Department of Systems Engineering and Control in Technical Systems

Special problems of decision making
Duration: 1 month

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Language of training: English

Audience: graduate students, undergraduates and young scientists with a PhD degree.

During the training special decision-making issues related to the use of well-known and new methods in multi-criteria evaluation of alternatives in risk and conflict situations, as well as in conditions of uncertainty of various natures will be studied. The training material, that includes the necessary information about binary relations, selection functions, Zadeh fuzzy theory, will be useful for solving of practical problems, significantly expanding the number of subject areas and situations that did not previously fall into the scope of applicability of decision theory.

Research methods: system analysis, methods of the theory of fuzzy sets, fuzzy binary relations, measures and integrals, methods for solving of statistical games.

Objects of study:
1. Problems of multi-criteria decision making
2. Choice in risk and conflict situations
3. Decision making under stochastic uncertainty
4. Decision making under criteria assessment on weak scales
5. Decision making with fuzzy information

Research topics:
1. Multi-criteria selection method based on the principle of constraints
2. The problem of decision-making in risk and conflict situations
3. Methods of solution of statistical games
4. Multi-criteria decision making in weak scales
5. Decision making based on the theory of binary relations and choice function
5. The use of fuzzy mathematics in decision-making problems

6. The fuzzy choice methods based on fuzzy measure and fuzzy integral

7. Computational methods of decision-making theory