

An annotation of discipline is the "Computer design of the systems and devices of fine mechanics"

Program of educational discipline the "Computer design of the systems and devices of fine mechanics - 2. Planning of devices" is made in accordance with the educationally-professional program of preparation master's degree of speciality 8.05100302 " Devices and systems of fine mechanics ".

Educational discipline belongs to the cycle of "Discipline of independent choice of educational establishment".

The article of educational discipline is combination of process of planning of devices due to CAD/CAE to technologies with the receipt of these reliable calculations and realization of optimization of construction.

This course is sent to expansion and deepening of knowledge of students about the certainly-element methods of calculation, that are used lately widely enough in the different areas of scitech, in particular instrument-making. Within the framework of this course the universal package of ANSYS is studied, intended for a decision in one environment, on the the same certainly-element model of tasks of durability, heat-conducting, electromagnetism, hydraulic gas dynamics, multidisciplinary constrained analysis and optimization on the basis of all higher brought types over of analysis.

Educational discipline is based on the preliminary studied courses, namely : bases of informatics and computing engineering, mathematical methods and models, are on COMPUTERS, bases of construction of bases given, system CAE/CAD and other.

1. Aim and task of educational discipline

1.1. Aim of educational discipline.

The aim of educational discipline is forming for the students of capabilities :

- to work with the new generation of programmatic foods that give unique possibilities in relation to integration from CAD- by the systems, including bidirectional associative connection;

it is application of modern technologies of computer design of devices and measuring objects within the framework of the put tasks;

- analysis and decision of the put problem taking into account present computer technologies of making decision.

1.2. Basic tasks of educational discipline.

According to the requirements of the educationally-professional program students after mastering of educational discipline must show such results of studies : knowledge:

- methodology of decision of tasks of planning and optimization of constructions of devices by means of the multidisciplinary constrained analysis that presents the package of ANSYS;

- are ways of making decision by means of computer technologies of CAD/CAE;

- are principles of the optimal planning of measuring facilities.

ability: to own technologies of ANSYS Workbench, in particular realization a static construction, thermal, oscillation analyses of behavior of device on the stage of planning taking into account the simulation of possible external environments.

experience: decision of tasks in relation to the features of the modern planning of devices on the base of the use of different computer technologies.