

The Using Practice of Spectrum Analyzers and Laser Triangulation Sensors in the University

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key words

laboratory complex, spectral analysis, laboratory work, verification and calibration procedures

We described the process of developing and testing a laboratory complex for spectral analysis of measured data. It is based on a signal processing method based on the measurement of the frequency and amplitude of the signal (spectral method) with subsequent evaluation by the Fourier transform. The described laboratory complex consists of a personal computer, software, a spectrum analyzer, analog-to-digital converters, a vibration-acoustic generator and laser sensors.

We justified the relevance of the development in connection with the fairly wide use of spectral analysis methods in science, technology and production. The advantages of using a laboratory complex are shown. We also described the experiments carried out on the generation, measurement and processing of signals for modeling measurement information from various non-destructive testing sensors, such as laser, strain gauge, ultrasonic, vibration, etc.

We believe that the use of this complex is possible for conducting laboratory work of students of different fields of training in order to teach the procedures of verification and calibration, the use of automatic control systems and stabilization of production processes, etc.

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