



NORDIC INTERNATIONAL UNIVERSITY

MODERN DIRECTIONS IN TRAINING

EDUCATIONAL OFFER

COMPUTER ENGINEERING

nordicuniversity.org








NORDIC INTERNATIONAL UNIVERSITY

MODERN DIRECTIONS IN TRAINING

at Nordic International University

EDUCATIONAL OFFER

Computer Engineering

Tashkent – 2023


UNIVERSITY
NORDIC INTERNATIONAL
artnership

Professional competence is a great asset for the individual! Like our great ancestors, let's cherish every moment, diligently acquire knowledge, and give all our strength for the benefit of world civilization, the development of the Motherland, and the well-being of society!

Rektor's Message

DEAR FRIENDS AND STUDENTS!

Today we live in a world where scientists and people working in the field of education receive more and more support from society, and intellectual assets are valued and recognized above material ones. In all areas, the most respected and highly responsible positions in the public sector are entrusted to young and creative people who are socially and politically active and who put other people's interests above their own. "We will definitely build a new Uzbekistan together with our youth!" said President Shavkat Mirziyoyev, placing great confidence in the youth. At such a time, it is a matter of honor and great responsibility for all of you to acquire knowledge, show initiative and diligence, raise the prestige of our country in the international arena, and actively participate in the development of the country.

Professor
Sh. Mustafakulov
University Rector

WHY US ?

International Nordic University is the only private university in Central Asia that offers higher education in the style of the Nordic countries, especially Finnish.

The university is rightfully the cornerstone of Finnish-Uzbek cooperation in the field of education, the first educational cluster of the Finnish higher education system in Uzbekistan.

The university aims to accelerate the integration of higher education, science, and production by training full-time and part-time highly qualified specialists in the field of modern education in the republic.

ЎЗБЕКИСТОН РЕСПУБЛИКАСИ ОЛИЙ ТАЪЛИМ, ФАН ВА ИННОВАЦИЯЛАР ВАЗИРЛИГИ

ЛИЦЕНЗИЯ

№ 056003

"XALQARO NORDIK UNIVERSITETI" MASULIYATI CHEKLANGAN JAMIYAT

Нодавлат таълим хизматларини кўрсатиш фаолияти учун лицензия

ЛИЦЕНЗИЯ РЕЕСТРИ БЎЙИЧА ТАРТИБ РАҚАМИ
L-4409258

СТИР (СОЛИҚ ТЎЛОВЧИНИНГ ИДЕНТИФИКАЦИОН РАҚАМИ)
309533058

АМАЛ ҚИЛИШ МУДДАТИ
08.08.2022дан

ЖОЙЛАШГАН МАНЗИЛИ (ПОЧТА МАНЗИЛИ)
Тошкент шаҳри, Олмазор тумани, Аллон МФЙ, Фаробий кучаси, 290-уй

ФАОЛИЯТ МАНЗИЛИ
Тошкент шаҳри, Чилонзор тумани, г. Ташкент, Чиланзарский район, кв. Е, Новза МСГ, 8/2- Дом, -

ВАКОЛАТЛИ ОРГАН
Ўзбекистон Республикаси Олий таълим, фан ва инновациялар вазирлиги

28.12.2022 16:59
ТАҚДИМ ЭТИЛГАН САНА

Лицензия № 056003

Фаолият тури

Олий таълим хизматлари

Қўшимча маълумотлар

ТАЪЛИМ ЙЎНАЛИШЛАРИ

Таълим йўналиши
60110200 - Мактабгача таълим
60410400 - Молия ва молиявий технологиялар
60110500 - Бошланғич таълим
60310100 - Иқтисодиёт (тармоқлар ва соҳалар бўйича)
60111800 - Хорижий тил ва адабиёти (тип.пар бўйича)
60610500 - Компьютер инжиниринги («Компьютер инжиниринги», «АТ-Сервис», «Ахборот хавфсизлиги», «Мультимедиа технологиялари»)
TU BA (Hons) Халқаро бизнес
BU BSc (Hons) саноат менежменти
60111300 - Мусиқа таълими
60112700 - Махсус педагогика (фаолият турлари бўйича)
60310900 - Психология (фаолият турлари бўйича)
60411900 - Жаҳон иқтисодиёти ва халқаро иқтисодий муносабатлар (минтақалар ва фаолият турлари бўйича)
70110201 - Таълим ва тарбия назарияси ва методикаси (мактабгача таълим)
70110501 - Таълим ва тарбия назарияси ва методикаси (бошланғич таълим)
70110103 - Таълим муассасаларининг бошқаруви
70110102 - Педагогика ва психология
70310102 - Иқтисодиёт (тармоқлар ва соҳалар бўйича)
70411901 - Жаҳон иқтисодиёти (минтақалар ва фаолият турлари бўйича)

