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## **LABORATORY COMPUTER TRAINING IN DIGITAL TECHNIQUE**

Nowadays the usage of automated projection systems and simulation modeling has become an essential stage of digital device development cycle. Therefore it is important to give students practical knowledge how to deal with the software of the mentioned type during their laboratory studies.

Attention to the usage of software tools in computer modeling for physicotchnical studies has been payed attention in works of I. Bogdanov, G. Kardashev, A. Kaspersky, L. Marahovskyy, S. Vojvodin V., N. Mikhno, A. Sharapov, O. Martyniuk, N. Pankova, D. Panfilov, and others.

Means of computer simulation in digital field laboratory training work both as a learning tool, and as an instrument of future professional practice. National Instruments Multisim is one of the most popular digital modeling systems used in logic circuit and digital devices design. The work with NI Multisim has three major stages: circuit creation; choice, connection of measuring instruments, and circuit activation – processes analysis, existing in the investigated device.

Upon the NI Multisim environment possibilities we have developed a tutorial for computer engineering-pedagogical specialty students, which is devoted to digital field laboratory training. The suggested laboratory training allows for research using NI Multisim environment to simulate basic logic elements and typical digital devices of small and medium scale integration, which are widely used in digital system design. The first section of the tutorial holds the primary theoretical data and recommendations on the usage of NI Multisim simulation software environment in digital device simulation. The second section consists of eight laboratory training, which coincide with the actual “Digital field” course in their subjects and tasks, covering all fundamental topics.

The usage of modern means of computer simulation in digital field laboratory practice noticeably widens the arsenal of didactic resources and, at the same time, draws together the educational process with the future occupation of the engineer-education specialist. The usage of imitating simulation is also aimed at perfecting students’ self-studies, supplementing of traditional laboratory training and equipping students with modern means of computer simulation.