

# Parallel and Multithreaded Programming

2024 year

## ***Rules of the final testing***

1. The final test is conducted in the Moodle system.
2. The student must log in to Moodle, go to the course page “CS321. Параллельное и многопоточное программирование” (<https://edu.mmcs.sfedu.ru/course/view.php?id=74>) and start the test by clicking on the link “Final test” in the “Testing” section. The link to the final test will be available by the time the test begins.
3. The student is given 80 minutes to complete the test (the time countdown begins when the test is started). Once the allotted time is up, all answers are automatically forwarded for review. *The test can be taken only once!*
4. The test consists of 40 questions. *Questions should be answered in the order in which they appear in the testing system.* It is not possible to go back to previous questions.
5. The maximum number of points that can be scored for the test is 40 (each question is worth 1 point).
7. In preparation for the final test, the student may take a demo test containing 8 questions similar to the questions on the final test. The demo test is available through the “Demo test” link in the “Testing” section. The student has 16 minutes to answer the demo test. The demo test can be taken an unlimited number of times.

## ***Topics on which questions can be offered at the final test***

1. MPI technology: general description. Point-to-point communications. Blocking and non-blocking functions, peculiarities of non-blocking functions.
2. Collective communications. Collective reduction operations.
3. User datatypes and data packing
4. Working with process groups and communicators.
5. Virtual topologies.
6. OpenMP program interface: general description.
7. Basic directives and functions in OpenMP.
8. Synchronization in OpenMP.