

Annotation of discipline "Computer measuring systems and their research".

General information

The increase of rates of development and achievements in industries of measuring and calculable technique needs from розроблювачів the modern computer complexes (MCC) of providing of such requirements :

1. deployment of the newest element base at the construction of measuring channels (MC), interface facilities, apparatus of treatment of information and others like that;
2. considerable increase of exactness of measuring and fast-acting of devices, that perceive, pass and process information from sensors that control the state and quality of control object;
3. providing of the reliable functioning of all devices and at-line-ups that enter in the complement of MCC;
4. considerable reduction of amount of devices and devices of MCC is with the aim of increase of reliability of his work without the decline of indexes of техніко-економічної efficiency.

To provide hard requirements to majority of MCC (in the first turn in relation to reliability and fast-acting) specialists - приладобудівники must know basic principles of construction of MCC, lay hands on the methods of unitization of the newest devices and distribution of tasks of measuring of information after the levels of complication, widely to apply treatment of information for help, peripheral microprocessors (PM) so-called,, and also PM, mounted in devices and devices.

I. Aim and task of study of discipline

Educational discipline is the "Computer measuring complexes" has for an object to help the students of V of course (what already have preparation from the wide spectrum of the applied questions of creation of devices and devices) to get basic information about the association of them for reliable work in CASS of collection and treatment of information by means of PECM. In addition, a student must get skills of construction of measuring channels and channels of stimulant (id est managing) actions taking into account requirements in relation to exactness and fast-acting for providing of quality work of computer measuring complex (MCC).

Wide introduction of microprocessor technique gave an opportunity to pass to the construction of new class of decentralizing control system, measuring, treatment and control.

At the study of discipline main attention is sent to the show of advantages of the use of найновітньої of element base (first of all microprocessors) at the construction of measuring channels, and also possibilities of new facilities of measuring and new interfaces.

III. Approximate maintenance of lecture material

Entry. Task of the complex measuring. The modern are computer-assisted measuring complexes (MCC). Automation and control of measuring process. Basic concepts and determinations.

Structural organization of MCC. Distribution (classification) of control objects. Aim of research of control object and her influence on technical descriptions of MCC. Prominent of MCC.

Principle of unitization. Unitization of signals. Devices that is built on modern international standards (LXI, LAN et al). Features of the use of intellectual devices and devices.

Organization of exchange of information is in MCC. Basic principles of organization of measuring information transfer. Construction of measuring channels (MC). Fibre channels of connections are in MCC. Combination of measuring devices is in the system "star". Commutation of interface highways (vehicle and programmatic facilities). Combination of devices is in the system "ring". Systems on the basis of new standards of LXI, LAN, and others like that (features of construction). Connecting of modern measuring devices is to the general interface highway. Directions of development of interfaces.

Digital measuring devices (DMD) are in composition MCC. Classification of ЦВП. The basic requirements are to DMD in composition MCC. Microprocessor devices (features of functioning, advantage of the use). Examples.

Program-driven sources of stimulant (managing) actions. Principle of construction, choice of components. Use of microprocessors. Examples.

Apparatus of programmatic management and treatment of information. Combination of PECM is with the measuring system. Modern input of measuring information units

here many sensors (L- of pay, products of firm L - CARD, measuring. microsystems and others like that).

Examples of construction of MCC. Metrology providing of MCC. Criteria of choice of structure and components of measuring channels of MCC. Providing of the reliable functioning.