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CONTENT

PUBLIC ADMINISTRATION AND ECONOMY

HISTORICAL AND LEGAL SCIENCES

PEDAGOGY AND PSYCHOLOGY

TECHNICAL SCIENCES

PEDAGOGY AND PSYCHOLOGY

IMPLEMENTATION OF STUDYING THE SECTION "MECHATRONIC MODULES" INTO THE COURSE "HYDRAULICS"

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Modern global trends in the development of robotic and industrial technological systems lead to stricter requirements for the speed, accuracy and efficiency of executive electro-pneumatic and hydraulic drives operating in harsh industrial conditions. Promising directions for improving such drives are based on the use of a mechatronic approach, according to which the main role in achieving higher accuracy and speed of electro-pneumatic and hydraulic drives is given to improving computer motion control algorithms and a higher level of system integration as a result of the use of mechatronic components. The introduction of the study of the "Mechatronic Modules" section into the "Hydraulics" course is necessary in the professional training of future specialists in the field of energy.

In this regard, this introduction of a section into the Hydraulics course is aimed at achieving the main goal, which is to increase the accuracy and speed of industrial electro-pneumatic and hydraulic drives with computer control, built on the basis of the mechatronic approach and the use of mechatronic components, which have increased efficiency and are focused on industrial use in harsh operating conditions.

When introducing the study of the "Mechatronic Modules" section into the "Hydraulics" course, it is necessary to consider the methods of mechatronics, automatic control theory, gas dynamics, theory of electro-pneumatic and hydraulic systems, linear algebra, mathematical modeling of dynamic systems, mathematical processing of experimental data, electrical engineering and microelectronics.

The current stage of development of mechatronics in hydraulics is characterized by increased competition in the field of created production equipment. This is manifested in the increasingly stringent requirements for the quality of training of specialists in the field of energy, caused by the emergence and development of new precision and high-performance technologies. There is a need to train a competitive and self-developing specialist who can work in the environment of creating a new generation of control systems that have new capabilities and are capable of solving assigned production tasks more efficiently and at lower costs. Such systems have greater reliability and lower cost and are therefore most preferable.

The introduction of the study of the "Mechatronic Modules" section into the "Hydraulics" course is caused by the need to solve the current problem of increasing competitiveness and expanding the scope of application of mechatronic devices in automated mechanical engineering by increasing the efficiency of computer control systems. Thus, the main goal of introducing this section is to solve the scientific problem of developing highly efficient computer control systems for the executive

movements of technological robots and mechatronic devices, built on the basis of mechatronic approaches and having accuracy, productivity and a level of technical complexity adequate to the technological operations performed, as well as training of specialists in the field of energy.

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