# **Computer Science and Engineering**

Novosibirsk State University

Degree or qualification is awarded: Bachelor of science in Informatics and Computer Technologies

Language of study: **Russian** Mode of study: **full-time** Duration: **4 years** Availability of free education: **yes** Price: **4 500 USD per year** 

Programme curator: **Elena Nikitina** Tel.: **+7-383-3634025** E-mail: <u>neva@ccfit.nsu.ru</u>

During their first and second year students get fundamental knowledge in informatics, mathematics, physics and humanities. Starting from the third year students choose their specialization, having their major focus in system programming, computer and microprocessor architecture, etc.

# Specializations within this programme

## **Informational Systems**

Students can choose for major one of the following areas of specialization: computer modelling; intelligent systems; geoinformatics; business informatics; system programming; bioinformatics; educational informatics.

## **Computer Systems**

Undergraduates are offered to develop their skills in several areas such as: automation and informatization in research and industry; data security and protection, cryptography, development of information and telecommunication technologies in decision-making process.

#### **General Informatics**

Students study subjects such as enterprise information systems, information technology in Internet-marketing, data analysis, information retrieval, medical software, mobile technology and mobile marketing.

Students who have chosen this program become software engineers, business analysts, systems analysts, QA testers, professionals in the field of internet and mobile marketing, gain expertise in data analysis, knowledge engineering and artificial intelligence or in bioinformatics.

In this program the student:

- Learns how to obtain and properly process an important volume of data (text, sound, video, medical results such as results of an EEG, of tomography);
- Studies mobile technology;
- Gains expertise in IT-marketing and in basic working principles of an IT company.

#### **Computer Technologies**

In this program, students study problem-oriented programming technologies in different fields such as automation of research and complex technical systems; development of algorithmic software for mobile robots and drones; remote diagnostics, monitoring and image processing; multimedia and virtual reality.

Students who have chosen this area of specialization understand how a technological organism works and they become highly qualified IT professionals or design engineers.

In this program:

- Students study image processing of photographs and video stream. These technologies are used for object tracking, facial recognition, optical character recognition, objects recognition, for X-ray images processing, for detection of suspicious objects (control in airports) and in many other areas;
- Students gain knowledge in multimedia (development of software for TV adding a rolling title, a news feed, different objects in a video stream);
- Students learn to work with hardware, study microprocessor structure, build basic circuits, study electronics and circuit engineering;
- Students gain knowledge in robotics (quadrocopters, gliders, ground robots), learn to assemble robots, to develop the hardware and the software of the robot, to simulate and control it;
- The student can quickly see the result of his work: an assembled circuit or robot.

## **Parallel Computing**

Students are involved in research in the following areas: parallel computing models; architecture of high-performance computers; system and applied software for parallel computing

## **Discrete Analysis and Operations Research**

Undergraduates work on topics related to the development of algorithmic support of computer systems. In this program, the student can choose a major among the following research fields: mathematical models and decision-making methods; coding theory and mathematical cryptography; analysis and combinatorics of symbols' sequences; mathematical methods for pattern recognition.