Based on best practices, innovative educational models, curricula, and programs created in the prestigious higher education institutions of Northern Europe, the university will contribute to the preparation of highly qualified specialists, taking into account the needs of the real sector of the economy.

Created in Tashkent on the basis of the direct support of the Karelian University of Applied Sciences of Finland, the Helsingin School Suomalainen Yhteistskoulu, the Nokia Transnational Corporation, the Finnish Water Forum Association, and the ISKU Company, the university will provide services based on the advanced achievements of Finland in the field of education.

Karelia UNIVERSITY OF APPLIED SCIENCES

HELSINGIN SUOMALAINEN YHTEISKOULU SYK 1886

NOKIA

FINNISH WATER FORUM

ISKU

MODERN EDUCATIONAL DIRECTIONS

BACHELOR

full-time and part-time

- PRESCHOOL EDUCATION
- FINANCE AND FINANCIAL TECHNOLOGIES
- PRIMARY EDUCATION
- ECONOMY (BY BRANCHES AND INDUSTRIES)
- FOREIGN LANGUAGE AND LITERATURE (BY TYPE)
- COMPUTER ENGINEERING
- INTERNATIONAL BUSINESS
- INDUSTRIAL MANAGEMENT
- MUSIC EDUCATION
- SPECIAL PEDAGOGY (BY TYPE)
- PSYCHOLOGY (BY TYPE)
- WORLD ECONOMY AND INTERNATIONAL ECONOMIC RELATIONS

MASTER

- PEDAGOGY AND PSYCHOLOGY
- ECONOMY (BY BRANCHES AND INDUSTRIES)
- MANAGEMENT OF EDUCATIONAL INSTITUTIONS
- THEORY AND METHODS OF EDUCATION AND TRAINING (PRESCHOOL EDUCATION)
- THEORY AND METHODS OF EDUCATION AND TRAINING (PRIMARY EDUCATION)
- WORLD ECONOMY (BY REGIONS AND TYPES OF ACTIVITY)

COMPUTER ENGINEERING

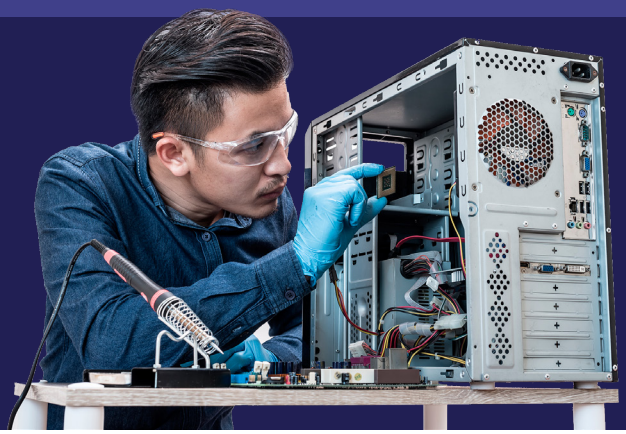
OVERVIEW

Are you interested in designing, developing, and maintaining the latest computer technologies? Do you enjoy working with cutting-edge hardware and software to push the boundaries of what's possible in the world of computing? If so, a degree in computer engineering may be perfect for you!

At our university, you will have the opportunity to study with world-class faculty who are experts in the field of computer engineering. You will have access to state-of-the-art facilities and equipment, including cutting-edge computers and software, and will work on real-world projects that will give you the skills and experience you need to succeed in the industry.

