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NEW CONCEPTS IN ERGONOMICS

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The growth of the complexity of the "man-technology-environment" system (MTES), the reduction of the required time for their response to external stimulations, the growth of the cognitive component of their functioning, and other factors of modern production led to the need to adjust the fundamentals of ergonomic science that developed in previous years of its existence. A need is expanding the conceptual and methodological base of ergonomics there was, namely, in addition to the basic concepts that compose the notion of ergonomic operation, to introduce new ones which in recent years have a significant influence on security issues of the MTES, for example, "viability", "stress tolerance", "ecological friendliness of workplace and environment" and others.

Viability is the most capacious concept for describing the functioning of complex dynamic systems. It unites security, reliability, system stability and its adaptability that in general ensures efficiency and optimality of system. The presence of systemic problems in the functioning of MTES in difficult conditions led to the need to study their "viability". Especially researches of viability are relevant for modern energy, technology and transport systems. Today, the theory of viability acquires new development, because vitality, as the ability to function in spite of the influence of circumstances and destructive factors, can explain the existence of the phenomenon of the "human factor" and the large number of failures in complex systems that are guided by human.

Also the link of sustainability and viability is important. Sustainability is understood the manifestation of the properties of viability in the normal regime of operation. The activity of the human-operator in the MTES is associated with the constant influence of stress-factors on it. In this connection, the study of stress tolerance, as a human's ability to confront the negative effects of stress-factors, that is conditioned by the individual complex of his innate and acquired psychological and physiological properties and processes is of great signify. Exactly the stress tolerance ensures the reliability and safety of the human-operator. The higher its level, the less susceptible will be operator for the stressful impacts. *In this case, within the framework of ergonomics, stress should be considered as an indicator of operator reliability.*

The concept of ecological friendliness is also important for the existence of MTES. As of today, it is not enough only of compliance with the regulatory requirements for the safety of workers, because modern materials, which are used for creating work places, have a negative impact on human health. Therefore, except of the creation of appropriate working conditions, it is necessary to assess and control of the ecological friendliness of workplace and environment. This concept means a state of workplace in which its elements and characteristics correspond to modern technical and ecological standards and do not take negative effect on human that may worsen his health and / or partially violate ecological comfort. Within the frameworks of modern ergonomics, *the ecological friendliness of workplace and environment is a necessary condition of ensuring operator reliability.*

It should be noted that the tendency to the adjustment of the bases of ergonomic science is felt not only in update its methodological base, but also in changing the very definition of this science. This is confirmed by the emergence of new definitions of ergonomics and new trends of its development (neuroergonomics), reflecting the modern informatization of society and attempts to find effective ways to augment of the safety of "man-technology-environment" systems.