

## SUMMARY

Mumrenko M.O. “Using the methods of the general risk theory for analysis of terroristic threats in Ukraine”

Graduate work. Institute of Applied Systems Analysis National Technical University of Ukraine "Kyiv Polytechnic Institute named Igor Sikorsky" specialty "Computer Science". Department of mathematical methods of system analysis. Kyiv, 2017.

The aim of this work is to develop mathematical models and software for assessment of the internal terrorist threat for facilities in Ukraine and approach for determining protection strategies for group of facilities in case of danger.

The first section describes the object of work, i.e. what is meaning of a terrorist attack or terrorist threat, provides analysis of terrorism in the world and Ukraine and defines its characteristics and according to an analysis represents a chosen method of the general risk theory that will be used to build a mathematical model.

In the second section the based on data key criteria for Ukraine are defined and using them the level of threat is calculated and categories of objects for threat assessment are defined. A mathematical model is built basing on fuzzy mathematical programming and the approach of determining threat for the group of threatened objects includes zero-sum game of two players.

The third section describes the software, which is implemented using a mathematical model defined in the second section, its technical specifications, technical solutions and user instructions.

As a result of the findings are such dependencies as that the highest level of threat can be noted for such cities as Kyiv and Odesa and for Dnipropetrovska, Kharkivska and Odessa regions. For smaller cities the highest level of terrorist threats have military objectives, while in big cities – public facilities and business centers. The results of the work can be used by analysts to identify sites that need the most protection and other purposes to prevent terrorism.