Whether you're interested in developing the next generation of computer hardware, creating innovative software applications, or designing the networks that connect the world, a degree in computer engineering from our university will give you the tools you need to succeed in this exciting and rapidly evolving field. So why wait? Enroll today and start your journey towards a career in computer engineering!

COMPUTER ENGINEERING



WHAT WILL YOU LEARN?

In a computer engineering course, you will learn a wide range of topics related to computer hardware, software, and networks. Some of the key areas you will study include:

1. Computer architecture: You will learn how to design and build computer systems, including microprocessors, memory, and storage devices.
2. Digital systems: You will study digital logic circuits, which form the basis of all digital devices.
3. Programming: You will learn how to write programs in a variety of programming languages, including C, C++, Java, and Python.
4. Operating systems: You will study how operating systems work, including how they manage resources such as memory, processors, and I/O devices.
5. Computer networks: You will learn about the principles of computer networks, including how they are designed, implemented, and managed.
6. Robotics and control systems: You will study the design and control of robots and other automated systems.
7. Signal processing: You will learn how to process signals, such as audio and video, using digital signal processing techniques.
8. VLSI design: You will study how to design and build complex integrated circuits using Very Large Scale Integration (VLSI) techniques.

In addition to these core topics, you will also have the opportunity to specialize in areas such as artificial intelligence, machine learning, cybersecurity, and mobile computing. The exact curriculum may vary depending on the program and the university you attend, but all computer engineering courses will provide you with a strong foundation in the principles of computer engineering and the skills you need to succeed in this exciting field.

HOW WILL YOU LEARN IT?

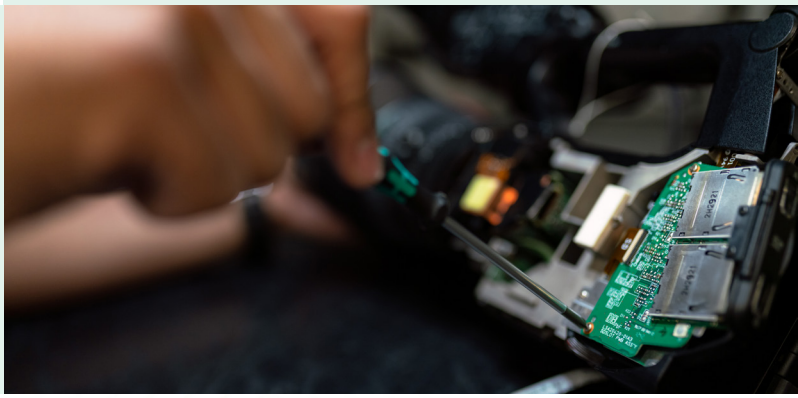
Computer engineering is a rapidly growing field that combines principles of computer science and electrical engineering to design and develop computer hardware and software systems. Students who are interested in pursuing a degree in computer engineering will learn a range of skills and knowledge through various methods.

One of the primary ways that students learn computer engineering is through lectures. Lectures provide a foundational understanding of the key concepts and principles of computer engineering. During lectures, students take notes, ask questions, and engage in class discussions.

In addition to lectures, labs provide an opportunity for students to get hands-on experience with computer hardware and software. Labs allow students to apply the theoretical knowledge gained in lectures to real-world problems and to develop practical skills. During labs, students work with microprocessors, design and test circuits, or program software applications.

Projects are another way for students to work collaboratively and apply the knowledge and skills they have learned in lectures and labs to practical problems. Projects can be individual or team-based and can involve designing and building hardware or software systems.

In addition to these methods, online resources, books, and peer learning can also be valuable ways for students to learn computer engineering. By engaging with a variety of learning methods, students can gain a comprehensive understanding of computer engineering and develop the skills and knowledge they need to succeed in this exciting and rapidly growing field.



