1. **The National Technical University of Ukraine**

**"Kyiv Polytechnic Institute"**

The National Technical University of Ukraine “Kyiv Polytechnic Institute” (NTUU”KPI”) is one of the oldest and biggest higher educational institutions in Ukraine.

The University is situated not far from the center of the city in a beautiful shady park. At present the number of students in the NTUU ”KPI” are 50000. They obtain qualifications in 68 specialties and 70 specializations.

The teaching staff of our university consists of highly qualified teachers, professors and scientists.

Many students live in twenty-one hostels. Three of them are at the disposal of married students.

The Institute was founded in 1898. It had only four departments: mechanical, chemical, agricultural and civil engineering ones.

The first rector of the Institute was Professor Viktor Kirpichov, the great scientist in the field of mechanics and strength of materials. In 1934 - 1944 KPI was called the Industrial Institute.

A large number of prominent scientists studied and worked at our university: Eugene Paton, the founder of electric welding; M.L. Konovalov, a well-known chemist; LP. Bardin, the greatest metallurgist in the country; A.M. Lyulka, the designer of airplane engines, S.P. Korolyov, the designer of the first spaceship in the world; Igor Sikorsky, the designer of the first helicopter, and others. The President of the First Exam Board at chemistry faculty was Dmitry Mendeleyev.

The most active international scientific and technological co-operation is carried out by the departments of the University with the partners from Poland, Germany, Bulgaria, Denmark, Lebanon etc.

Great importance is attached to the development of physical culture at our University. There are many sport grounds, a football field, volleyball and basketball courts. Many students go in for different kinds of sport, which helps them feel healthy and strong.

The KPI graduators now as well as many years ago feel proud to have studied at the Polytech.

1. **Kiev Ukraine**

According to the chronicles Kyiv’s first citadel was built in the period from the sixth to eighth centuries. Kyiv bears the name of prince Kyi, who lived on the old Kyiv Hill in the sixth century. Under the rule of Yaroslav the Wise Kyivan Rus with Kyiv as its capital reached the height of its power.

Nowadays Kyiv is a large political, industrial, scientific and cultural centre. Its population is about 3 million. The city lies on both banks of the Dnieper. Kyiv is a garden city; only a seventh part of its territory is occupied by buildings.

Kyiv has a well-developed industry. Its factories and plants produce sea and river transport vessels, air liners, computers,motorcycles, consumer goods.

Kyiv is also one of the largest scientific centres. The Ukrainian Academy of Sciences and many research institutes are famous for their discoveries. More than 10 000 students study at Kyiv Shevchenko National University. There are over 20 higher educational establishments in Kyiv.

Kyiv is also the centre of political life in Ukraine. All major political events take place here.

Kyiv is the largest ancient centre of national Ukrainian culture. There are 20 museums, 1300 libraries, 41 theatres, 121 parks. Kyiv is growing and is being built, it also becomes younger and more beautiful.

1. **My sity**

Berdyansk is a resort town located on the coast of the Sea of Azov in the south-east of Ukraine. With its warm climate and excellent beaches, it is a popular resort and the perfect destination for an unforgettable holiday.

Berdyansk is an amazing place. Its main street Lenin Avenue with its beautiful buildings and enchanting views is worth visiting. Among the natural wonders are Berdyansk Peninsula and Dzendzyk Island. Tourists can travel to Dzendzyk Island on a boat. The most famous Berdyansk’s tourist attractions are the Aquapark, the Dolphin Aquarium, the safari park and the Observation Wheel.

Tourists can also go shopping in Berdyansk. There are a number of large markets and small boutiques. There are also several flea markets where tourists can buy attractive Ukrainian towels and embroidered shirts as well as jewellery and souvenirs. Nightlife in Berdyansk is exciting. There are plenty of music and dance clubs which are extremely popular with young people. The area is also well-known for restaurants which offer a variety of dishes from around the world.

What I like the best about Berdyansk is its unique atmosphere. The people are nice, friendly, hospitable and helpful. Berdyansk has something to offer for everyone.

1. **My faculty, future profession**

I am a student of Faculty of Applied Mathematics

My faculty trains specialists in the field of information technology, design of operating systems, development of system and applied mathematical provision, automation systems design, scientific researches, expert systems, development and application of computer systems and networks of general purpose, specialized computer systems and networks with optimized parameters, means of information protection in computer systems, local and distributed computing systems.

We receive advanced training in the design, manufacturing, repair and maintenance of computers and computer networks that are taught in the following subjects:

Design of computer network administration tools

Design of computer systems and networks

Network information technologies

Design of database and knowledge base machines

Methods and tools for computer-aided design of computer systems

Design of information security tools for computer networks

Administration of corporate information systems

Design of user interfaces

We learn to programming in multiple languages from assembler to high-level languages such as C++ and Java, to develop algorithms, to understanding of the electronic devices, to manage networks. Knowledge and practical skills obtained at the Faculty of Applied Mathematics allow us to find their rightful place on the job market and get an interesting and rewarding job position.

