INFORMATION AND INFORMATION PROCESSES

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Annotasion: Currently, the development of society and all its areas is related to the wide use of the growing intellectual capabilities and information resources of the Internet. Therefore, in this particular case, the main goal and task of teaching the "Informatics" course is to acquaint people with informatics as a field of science and information industry, as well as with the modern state of personal computers and the Internet, as well as with the possibilities and application areas of the most modern information and communication technologies. is to inculcate habits in the field of efficient use.

Аннотация: В настоящее время развитие общества и всех его сфер связано с широким использованием растущих интеллектуальных возможностей и информационных ресурсов сети Интернет. Поэтому в данном конкретном случае основной целью и задачей преподавания курса «Информатика» является ознакомление людей с информатикой как областью науки и информационной индустрии, а также с современным состоянием персональных компьютеров и сети Интернет, а также как и с возможностями и областями применения самых современных информационных и коммуникационных технологий, заключается в привитии навыков в области эффективного использования.

Izoh

Hozirgi kunda jamiyat va uning barcha sohalari taraqqiyoti internet tarmog‘ining o‘sib borayotgan intellektual imkoniyatlari va axborot resurslaridan keng foydalanish bilan bog‘liq. Shuning uchun ham aynan shu holatda “Informatika” kursini o‘qitishning asosiy maqsadi va vazifasi odamlarni informatika fan va axborot sanoati sohasi sifatida hamda shaxsiy kompyuterlar va Internetning zamonaviy holati bilan tanishtirishdan iborat. kabi eng zamonaviy axborot-kommunikatsiya texnologiyalarining imkoniyatlari va qo‘llanilishi sohalarida samarali foydalanish odatlarini shakllantirishdir.

Information shows knowledge and information about studied objects and events. That knowledge is expressed in the form of certain facts and dependencies between them.
Information processes are understood as a set of various processes performed on information. Information processes include information transformations in various learning processes.
In the process of his activity, a person cannot go without receiving information from the surrounding world, and on this basis, he exchanges information with those who surround him, he approaches those processes consciously, comprehensively and logically.

Formalization, modeling, algorithmization and programming

Building a model of an object using computers involves several necessary steps. At the formalization stage, theoretical ideas about the research object, relevant concepts, main influencing factors, development indicators, dependencies, regularities, etc. on the basis of which its conceptual model is built. The explanation of the conceptual model is translated into the language of mathematical symbols: that is, a mathematical model of the object is created. A solution algorithm is developed for the realization of a mathematical model, and that algorithm is converted into a computer program with the help of programming languages. The creation of all computer programs with intellectual properties with the help of programming languages is also carried out using mathematical methods and tools. It is with the emergence of such programs that the concept of artificial intelligence is formed. The intellectual systems created in

this direction are based on the processing of knowledge that is the result of a person's creative activity and imagination.

Information for a person is the content of signals (data) received by a person directly or with the help of special devices, which expands a person's knowledge about the environment and the processes taking place there.

Information - the change of any physical quantity over time, which ensures the transmission of information, is called a signal.

Meanwhile, various properties of the signal are used to revive the information.

The property of a signal to provide information is called a signal parameter (for example, amplitude, frequency, etc.).

Depending on the structure of information parameters, signals can be mainly discrete and continuous. Discrete signals are digital, and continuous signals are analog signals.

The continuity of a signal means that it changes by a certain small amount in any given small time interval.

Discreteness of a signal means that it can be measured only in a strictly defined time frame, that is, the signal itself does not represent a continuous function, but a series of discrete values of the amplitude of the signal.

A signal is considered discrete (discontinuous) with respect to a given parameter when the number of values that this parameter can take is finite or countable. That is, a discrete signal takes a finite number of values. If the set of all possible values that the parameter can take is a continuum (a set of real numbers), the signal is called independent of that parameter. That is, a continuous signal has an infinite set of values in any interval (range). There is no break between the prices he gets.

Thus, information can be in two forms (images): discrete (digital) and continuous (analog).

Discrete information is characterized by consecutive exact values of any quantity at certain moments, while continuous information is characterized by a continuous process of change of any quantity.

Discrete information can be obtained from any digital indicator (for example, electronic clocks, tape recorders, etc.).

Continuous information can be received, for example, through atmospheric pressure or car transmitters.

Discrete information is more convenient for human processing, but continuous information is often encountered in practical work. Therefore, it is necessary to be able to convert continuous information into a discrete image (discretization) and vice versa. A modem is the device used to perform these transitions (modulation and demodulation).

The images, objects, and sounds we hear in the world around us are related to analog information.

Variable signals given to devices with special codes, and information consisting of a set of numerical values that change discretely, are referred to digital type information.

For example, text or images reflected on paper, signals coming from a microphone belong to analog type information, text and images reflected on computers, heard sounds or observed actions belong to digital type information.

Properties of information

Information has the following properties:

Accuracy – shows how close it is to the reflected parameter.

Reliability - indicates that it reflects the real object with the necessary accuracy

Its importance is characterized by its application with different numbers.

Completeness - having enough information to make the right decision.

Value – how important it is to solving the problem.

Timeliness - need to be given on time, not before and after the time to make a decision, etc.

Types of information

Types of information are received through sense organs. Visual information, sound information, smell information, taste information, tactile information can be an example of this.

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