YOUR DEGREE SUMMED UP

STUDY MODEL

YEAR 1:

1. Introduction to Computer Science
2. Introduction to Electrical Engineering
3. Calculus and Linear Algebra
4. Programming Fundamentals
5. Computer Organization and Architecture
6. Digital Logic Design
7. Communication Skills

YEAR 2:

1. Data Structures and Algorithms
2. Operating Systems
3. Computer Networks
4. Object-Oriented Programming
5. Signals and Systems
6. Electronic Circuits and Devices
7. Probability and Statistics

YEAR 3:

1. Computer Graphics
2. Database Systems
3. Advanced Programming Concepts
4. Microprocessors and Embedded Systems
5. Analog and Digital Communication
6. Electromagnetic Fields and Waves
7. Engineering Ethics and Professionalism

YEAR 4:

1. Software Engineering
2. Computer Vision and Machine Learning
3. Distributed Systems
4. Robotics
5. Advanced Topics in Computer Engineering
6. Senior Design Project
7. Technical Communication

This study model covers a wide range of topics in computer engineering, including programming, hardware design, data structures, networking, communication systems, and more. Students will also have the opportunity to work on a senior design project in their final year, which will allow them to apply their knowledge and skills to a real-world problem.

Throughout the program, students will engage with a variety of learning methods, including lectures, labs, and projects. This model is designed to provide students with a comprehensive education in computer engineering and prepare them for a successful career in this exciting and rapidly growing field.

STUDY CONTENTS:
COURSE OVERVIEW

Computer engineering is an exciting and dynamic field that combines principles from computer science and electrical engineering to create the technology that powers the modern world. As a computer engineering student, you will learn about everything from designing microprocessors and developing new computer hardware to creating software applications and designing computer networks. With a degree in computer engineering, you will be equipped to work in a variety of industries, including technology, healthcare, finance, and telecommunications.

SEMESTER 1

In the first semester of a computer engineering program:

1. Introduction to Computer Science: This course would cover the basic concepts of computer science, including algorithms, data structures, programming languages, and software engineering.
2. Calculus and Linear Algebra: These courses would cover the fundamental concepts of calculus and linear algebra, which are important for understanding the mathematical principles that underlie computer engineering.
3. Programming Fundamentals: This course would cover the basics of programming, including syntax, control structures, data types, and functions.
4. Digital Logic Design: This course would cover the design and analysis of digital circuits using Boolean algebra and other techniques.
5. Communication Skills: This course would help students develop their oral and written communication skills, which are important for working in teams and presenting technical ideas.
6. Computer Organization and Architecture: This course would cover the basic principles of computer organization and architecture, including memory systems, instruction sets, and processor design.
7. Introduction to Electrical Engineering: This course would cover the basic principles of electrical engineering, including circuits, signals, and systems.
8. These topics would provide a solid foundation for students to build upon in future semesters as they delve deeper into the field of computer engineering.

SEMESTER 2

In the second semester of a computer engineering program:

1. Data Structures and Algorithms: This course would build upon the programming fundamentals covered in the first semester and cover more advanced data structures and algorithms, including trees, graphs, and sorting algorithms.
2. Computer Networks: This course would cover the basic principles of computer networks, including protocols, topologies, and network architecture.
3. Digital Signal Processing: This course would cover the processing and analysis of digital signals, including Fourier analysis, filter design, and sampling.
4. Computer Graphics: This course would cover the basic principles of computer graphics, including rendering techniques, modeling, and animation.
5. Probability and Statistics: This course would cover the basic principles of probability and statistics, which are important for understanding the behavior of complex systems and for data analysis.
6. Electronic Circuits: This course would cover the design and analysis of electronic circuits, including amplifiers, filters, and oscillators.
7. Software Engineering: This course would cover the principles of software engineering, including software design, testing, and project management.

SEMESTER 3

In the third semester of a computer engineering program:

1. Operating Systems: This course would cover the principles of operating systems, including process management, memory management, and file systems.
2. Computer Organization and Architecture II: This course would build upon the computer organization and architecture concepts covered in the first semester and cover more advanced topics, such as pipelining and memory hierarchy.
3. Database Systems: This course would cover the principles of database systems, including data modeling, query languages, and transaction management.
4. Embedded Systems: This course would cover the design and implementation of embedded systems, including real-time operating systems and microcontrollers.
5. Computer Security: This course would cover the principles of computer security, including authentication, access control, and cryptography.
6. Signals and Systems: This course would cover the principles of signals and systems, including time and frequency domain analysis, Fourier transforms, and Laplace transforms.
7. Digital Communication Systems: This course would cover the principles of digital communication systems, including modulation techniques, channel coding, and error correction.

