Organization of distance learning discipline "Algorithms and data structures"

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Odessa Polytechnic National University

- founded in 1918
- Member of the European Association of Universities since 1994
- Member of the International Association of Universities since 1996
Odessa Polytechnic National University
Institute of Computer Systems

- founded in 1964 as faculty of automatics and computer engineering
- the first dean of the faculty M. Pohylo participated in the design of the first computer in USSR
- re-founded in 2000 as the scientific and educational union
- staff is 200 persons, teaching staff is 150
- 18 professors, doctors of science
- 60 candidates of science, assistant professors
- more than 2,000 full- and part-time students
Institute of Computer Systems

7 departments

- SoftWare Engineering
- Information technology
- Applied mathematics and information technologies
- Computerized Control Systems Department
- Computer intellectual systems and network
- Physics
Institute of Computer Systems
Information Systems Department
Specialty 122 - Computer Science

- Scientific research
- International activities (mobility and subordinate diplomas)
- International Summer Schools
- Cooperation with international software companies
- Participation in different international projects

Arsirii Olena  Trojanovska Julia
Disciplines at the first (bachelor's) level:

- Algorithmization and programming "(C / C++, etc.)
- Object Oriented Programming "(C#, Java, etc.)
- Operating systems (Windows, GNU Linux, MacOS)
- Data mining
- Organization of databases and knowledge (ORACLE, MS SQL SERVER);
- Web technology and web design
- Technology for creating software products
- Computer networks
- Game application development technology
- Information protection technologies
- Microprocessors in information and control systems
- Decision theory
- Distributed systems and parallel computing technologies
- Mobile programming (based on Android and iOS)
- Computer visualization
- IT project management
- Methods and systems of artificial intelligence
Disciplines at the second (master's) level:

- Methodology for creating secure software products
- Applied aspects of deep learning
- Data Engineering
- Probabilistic algorithms and data structures
- Organization of business processes in the IT industry
- Professional skills of an IT manager
- Selective issues of computer science

Disciplines at the third (educational and scientific) level:

- Organization and conduct of scientific calculations
- Mathematical modeling and computational methods
- Methods and means of multimedia data processing
- Modern methods of data mining
- Modern methods of systems analysis
- Reliability of information software
- Systems
Moodle is a learning platform designed to provide educators, administrators and learners with a single robust, secure and integrated system to create personalised learning environments.
Distance learning system Moodle has been in operation at ONPU for more than 10 years.

Distance learning covers more and more subjects, even the preparation and defense of qualifying papers.
Factors in the development of distance learning

* The distance learning system began to develop more actively in 2020 due to the pandemic.
* In 2022, the war with Russia began, students and teachers of ONPU were scattered all over the world.
The Algorithms and data structures is taught in the 1st year.

- Makes 12 credits.
- Includes lectures,
- laboratory,
- practical works, and
- a course work
A feature of the moodle over other systems is the organization of work in groups of students.

- Each student has
  - a group number
  - his own name and
  - corporate email
An example of working with students within the same task

Operational control of the execution of tasks
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Distance learning. BigBlueButton

- BigBlueButton is virtual classroom software that has been designed around the real-world needs of teachers and students
- We can work in a students group
In Moodle you can work from any device via a local network or the Internet.

However, the ONPU server is not designed for distance learning.

It was designed for indoor use.
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Problems in Distance Learning

- There are not good Internet connection for students and teachers abroad and in a village
- Students have to work to help their families
- Students participate in the volunteer movement to help the army and the settlers
- So, often impossible to have personal communication between students and a teacher
The teacher and students can allocate different times for attending classes

- Individual approach to each student
- E-mail, messangers
- Various messaging options within the system
Thank You for Attention!