1. **The future of IT**

The development of cloud computing. Many business processes are moving to the cloud, and gradually change the business itself.  
Mobility. Cloud technologies lead to an increase in business mobility: though it is like that the company is no longer tied to a particular location, and the fact that the company is aware of the demand for mobile technology among customers.

Big Data Technologies. Data and analytics - something that will go forward.  
Internet of Things. According to forecasts by the year 2020 it will be connected to the Internet for more than 50 billion in a variety of technical devices.  
Strengthening of information security. Cloud technologies, mobility and other market trends make pay more attention to data security.  
 Smart devices. The growing number of intelligent devices that can control various processes inevitable. Smart watches and bracelets.  
 3D-press. It is obvious that the invention of 3D-printers will have an important impact on many industries, from medicine to construction.  
 The development of online learning.  
 The rise of electronic payment systems. The growth of electronic payments continues and the market come new formats of interaction with money.

1. **Computers**

When Charles Babbage, a professor of Mathematics at Cambridge university, invented the first calculating machine in 1812 he couldn't even imagine the consequences of this discovery. Nearly everything we do in the world is assisted or even controlled by computers, the complicated descendants of his simple machine. Computers are used more and more often in the world today, for the simple reason that they are far more efficient than human beings. They have much better memory and they can store much information. No man alive can do 500000 sums in one second, but a computer can. In fact, computers can do many of the things we do, but faster and better. They can predict weather, and even play chess, write poetry or compose music. Just as television has extended human sight across the barriers of time and distance, so the computers extend the power of the human mind across the existing barriers.

Computers in medicine

Computers are one of great importance in modern hospital. The chief use of computers is the storing and sorting the medical knowledge which has been acquired in the last 50 years. No doctor can possible keep up with all discoveries. The only solution of the problem is store medical knowledge in a computer. Today there are medical computer centers were all existing knowledge of symptoms of various diseases and of their treatment is stored. Doctors feed data on symptoms in the computer and get the necessary information on correct diagnostics and treatment.

Computers that can be taught

Ordinary computer can use only the data stored in the hard disk. Now scientists have designed machines, that are capable of learning from their experience and remembering what they have learned. Such a machine is capable of recognizing objects without human help or control. But of course, they can make many mistakes.

Computers at the school

Information science with the ideas and message of processing and storing information is of great importance today. That's why computer technology must be taught in secondary school. The new subject "basic information science", and "computing machines" was introduced for the senior pupils at schools. Contact with the machine increases the interest in learning, makes them more serious about studying new subject. School computers are used not only to study information science, but also for examination purposes. Young people who finish the school must be trained to operate computers.

1. **History of the computers**

The rapidly advancing field of electronics led to construction of the first general-purpose electronic computer in 1946 at the University of Pennsylvania. It was Electronic Numerical Integrator And Computer or ENIAC, the device contained 18,000 vacuum tubes and had a speed of several hundred multiplications per minute. Its program was wired into the processor and had to be manually altered.

Later transistors appeared. The use of the transistor in computers began in the late 1950s. It marked the advent of smaller, faster elements than it was possible to create with the use of vacuum-tube machines. Because transistors use less power and have a much longer life, computers alone were improved a lot. They were called second-generation computers.

Components became smaller and the system became less expensive to build.

Modern digital computers are all conceptually similar, regardless of size and shape. Nevertheless, they can be divided into several categories on the basis of cost and performance.

The first one is the personal computer or microcomputer, a relatively low-cost machine, usually of desk-top size. Sometimes they are called laptops. They are small enough to fit in a briefcase. The second is the workstation, a microcomputer with enhanced graphics and communications capabilities that make it especially useful for office work. And the server computers, a large expensive machine with the capability of serving the needs of major business enterprises, government departments, scientific research establishments. The largest and fastest of these are called supercomputers.

A digital computer is not actually a single machine, in the sense that most people think of computers. Instead it is a system composed of five distinct elements: a central processing unit, input devices, memory storage devices, output devices and a communications network, called a «bus» that links all the elements of the system and connects the system itself to the external world.

Talking about a central processing unit or the heart of computer; I would like to add that there were several generations of microprocessors. The first generation was represented by processing unit Intel 8086. The second generation central processing unit was represented by processing unit Intel 80286, used in IBM PC AT 286. In the end of 80s such computer costs about 25-30 000 rubles in the former USSR. The third generation is represented by Intel 80386, used in IBM PC AT 386. The microprocessors of the fourth generation were used in computers IBM PC AT 486. There are also central processing units of the fifth generation, used in Intel Pentium 60 and Intel Pentium 66, central processing units of the sixth generation, used in computers Intel Pentium 75,90,100 and 133. Few years ago appeared central processing units of seventh and eighth generations.

Computer speeds are measured in gigahertz today. Recently, an optical central processing unit has been invented, which is capable of executing trillions discrete operations per second or it is as fast as the speed of light.

So, we are at the threshold of new computer era, when artificial intelligence could be invented. There are no questions with «if», the only question is «when». And time will show us either computers become our best friends or our evil enemies as it is shown in some movies.