SEMESTER 4

In the fourth semester of a computer engineering program:

1. Computer Architecture and Parallel Processing: This course would cover the principles of computer architecture and parallel processing, including multiprocessing, multithreading, and distributed systems.
2. Software Development: This course would cover the principles of software development, including agile methodology, software testing, and debugging.
3. Artificial Intelligence and Machine Learning: This course would cover the principles of artificial intelligence and machine learning, including neural networks, decision trees, and natural language processing.
4. Computer Vision: This course would cover the principles of computer vision, including image processing, feature extraction, and object recognition.
5. Wireless Networks: This course would cover the principles of wireless networks, including cellular networks, WLANs, and ad-hoc networks.
6. Advanced Topics in Database Systems: This course would cover more advanced topics in database systems, such as data warehousing, data mining, and data analytics.
7. Advanced Topics in Computer Security: This course would cover more advanced topics in computer security, such as network security, intrusion detection, and digital forensics.

SEMESTER 5

In the fifth semester of a computer engineering program:

1. Data Structures and Algorithms: This course would cover advanced data structures, such as trees, graphs, and heaps, as well as algorithms for searching, sorting, and optimization.
2. Advanced Computer Networks: This course would cover advanced topics in computer networking, such as network protocols, network performance analysis, and network security.
3. Software Engineering: This course would cover the principles of software engineering, including requirements gathering, software design, and software testing.
4. Distributed Systems: This course would cover the principles of distributed systems, including distributed algorithms, distributed databases, and distributed file systems.
5. Computer Graphics and Visualization: This course would cover the principles of computer graphics and visualization, including 2D and 3D graphics, rendering techniques, and virtual reality.
6. Internet of Things (IoT): This course would cover the principles of IoT, including sensor networks, data analytics, and IoT applications.
7. Computer Forensics: This course would cover the principles of computer forensics, including digital evidence collection, preservation, and analysis.

SEMESTER 6

In the sixth semester of a computer engineering program:

1. Embedded Systems: This course would cover the principles of embedded systems, including embedded hardware and software design, real-time systems, and system-on-chip (SoC) design.
2. Operating Systems: This course would cover the principles of operating systems, including process management, memory management, and file systems.
3. Computer Organization and Assembly Language: This course would cover the principles of computer organization and assembly language programming, including CPU architecture, memory hierarchy, and instruction set architecture.
4. Cloud Computing: This course would cover the principles of cloud computing, including cloud infrastructure, virtualization, and cloud security.
5. Advanced Topics in Artificial Intelligence: This course would cover advanced topics in artificial intelligence, such as deep learning, reinforcement learning, and generative models.
6. Robotics: This course would cover the principles of robotics, including robot kinematics, robot control, and robot sensing.
7. Computer-Aided Design (CAD) and VLSI Design: This course would cover the principles of CAD and VLSI design, including hardware description languages, digital system design, and verification.

SEMESTER 7

In the seventh semester of a computer engineering program:

1. Advanced Computer Architecture: This course would cover the principles of advanced computer architecture, including advanced processor design, memory hierarchies, and interconnection networks.
2. High-Performance Computing: This course would cover the principles of high-performance computing, including parallel algorithms, parallel programming models, and high-performance computing architectures.
3. Computer Security: This course would cover the principles of computer security, including encryption, authentication, and access control.
4. Computer Vision: This course would cover the principles of computer vision, including image processing, object recognition, and computer vision applications.
5. Natural Language Processing: This course would cover the principles of natural language processing, including text mining, machine translation, and speech recognition.
6. Mobile Application Development: This course would cover the principles of mobile application development, including mobile application design, mobile user interface design, and mobile application programming.
7. Cybersecurity Forensics: This course would cover the principles of cybersecurity forensics, including the identification, preservation, and analysis of digital evidence in cybercrime investigations.

