JSC "Astana Medical University"
Department of "Information and communication Technologies"

Independent work of a student
Theme: Green technologies use in computer science and programming

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The Plan

- What is the Green technologies?
- Their importance in our life
- Using modern technology nowadays
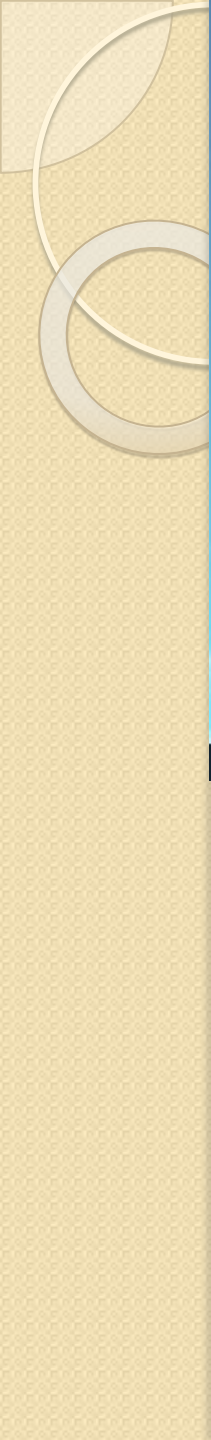
Green Technologies

Innovations, which are based on the principles of sustainable development and re-use of resources.

Their main goal is to reduce harm to the environment, for example, by reducing the amount of waste, increasing energy efficiency, improving design to reduce the amount of consumed resources.

- general environmental management (waste management, water pollution, air pollution control, land restoration, etc.);

- production of energy from new sources (solar energy, biofuels, etc.), mitigating the effects of climate change, reducing harmful emissions into the atmosphere, improving fuel efficiency, and energy efficiency in buildings and lighting equipment.

GREEN TECHNOLOGY

Importance in our life

In fact, green technologies cover all spheres of the economy: energy, industry, transport, construction, agriculture, etc. Currently, they are being introduced into the whole chain of companies' activities, including, in addition to production, consumption, management and methods of organization of production.

Green technology, as a rule, can significantly reduce the consumption of resources, expand the use of by-products.

• Thus, modern refrigerators consume 75% less electricity than their analogues in 1975 with a 20% increase in capacity, in particular, due to improved insulation and more efficient cooling systems.

• Air transport in developed countries uses 50-60% less energy per passenger than in the early 1970s, and freight transport - by 10-25% less fuel per ton-kilometer.

Using modern technology nowadays

World statistics

Almost 6 billion of the world's population use mobile phones and more than 2.5 billion on the Internet and research shows that the growth of Internet penetration by 10 percent in emerging economies leads to an additional GDP growth of 1 to 2 percent. According to foreign experts, over the last 5 years, the world information technology market has been growing at an average annual rate of 10% (with an average global growth of 3-3.5%, according to analysts' forecasts, high growth rates (10-15% year) will continue over the next 3 years.The use of ICT not only enhances economic and social indicators, but also impacts the environment due to increased energy consumption, harmful emissions into the atmosphere, and the accumulation of electronic waste.

According to international estimates, the share of CO2 emissions from the ICT sector is about 2% of their global emissions, which is comparable to the level of emissions from the aviation industry. It is projected that by 2020 this figure will increase by 6 percent annually. At the same time, ICT can also be used to improve the environment. Priority directions of green growth, which are realized with the help of ICT, are intelligent networks that are important for the integration of renewable energy sources and promotion of an efficient energy market, and without ICT this is not yet possible; - "smart" buildings - due to the importance of buildings and the rapid pace of urbanization throughout the world; - "smart" transportation and logistics systems, managed by ICT, make the business more energy efficient; - "smart" engines: "any task or application that is driven by an engine or electricity can be controlled by a microprocessor, yields significant energy savings and reduces greenhouse gas emissions; - ICT to enable people to learn about the consequences of their behavior with point of view of energy consumption, greenhouse gas emissions and environmental impact.