**ABSTRACT**

The qualification work includes an explanatory note (50 p., X figures, X tables). The diploma project is dedicated to the study of the modification of the Preparaty-Metz-Chen model and the creation of a program capable of generating tests to verify the correctness of the analysis by the program.

How the self-testing algorithm of the Preparaty-Metz-Chen multiprocessor model works has been studied. Developed software for system analysis with the proposed modification.

For implementation, the C++ programming language of the C++20 standard was chosen and its standard library was embedded.

The result is a ready-made program that analyzes incoming tests and gives an answer depending on whether it is possible to determine which processors are faulty. **Keywords**: Preparaty-Metz-Chen model, multiprocessor system, C++, graph, mutual testing of processors, trees.