*Simon Kuznets Kharkiv National University of Economics*

# Syllabus of the educational discipline
*«Parallel Programming Technologies»*

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|---|---|
| **Specialty** | *121 Software Engineering* |
| **Educational program** | *121.010 Software Engineering* |
| **Level of education** | *First (bachelor)* |
| **Discipline status** | *Base* |
| **Teaching language** | *English* |
| **Course / semester** | *3 course, 5 semester* |
| **Number of credits ECTS** | *5* |
| **Distribution by types of trainings and hours of study** | *Lectures – 30 hours.* |
| | *Laboratory works – 30 hours.* |
| | *Independent training – 90 hours.* |
| **Form of final assessment** | *Pass* |
| **Department** | *Department of Informatics and Computer Engineering, room 405, floor 4 (main building), 702-06-74 (4-38), http://www.kafikt.hneu.edu.ua/* |
| **Teacher (-s)** | *Tiutiunyk Olha Olexandrivna, an associate professor of the Informatics and Computer Engineering Department, Candidate of Technical Sciences* |
| **Teacher's contacts** | *tutunik.o@ukr.net, +380501424995* |
| **Days of the classes** | *Thursday* |
| **Consultations** | *Friday, 16-00, according to the graph, individual, remotely* |

**The purpose** of the discipline is to form knowledge and skills regarding the basic principles and prospects for the further development of methods for fast processing of huge data through parallel programming on the multiprocessor systems, as well as the acquisition of certain practical experience in this area of activity.

## Prerequisites for learning
*Computer architecture, Algorithms and methods of calculations, Programming, Discrete Math*

## Content of the educational discipline
**Content module 1. Basics of parallel programming**
**Topic 1.** Introduction. The subject matter of the academic subject, its content and objectives. The purpose of parallel data processing.
**Topic 2.** Algorithmization of parallel computing.
**Content module 2. Programming in multiprocessor systems**
**Topic 3.** Parallel programming using the .NET Framework.
**Topic 4.** Distributed computing.

## Material and technical support (software) of the discipline
*software - OpenMP*

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|---|---|
| **Course page on the Moodle platform (personal training system)** | *Lectures, laborarory tasks, the working program, the technological card, tests https://pns.hneu.edu.ua/course/view.php?id=7000* |

## Recommended literature
1. Aksak N. H. Parallel and distributed calculations: textbook. / N. H. Aksak, O. H. Rudenko, A. M. Hurzhii. – Kharkiv : SMIT Company, 2009.- 480 p.

2. Herhel V. P., Stronhin R. H. Fundamentals of parallel computing for multiprocessor computing systems. - N. Novhorod, NNSU, 2001.

3. Bohachev K. Yu. Fundamentals of parallel programming. – Moscow : BINOM. Knowledge Laboratory, 2003.

## Assessment system of learning outcomes

*The total result in points for a semester is: "60 or more points – passed", "59 or less points – failed" and is recorded in the "Progress Report" of the academic subject. More detailed information on assessment is given in the technological card of the discipline.*

## Accumulation of rating points in the discipline

| Types of training | Max points |
|---|---|
| Lectures | 7.5 |
| Laboratory tasks | 67.5 |
| Tests | 25 |
| **Max points** | **100** |

## Transference of Simon Kuznets KHNUE Characteristics of Students' Progress into the System of the ECTS Scale

| Total score on a 100-point scale | ECTS assessment scale | Assessment on the national scale | |
|---|---|---|---|
| | | for exam, differentiated test, course project (work), practice, training | for pass |
| 90 – 100 | A | excellent | pass |
| 82 – 89 | B | good | pass |
| 74 – 81 | C | good | pass |
| 64 – 73 | D | satisfactory | pass |
| 60 – 63 | E | satisfactory | pass |
| 35 – 59 | FX | unsatisfactory | not pass |
| 1 – 34 | F | unsatisfactory | not pass |

## Discipline policies

*Active participation in the discussion of educational issues, preliminary preparation for laboratory tasks according to the recommended literature, high-quality and timely performance of tasks.*

*Conscientious execution of the schedule of classes in the discipline (applicants for higher education who are late for class are not allowed to class).*

*For educational purposes, when using mobile devices, it is allowed to use only with the permission of the teacher.*

*The applicant for higher education has the right to find out about his / her accumulated points from the teacher of the discipline and to keep his / her own record of these points.*

***More detailed information about competencies, learning outcomes, teaching methods, assessment forms, independent training is given in the Syllabus (working plan) of the educational discipline** (https://pns.hneu.edu.ua/course/view.php?id=7000).*

Syllabus approved at the meeting of the Department *"Informatics and Computer Engineering"*.

Protocol №3 from 01.10.2020