LOBACHEVSKY UNIVERSITY

FUNDAMENTAL INFORMATICS & INFORMATION TECHNOLOGY

Become an IT-specialist of a highest level

The program is aimed at training experts in programming for high-tech companies of the information industry.

The educational process is based on the latest achievements in this field of science and technology.

Professors and teachers take into account different levels of international students' knowledge in mathematics and in computer sciences.

RUR

ACADEMIC RANKING OF WORLD UNIVERSITIES

THE WORLD UNIVERSITY RANKINGS

QS WORLD UNIVERSITY RANKINGS

Program details

(i)

Degree: Bachelor
Language: English
Entrance Exams: English, Mathematics
Tuition fee: 2 172 USD per year
Duration: 4 years

The curriculum and program of studies have been developed with the account of the specific nature of this course intended for international students.

— **Mathematical Analysis**

— **Algebra and geometry**

— **Discrete mathematics**

— **Basics of programming**

— **Discrete mathematics**

— **Graph theory**

— **Differential equations**

— **Probability theory and mathematical statistics**

— **Software Engineering**

— **Operating systems**

— **Computer Architecture**

— **Databases**

— **Computational methods**

— **.NET Technologies**

— **Java technologies**

— **Applied probability theory**

— **Programming for mobile systems**

— **Optimization methods**

— **Social and ethical issues of IT**

— **Theory of automata and formal languages**

— **Nonlinear logic**

— **Computer animation**

— **Basics of IT project management**

1

Information theory

The discipline starts on the 3 year of study

With this discipline you will get acquainted with the basic methods of research, the processes of measurement, processing, transmission of information, information encoding and decoding

You will study

— the basic measures of information, such as information on Hartley, Shannon

— the concept and properties of the Shannon entropy, conditional entropy

— the entropy of pairs of random variables, the relationship of entropy to the theory of coding

— the theorem about the channel capacity with noise

— information divergence

— a mathematical model of the communication channel

— optimal encoding; Kraft's inequality

— parameters of codes and their bounds

After this course you will

— analyze conceptual and theoretical models for problems related to information theory

— recognize and analyze the complexity of applied and theoretical problems of information theory

— apply facts and algorithms of information theory to solve applied problems of professional activity

— solve theoretical and applied problems, applying information theory methods

2

vocational subject

Design of the human-machine interface

3 ECTS

108 academic hours

The discipline starts on the 3 year of study

Mastering the discipline "Designing the human-machine interface" is necessary for the formation of professional competencies in the development, implementation and maintenance of software

You will study

— history of the development of the human-machine interface (HMI)

— Human-Computer Interaction: Trends, Research, Future

— Approaches to the design of the human-machine interface

— Classification of human-machine interfaces

— Visual interface components. Color solution and color schemes. Classification of the elements of the user interface

— Features of Web-interfaces and mobile applications.

— Principles, criteria, methods for assessing the user interface

After this course you will

— know standards in the development of man-machine interface

— apply features of human perception of information, issues of computer representation and visualization of information

— be able to design the interface of information systems, applying basic ergonomic principles for the implementation of human-machine interface

— to carry out the procedure interface test in information systems

3

Methods of developing network applications in the Java language

The discipline starts on the 3 year of study

2 ECTS

72 academic hours

The key purpose of mastering the discipline "Methods of developing network applications in the Java language" is to be familiar with modern software engineering techniques using the Java language

You will study

— Java class library

— Development of visual applications

— Mobile application development

— Java and elements of parallel programming

— Organization of interaction with binary code

— Organization of interaction with databases in Java

After this course you will

— understand the essence of information and its significance for modern society

— know how to estimate the amount of information and features of their application to a quantitative assessment of different types of information

— understand the content side of information processes, know the ways of transmission, reception, processing, analysis and storage of information

— develop your own windows-based application and a mobile client

4

Graph theory

7 ECTS

252 academic hours

The discipline starts on the 2 year of study

The key purpose of mastering the discipline "Graph theory" is to get acquainted with the phenomenon of a graph and its implementation in mathematical models, classical problems on graphs and modern ways to solve them, most important inventions in algorithm development

You will study

— The concept of a graph, its types and classification

— Graph traversal methods, BFS-tree, DFS-tree

— Classes of graphs: Kirchhoff's Matrix-Tree theorem, bipartite graphs, Koenig's theorem, planar graphs, Euler formula

