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### **Human -machines technologies of acceptance of collective decisions**

Mathematical methods and models of human-machine technologies models of collective decisions making in multilevel hierarchical system of an enterprise on the basis of system optimization methodology are considered.

Keywords: production plan, collective decision, system optimization, methods, models.

### **Людинно-машинні технології прийняття колективних рішень**

*Математичні методи та моделі людина-машина технологій Моделі колективного прийняття рішень в багаторівневій ієрархічній системі підприємства на основі методології системного оптимізації вважаються.*

*Ключові слова: план виробництва, колективне рішення, оптимізації системи, методи, моделі.*

### **Человеко-машинные технологии принятия коллективных решений**

*Математические методы и модели человек-машина технологий Моделі колективного принятия решений в многоуровневой иерархической системы предприятия на основе методологии системного оптимизации считаются.*

*Ключевые слова: план производства, коллективное решение, оптимизации системы, методы, модели.*

Mathematical methods and models of human-machine technologies models of collective decisions making in multilevel hierarchical system of an enterprise on the basis of system optimization methodology are considered.

Keywords: production plan, collective decision, system optimization, methods, models.

Development process of an enterprise plan project formation is a complex task and all structural divisions of an enterprise take part in its solving. Each division develops its own section of the plan which can't be interconnected and coordinated enough with others. To eliminate this defect during the development and implementation of an automated control system by the enterprise (branch) the methodology of system optimization which assumes the creation of human-machine technology of production program formation was developed by academician V. M. Glushkov. The main formal procedures which are considered in the report on the example of the production program formation by an enterprise in the conditions of impossibility to keep the established contractual obligations by an enterprise are the following:

- definition of bottlenecks (incompatibility of material, production, financial and other resources) at the linear optimization problem solution in classical statement;

- definition of desirable changes of production organization, capacities to eliminate the bottlenecks as a problem of geometrical inclusion of the desirable program (contractual obligations) in the constraint are a;

- formation of physically possible target actions of the production organization improvement, capacities, professional development of workers as independent tasks of structural divisions;

- the of initial problem solving with changed parameters; if it is necessary to refine and change separate planned actions by the subordinate subsystems and (or) change of contractual obligations.

Informal procedures are connected with the assessment and decision-making on some production, financial and other questions in order to solve the general problem.

The human-machine technology is considered in multilevel hierarchical structure of an enterprise where each subsystem is presented by a complex of problems which it has to solve.