SEMESTER 8

In the eighth semester of a computer engineering program:

1. Machine Learning: This course would cover the principles of machine learning, including supervised and unsupervised learning, deep learning, and reinforcement learning.
2. Artificial Intelligence: This course would cover the principles of artificial intelligence, including expert systems, knowledge representation, and natural language processing.
3. Distributed Systems: This course would cover the principles of distributed systems, including distributed algorithms, distributed databases, and distributed computing models.
4. Cloud Computing: This course would cover the principles of cloud computing, including cloud architectures, virtualization, and cloud deployment models.
5. Computer Networks: This course would cover the principles of computer networks, including network architectures, protocols, and network security.
6. Computer Graphics: This course would cover the principles of computer graphics, including computer graphics algorithms, graphics systems, and 3D graphics.
7. Human-Computer Interaction: This course would cover the principles of human-computer interaction, including interface design, usability, and user experience.

These topics would provide students with a more advanced education in computer engineering, allowing them to further specialize in areas of interest and prepare for careers in specialized fields such as artificial intelligence, machine learning, or cloud computing.

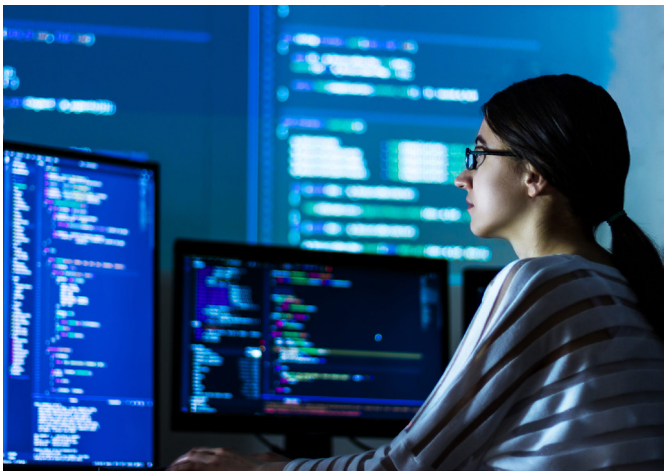
ADMISSION:
ENTRY REQUIREMENTS

1. High School Diploma or Equivalent: Students must have completed high school or an equivalent program, such as a General Education Development (GED) program.
2. Mathematics and Science Requirements: Students must have taken and passed courses in mathematics and science, including calculus, physics, and chemistry.
3. English Language Proficiency: Students must demonstrate proficiency in the English language, typically through a standardized test such as the TOEFL or IELTS.
4. Standardized Test Scores: Students may be required to submit scores from standardized tests such as the SAT or ACT.
5. Letters of Recommendation: Students may be required to submit letters of recommendation from teachers, counselors, or other professionals.
6. Personal Statement: Students may be required to submit a personal statement or essay outlining their academic goals and reasons for pursuing a degree in computer engineering.

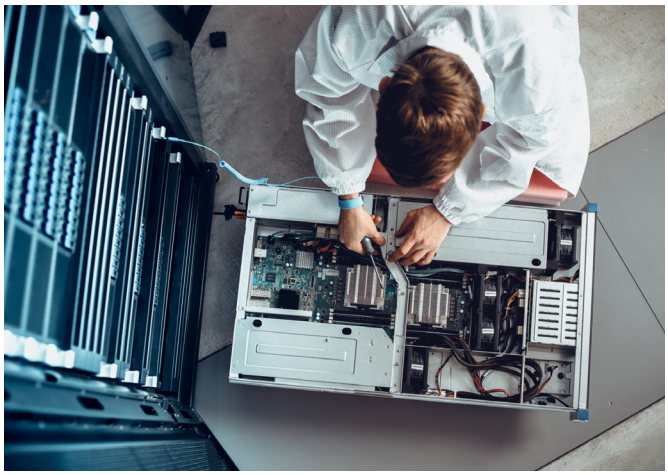
These requirements may vary depending on the specific program and institution. Prospective students should consult the program website or admissions office for detailed information on entry requirements.