— Eulerian cycles, De Bruijn sequence, Hamiltonian path

After this course you will

— know fundamental concepts and principles of graph theory

— be able to use graph-theoretic models solving several algorithmic problems

— use mathematical structures as a model of pairwise relations between objects in future research

5

vocational subject

Programming for mobile systems

3 ECTS

108 academic hours

The discipline starts on the 3 year of study

The objectives of this course are mastering the main existing technologies for the development of software for mobile computing, primarily such as smartphones and tablet computers, as well as considering the range of issues related to monetizing software developed for mobile devices

You will study

— Basics of developing mobile application interfaces

— Using smartphone features in applications

— Work with databases, graphics and animation

— Creating Maps, geocoding and geolocation services

— Tools for developing cross-platform applications

After this course you will

— know basic algorithms of computational mathematics, conditions for their applicability and theoretical estimates of labor intensity.

— conduct software testing procedures for mobile devices and computer systems using them

— create a mobile game application using one of the gaming platforms (XNA, UNITY)

— create a calculator application for Windows

Apply for a job in a world-famous company

You can work as:

— Programmer

— Web developer

— Systems engineer

— Systems analyst

— IT consultant

— Specialist in various types of IT-networks

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Study, create, change the world

Lobachevsky University is struggling for its research excellence and brings up talented researches from the very young ages

Study, create, change the world

Our graduates

FRONT-END DEVELOPER

Alexey Avdeev

During my studies I developed numerous useful skills and gained a lot of knowledge. We studied very complicated subjects such as Advanced Mathematics, Software Engineering, Algorithms, and at the same time had a lot of extra-curricular activities — student festivals and camps take a lot of time. Here we learned how to cope with different tasks and work smart.

Now I am a senior front-end developer and I'm very thankful to my University for all the skills and knowledge I gained.

Our graduates

Khatri Ramesh Kumar

The program provides
students with the optimal
balance between a defined
sequence of study
and flexible course options.
This innovative program has
been redesigned to develop
graduates with the key
practical skills and
interdisciplinary knowledge
required to address today's
global challenges.
Students will study an
extensive range of courses
underpinned by cutting edge
research and develop high
levels of personal initiative,
independent thinking
and communication skills.

**Lobachevsky
University is the one
of the best university
in Russia. The system
of evaluating
knowledge of
student is based on
their practical work.**

Employer's feedback

Our collaboration with Lobachevsky State University of Nizhny Novgorod Lasts about 15 years and it is a good example of deep and effective technical and research union.

Thanks to our cooperation, young people have the opportunity to participate in the development of projects in the most relevant areas – artificial intelligence, the Internet of things, neutral networks and many others.

The students join in the team, to listen and learn the older colleagues. They know how to communicate with customers and partners, are not afraid of complex tasks, are stress-resistant and open to new ideas.

We are grateful to the University Team for hard work with the professional staff for us, IT community in Nizhny Novgorod, and Russia! We are glad to our cooperation and we hope for long term partner relations.

HARMAN
A **SAMSUNG** COMPANY

Managing Director Harman Connected Services Boris Tarasulla

How to apply

1

Make sure you match the prerequisites

You should have at least B2 level of English and secondary education certificate or equivalent

10
july

application deadline

2

Fill in the online application form

Complete all the fields carefully with the necessary information. Don't forget to attach your documents: a copy of your passport and educational documents, translations, medical certificates etc.

Our Admissions Team will contact you soon right after you submit the application form.

3

Receive the email from admissions officer

Our Admissions Team will check your documents and inform you about next steps of application procedure. It's better if you will find out more about visa and recognition of your documents in advance.

4

Pass the exam

You can find the list of examination questions here

5

Sign the educational contract and pay the tuition fee

The tuition fee for the program is 175 000 RUB (≈ 2 172 USD) Please, note that it may change due to currency rate

Contact us

Don't hesitate to send us an email, if you still have questions.

Our Admissions Team will provide you with all the necessary information.

International Students Office

📞 +7 831 462 35 21

✉️ admissions@unn.ru

📍 Russia, Nizhny Novgorod, Gagarin Ave., 23, office 306

🕐 Mon–Thu: 9:00 –17:00
Fri: 9:00–16:00

Other programs 🔗

— Fundamental informatics & information technology

— Economics

— International relations

— Dentistry

— General medicine

— Management of business

— Sociology of politics & international relations

Useful links 🔗

— Application form

— How to get russian visa

— How to get the documents legalized and apostiled