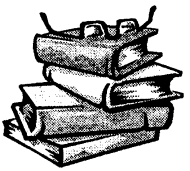
И в заключении хотелось бы заметить, что насколько бы универсальным не был математический аппарат моделирования, он имеет ряд недоработок. Поэтому хочется акцентировать внимание на необходимости, универсальности и лёгкости использования метода имитационного моделирования.



Проблеми приняття рішень в економічних, технічних, екологічних і соціальних системах

DEVELOPMENT OF DECISION MAKING SYSTEM FOR MULTICRITERIAL ESTIMATION IN UNCERTAINTY CONDITIONS

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The property that define decision making process during complex objects control with present-day conditions in mind is absence of reliable and authentic information, that characterize this objects. This fact is a result of the tremendous upgrowth of high technologies that causes new character of economic and sci-tech tasks.

Polysemy, multidimensionality and destinction of kind of values are serious obstacles to get generalized estimation of relative effectiveness, importance, value and utility of each affordable solution.

That's why one of the main characteristic of complex economic and sci-tect problems solution is that the application of calculations always interlaced with expert judgements. This judgements allows partly compensation for a information lack, fully usage of individual and collective experience, consider expert suggestions about future conditions of objects.

Expert information formalization has to be used in decision-making of such economic and sci-tech tasks that can't be fully mathematically described, as they are "unstructured", i.e. contain uncertainty of the character of analysed goals, instruments and outward conditions.

During perspective analysis it is necessary not only quantitatively estimate qualitative information and not only express with such ratings quantitative information, about which there is not enough data at the moment of desion-making. The most important thing is to formalize this information to help the decion maker in choosing from the amount of affordable solutions the best one according to some criterion (criteria).

More often than not in decision-making arise situations, when it is necessary to make decision in the context of many factors (criteria): quantitative and qualitative.

For a solution of multicriterial tasks in uncertainty conditions offered a great amount of mathematical methods. Among them are classical decision-making model when each alternative receive some number (rang) and behavioural model based on the alternatives belong to some set. The most universal and theoretically reasoned in classical decision-making are methods of utility theory, methods of fuzzy sets theory and analytic hierarchy process.

It is proposed the formalization and modification of analytic network process, developed by T.L.Saaty. analytic network process is the generalization of analytic hierarchy process. The property that define complex economic and sci-tech tasks is the presence of interactions among objects, that's why for the formalization of such problems it is convenient to use network, not hierarchy, structure. The proposed analytic network process modification is to use the mathematical theory of