

ABSTRACT

Master's thesis: 95 pages, 14 figures, 8 tables, 6 appendix, 51 references.

Relevance. Task scheduling is one of the most common problems solved by everyone (consciously or not) almost daily. In general it is a staged process of distribution of a finite set of events in time, provided resources and other restrictions. Thus, a simple man, planning your day and controller, making the university timetable or schedule for the company, solve the problem of scheduling. But if in the first case the problem can be solved intuitively based on life experience, in the second it may be too difficult even for a group of experts. This situation arises because of schedules involvement of many people with their interests and requirements that must be considered such requirements often leads to conflict.

In some cases, partial able to develop algorithms able to find a solution within a reasonable time. At the same time, most real scheduling problems belong to the class NP-complete. This makes the development of an algorithm that can solve them acceptable and desirable as a really challenging.

Therefore, the development of computer technology actual scientific task is to develop an effective method of constructing acceptable schedule of tasks with a common prescriptive period of parallel devices with different performance to minimize the total delay in today's production.

Purpose and objectives of the study. Improving the efficiency and quality of scheduling, by reducing the total penalty for violating the deadline by maximizing the launch device.

To achieve the goal must perform the following **tasks**:

- perform a review of the known results of scheduling on parallel machines with different capacity;
- perform a comparative analysis of existing methods of problem solving scheduling on parallel machines with different capacity;

- develop a method of solving the problem of scheduling on parallel machines based on their different productivity using simulated annealing;
- develop a software implementation of the algorithm for scheduling on parallel machines with different capacity;
- perform an analysis of the results.

The object of study in this paper are the processes operational and scheduling works.

A subject of the study, in turn, is a method of scheduling on parallel machines with different performance.

Scientific novelty of the results.

The effective time scheduling algorithm with minimum total delay in the performance of parallel devices with common challenges the deadline. A possible parallel algorithm that positively affect the working algorithm.

Publications. Materials published in the abstracts of the 19th International scientific-technical conference SAIT 2017 "System analysis and information technologies" [50], a scientific conference of students, undergraduates and graduate students "Informatics and Computer Science" - ICT-2017 [51], and accepted for publication at the International scientific conference "Science and innovations" Kyiv, May 30-31, 2017.

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