Course Description

Discipline/Course: "Basics of practical work in computer-aided design system Autodesk® Inventor".

The Basic Educational Program specialty: "Specialist in information resources".

Institute for E-Learning, Department of E-Learning Technology and Pedagogy

Instructor: Sergey O. Kotov, Senior lecturer

Contact details: +7 3822 701 777 1297, email: kso@tpu.ru

Learning Outcomes:

As a result of the preparation of the program, the students will be able to independently orient themselves in CAD-based technologies and design tools, they are ready to create 3D solid models of de¬tals, assemblies and nodes, create a package of design documentation, and are able to render the project using Autodesk Inventor Professional tools.

at the level of reproduction: master the terminology used in the design of the product.

at the level of understanding: goals and objectives of computer-aided design, the role and importance in the modern CAD design and manufacturing technologies.

Theoretical skills:

This course introduces the student to the features of design technology based on CAD; The advantages of computer-aided design before traditional; Basic tools and techniques for designing parts and products, preparing design documentation in Autodesk Inventor Professional;

Practical skills:

Orient in new technologies in the field of design and industrial design; Create a package of design documentation required for the manufacture of products; To visualize the project using Autodesk Inventor Professional tools; Independently create three-dimensional solid models of parts, assemblies and assemblies;

Skills:

Independently determine the basic design of the product being created, the general methodology for the development of new parts and products; preliminary examination of the general concept of product design, taking into account the requirements of the project.

Course Outline:

Section 1. Introduction to computer-aided design. Assignment, classification, review of CAD.

Section 2. Modeling parts.

Section 3. Modeling assemblies.

Practice 1. Introduction. Interface.

Practice 2. Tools for creating and editing a sketch.

Practice 3. The technique of imposing geometric and dimensional dependencies in a sketch. Dimensions in sketches: types of sizes, their interrelation and parametrization.

Practice 4. Tools for creating and editing 3D models.

Practice 5. Creating and editing features.

Practice 5. The assembly browser. Adding components.

Practice 6. Tools overlay assembly constraints. Editing assembly constraints.

Practice 7. Design documentation.

Practice 8. Create a drawing file for part and assembly.

Practice 9. Create and edit drawing views. Dimensioning.

Course Delivery: one semester, 4 weeks
Prerequisites: "Informatics".
Co-requisites: "Machine parts and design basics", "Metrology, standardization and certification",
Final Assessment: pass/fail credit
Course Developer: Sergey O. Kotov, Senior lecturer