

Prospects for the Development of the 3D Modeling Process

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Annotation: This article discusses 3D modeling software and its applications. Information is provided on the role of the developing industry in the creation of future systems and its role in production processes.

Keywords: CAD / CAM / CAE, modeling, 3D modeling, chemical industry, engineering systems, mechanics.

At present, computerization is rapidly entering the activities of research and design organizations, design work is rising to a fundamentally new level, which significantly accelerates the speed and quality of design, solving complex engineering problems. In many ways, this is facilitated by the use of highly efficient specialized software that can be implemented both as standalone software products and as add-ons and applications to well-known application packages. Measures to create specialized software and automation of design work are carried out as part of the creation of modeling.

CAD (English CAD, Computer-Aided Design) - a set of software designed for the development (design) of technical objects and the execution of technological and / or project documentation.

Multifunctional modeling systems, as a rule, have three components: modeling, CAM, CAE. CAD (Computer Aided Design) block modules are mainly used for graphic work, CAM (Computer Aided Manufacturing) modules are used to solve problems in technological preparation of production, CAE (Computer Aided Engineering) modules are used for engineering calculations, analysis and verification. design solutions.

Currently, all major research and design institutes, manufacturing companies and engineering firms use computer-based process modeling systems (CAM / CAE-systems) in their work, replacing technological process computing programs. CAM / CAE systems are "software constructors" that allow you to quickly "assemble" almost any process and technological scheme, and provide multidimensional calculations of technological operating modes, material and heat balances, raw materials and products. allows you to perform key indicators of quality. The most "advanced" process simulation systems can create systems and individual schemes for automatic regulation and control of process parameters, perform calculation of process parameters and their impact on selected process quality indicators, solve optimization problems. In addition, a number of systems allow you to work not only with installation schemes, but also with workshops, factories and even enterprises. The scope of CAM / CAE systems is a detailed analysis of the state of technology and identification of missing data required for existing industries, optimal design of new productions and development of technical solutions for modernization of existing networks, justification of long-term prospects. and current plans for raw material processing, and so on. Thus, technological simulation systems are urgently needed in research and design institutes and enterprises.

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