1. **Computer System**

The Parts of a Computer System   
A computer is an electronic device used to process data, converting it into information that is usefulto people. A complete computer system includes hardware, software, data, and people. Hardwareconsists of electronic devices, the parts you can see. Software, also known as programs, consistsof organized sets of instructions for controlling the computer. Data consists of text, numbers,sounds, and images that the computer can manipulate.

Looking Inside the Machine   
The hardware, or physical components, of a computer consists of a processor, memory, input andoutput (I/O) devices, and storage. The processing function is divided between the processor andmemory. The processor, or CPU, is the brain of the machine. Memory holds data and programinstructions as the CPU works with them. The units of measure for memory are the byte, kilobyte,megabyte, gigabyte, and terabyte. The role of input devices is to provide data from the user oranother source. The most common input devices are a keyboard and a mouse. The function ofoutput devices is to present processed data to the user or to another computer. The most commonoutput devices are a monitor and a printer. Communications devices, such as modems and networkinterface cards, perform both input and output functions, allowing computers to share information.Storage devices hold data not currently being used by the CPU. The most common storage devicesare a floppy disk, a compact disk, a Digital Video Disk.

Software: Bringing the Machine to Life  
Programs are electronic instructions that tell the computer how to accomplish certain tasks. When acomputer is using a particular program, it is said to be running or executing the program. Theoperating system tells the computer how to interact with the user and how to use the hardwaredevices attached to the computer. Application software tells the computer how to accomplish tasksthe user requires. Some important kinds of application software are word processing programs,spreadsheets, database management software, presentation programs, graphics programs,multimedia applications, entertainment and education software, Web design tools and Webbrowsers, Internet applications, utilities, and networking and communications software.

1. **Computer programming**

Computer programming is the craft of writing useful and extensible source code which can be interpreted or compiled by a computing system to perform a meaningful task.

Programming a computer can be performed in one of numerous languages, ranging from a higher-level language to writing directly in low-level machine code.

Basically, writing software (computer programs) involves describing processes, procedures; it involves the authoring of algorithms.  Computer programming involves developing lists of instructions - the source code representation of software  The stuff that these instructions manipulate are different types of objects, e.g., numbers, words, images, sounds, etc...  Creating a computer program can be like composing music, like designing a house, like creating lots of stuff.  It has been argued that in its current state it is an art, not engineering.

Development phase is the phase in which the system’s computer programs are written.. During this phase programmers write lists of instructions that will be followed by the central processing unit (CPU). The instructions of the program must be complete and in an appropriate order. Any data used by a program has to be described so that compiler knows how to store and retrieve it.

Debugging is a process of seeking and corrrecting mistakes at programm code and programm algorytm.   Steps you take are like solving puzzles.

Debugging a program can be done in steps that match the Scientific Method.

Observation,

Hypothesize,

Make predictions, and

Test

1. **Programming languages**

Programming is a way of sending instructions to the computer. To create these instructions,programmers use programming languages to create source code, and the source code is thenconverted into machine (or object) code, the only language that a computer understands. People,however, have difficulty understanding machine code. As a result, first assembly languages andthen higher-level languages were developed. Programming languages require that information beprovided in a certain order and structure, that symbols be used, and sometimes even thatpunctuation  
be used. These rules are called the syntax of the programming language, and they vary a greatdeal from one language to another.  
Categories of Languages.  
Based on evolutionary history, programming languages fall into one of the following three broadcategories:  
Machine Languages. Machine languages consist of the 0s and 1s of the binary number system andare defined by hardware design. A computer understands only its machine language – thecommands in its instruction set that instruct the computer to perform elementary operations such asloading, storing, adding, and subtracting.  
Assembly Languages. These languages were developed by using Englishlike mnemonics.Programmers worked in text editors to create their source files.  
To convert the source files into object code, researchers created translator programs calledassemblers. Assembly languages are still much easier to use than machine language.  
Higher-Level Languages. These languages use syntax that is close to human language, they usefamiliar words instead of communicating in digits. To express computer operations, they useoperators, such as the plus or minus sign, that are the familiar components of mathematics. As aresult, reading, writing, and understanding computer programs is easier.  
Machine languages are considered first-generation languages, and assembly languages areconsidered second-generation languages. The higher-level languages began with the thirdgeneration. Third-generation languages (3GLs) can support structured programming, use trueEnglish-like phrasing, make it easier for programmers to share in the development of programs.Besides, they are portable, that is, you can put the source code and a compiler or interpreter onpractically any computer and create working object code. Some of the third-generation languages  
include the following: FORTRAN, COBOL, BASIC, Pascal, C, C++, Java, ActiveX.  
Fourth-generation languages (4GLs) use either a text environment, much like a 3GL, or a visualenvironment. In the text environment, the programmer uses English-like words when generatingsource code. In a 4GL visual environment, the programmer uses a toolbar to drag and drop variousitems like buttons, labels, and text boxes to create a visual definition of an application. Many 4GLsare databaseaware;  
that is, you can build programs with a 4GL that work as front end (an interface that hides much ofthe program from the user) to databases. Programmers can also use 4GLs to develop prototypes ofan application quickly. Some of the fourthgeneration languages are Visual Basic and Visual Age.  
A 5GL would use artificial intelligence to create software based on your description of what thesoftware should do.