"Annotation discipline devices and systems, precision mechanics
The course is designed to give students the knowledge on the methodology of design details and mechanisms of typical instrumentation systems based on SolidWorks Simulation and SolidWorks Motion, give the basic principles of modeling power loads on parts and tools using computer modeling and traffic details in the middle of mechanism by computer.
The course is a continuation of the course "three-dimensional design on the computer."
During the study course, students use the knowledge gained in the courses "Resistance of materials", "Design elements of devices and computer systems," acquire knowledge to analyze the details and mechanisms of the reaction on the basis of structure and mechanism devices, the main provisions of their theory calculation and design.
During the course of study and skills imparted to conduct engineering analysis elements and mechanisms spending behavior modeling object to load, analyze the results, to optimize the size of parts.

II. Content of educational material
The purpose of the course is to get students theoretical and practical knowledge on the calculation of statics, dynamics, their frequency, resistance and optimization analysis of 3-dimensional mechanisms and beam structures in the environment of SolidWorks Simulation for Solid Works 2011 and kinematic analysis of mechanisms among SolidWorks Motion.
Main tasks of discipline is the ability of students' skills and simulate and investigate the mechanism or to instead create prototype models and conducting bench tests using the apparatus necessary software (COSMOS-Works) and computing.

Need to know:
- Software environment COSMOS-Works for SolidWorks 2011;
- Software environment SolidWorks Motion for SolidWorks 2011;
- Know the methodology of investigating the three-dimensional models of parts and machinery;
- Be able to solve the problem of design elements equipment.
Be able:
- Calculate static parts and mechanism of the action of various external factors (force, pressure, temperature and so on.)
- Compute the natural frequencies of parts and machinery;
- Calculated resistance of constructions action of various external factors (force, pressure, temperature and so on.)
- To optimize parameters details on several parameters;
- Calculate the kinematics of the mechanism of the action of various external factors (force, pressure, temperature and so on.)
- A mechanism to optimize several parameters. "