than 226 billion dollars in 2011 will reach a business volume of over 434 billion dollars with a growth rate of 7.1% per year in 2017: it is one of the few areas that it is expected to increase continuously for long while. The medical device industry includes 13,600 registered producers, about 10,000 generic devices and over 500,000 products and brands. About 50% of all treatment and diagnostic methods used today did not exist 10 years ago.

The Biomedical Engineering (BME) occupies a central place in healthcare industry and it is one of the few areas of engineering that, as a whole, it is expected to increase continuously for many years. The US Bureau of Labor Statistics projects a 21 percent growth for biomedical engineers, with an estimated 15,000 new careers created in the industry through 2018. At present the Health System in Republic of Moldova includes 912 hospitals, from which 278 public medical institutions (59 hospitals with 19840 beds), in which the 12 794 doctors and 27 407 medical staff education operate. The degree of wear of the medical devices is high both in rayonal institutions as well as in the republican.

The medical institutions do not have the sufficient and competent staff in medical devices field, which contributed to acquisition of medical devices and their technical parameters do not correspond with those contracted, at the technical maintenance, repair, verification, diagnosis and sufficient metrological support of the medical devices.

Since 2005, the "Biomedical Systems Engineering" specialty was included in the Nomenclature of areas and specialties in higher education at the insistence of the Ministry of Health and the Technical University of Moldova. It provides basic and specialized training of specialists in the biomedical engineering field, strictly necessary for Republic of Moldova, and in 2010 the Master's studies in the "Biomedical Engineering" was included too. In spite of inadequate funding, 66 medical bioengineers and 34 specialists with master's studies were trained to date; the majority are employed in the health system.

The study plan, developed according to the criteria of European Alliance for Medical and Biological Engineering & Science, provides the basic and specialized training in biomedical engineering strictly necessary for Republic of Moldova.

The medical bioengineer need to be involved at several levels of cautious, convenient and economical use of the technology in health industry, starting with design and maintenance and ending with verification and quality control of medical devices. The Medical Bioengineers Specialty changed the professional orientation only from the control and security of devices to the administration of health technologies. The medical bioengineer helps by way of consultant at the evaluation, procurement and installation of equipment; updating of provision, programming and expanding computer facilities.

It is necessary to establish a viable system of continuous perfection, obligatory for specialists which activate in the use and servicing of medical devices, because the causes of defects and accidents with medical equipment are classified as follows: 10% - technical failure; 30% - inadequate maintenance strategy; 60% - user mistakes.