CAREERS:

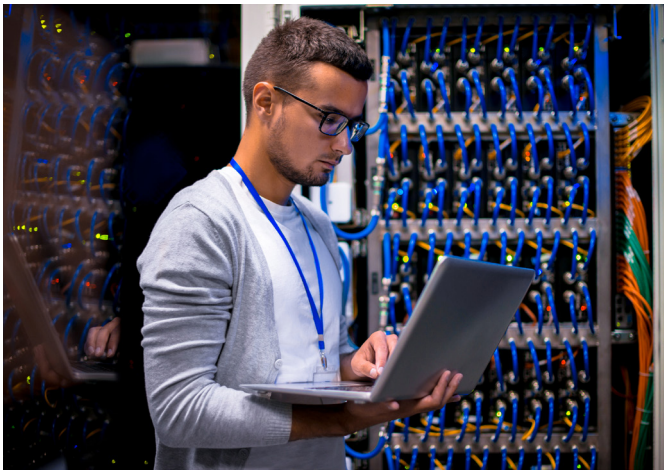
1. Software Engineer: Develop and maintain software systems for a variety of applications, including web development, mobile apps, operating systems, and more.
2. Hardware Engineer: Design and develop computer hardware components and systems, including circuit boards, processors, and memory.
3. Network Administrator: Manage and maintain computer networks, including local area networks (LANs), wide area networks (WANs), and cloud-based networks.
4. Data Scientist: Analyze and interpret complex data sets, using statistical and computational methods to identify patterns and trends that can inform business decisions.
5. Cybersecurity Analyst: Protect computer systems and networks from unauthorized access, by identifying and addressing security threats and vulnerabilities.
6. Robotics Engineer: Design and develop robotic systems for a variety of applications, including manufacturing, healthcare, and military.
7. Machine Learning Engineer: Develop and implement machine learning algorithms for a variety of applications, including natural language processing, computer vision, and predictive analytics.



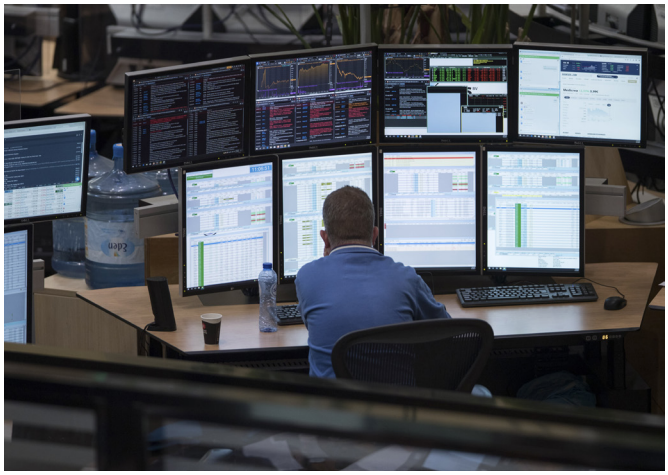
SOFTWARE ENGINEER



HARDWARE ENGINEER

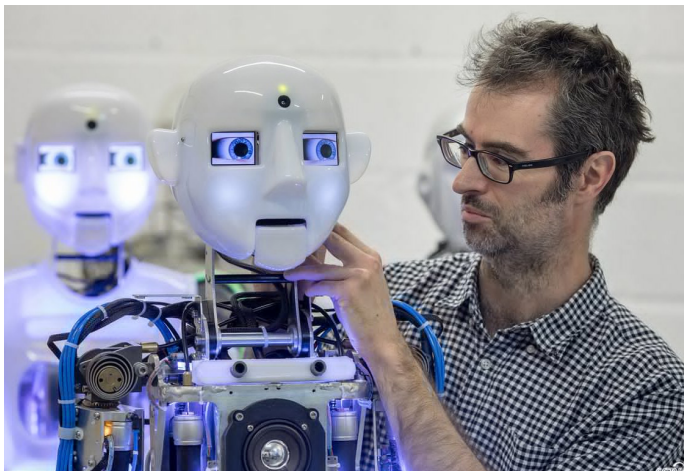


NETWORK ADMINISTRATOR



DATA SCIENTIST

CYBERSECURITY ANALYST



ROBOTICS ENGINEER

INTERNATIONAL PARTNERS




UNIVERSITY OF KARELIA APPLIED SCIENCES

THE NOKIA TRANSNATIONAL CORPORATION

PEDAGOGICAL STAR LESSONS

DIDACTEC LTD

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