<div align="center">**Course Description**</div>

Discipline/Course: "The electronic environment of the CEA designer based on the CAD system Dassault Systemes CATIA and Altium Designer".

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

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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 detals, assemblies and nodes, create a package of design documentation, and are able to render the project using Dassault Systemes CATIA.

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 technologies creating a design of a circuit board.

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, Dassault Systemes CATIA, creating a design of a circuit board in Altium Designer;

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 CATIA; Independently create three-dimensional solid models of parts, assemblies and assemblies; creating a design of a circuit board in Altium Designer

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, PCB.

Course Outline:

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

Section 2. Modeling parts and assemblies using CATIA.

Section 3. Modeling circuit board using Altium Designer.

Practice 1. Introduction. Interface CATIA.

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 6. The assembly browser. Adding components.

Practice 7. Interface Altium Designer.

Practice8. Working with the project. Creating Component Libraries.

Practice 9. Creating an electrical circuit diagram.

Practice 10. Tools for creating and editing circuit board.

Practice 11. Topological design.

Practice 12. Generating output data.

Course Delivery: one semester, 4 weeks
Prerequisites: "Informatics".
Co-requisites: "Electrical Engineering", "Theoretical Foundations of Electrical Engineering"
Final Assessment: pass/fail credit.
Course Developer: Sergey O. Kotov, Senior lecturer