

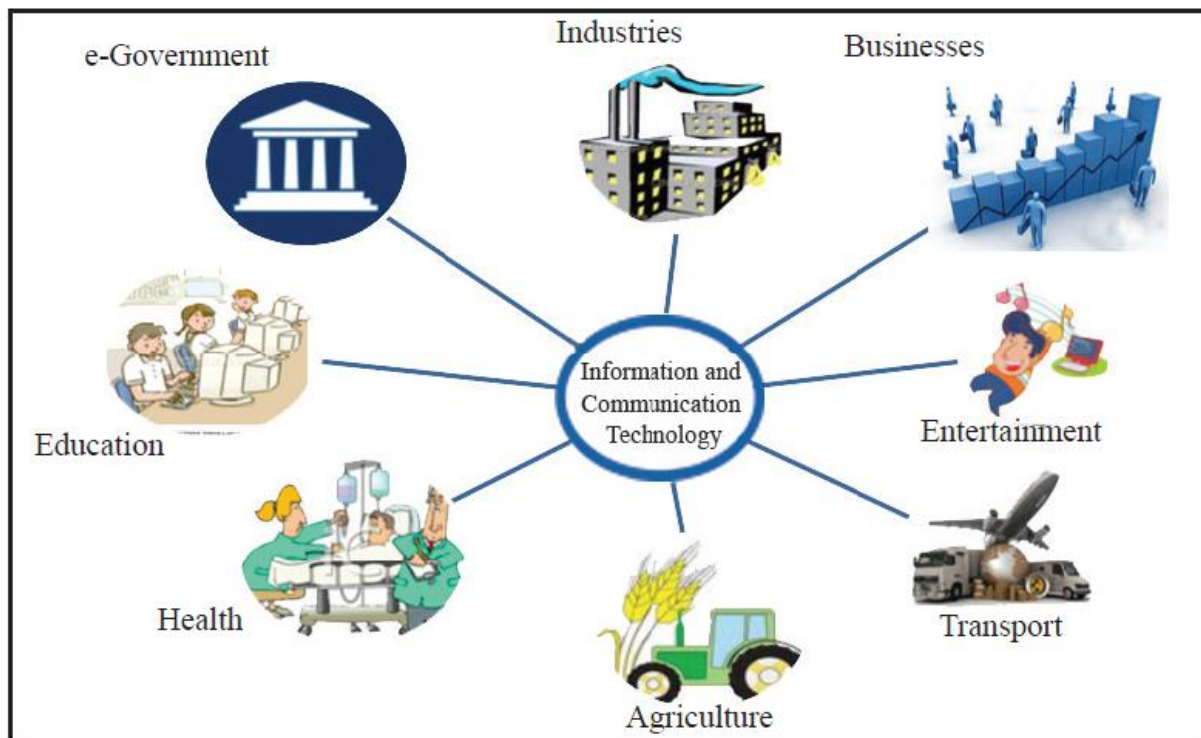
1.6 Investigates the application of ICT in different domains

4 periods

Learning Outcomes

- Identifies appropriate tools, skills and knowledge needed in different application domains
- Discusses the benefits of ICT in different domains

Today, you could hardly come across any person or a place that does not use information and communication technology in day to day activities. Some examples are illustrated below:

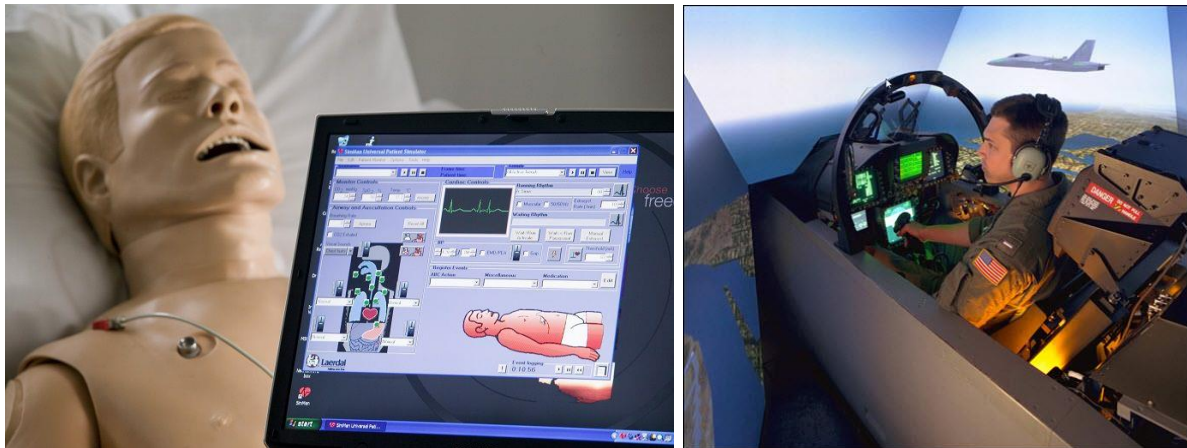


ICT in Education

The computer helps in providing a lot of facilities in the education system. The computer provides a tool in the education system known as CBE (Computer Based Education). CBE involves control, delivery, and evaluation of learning as follows.

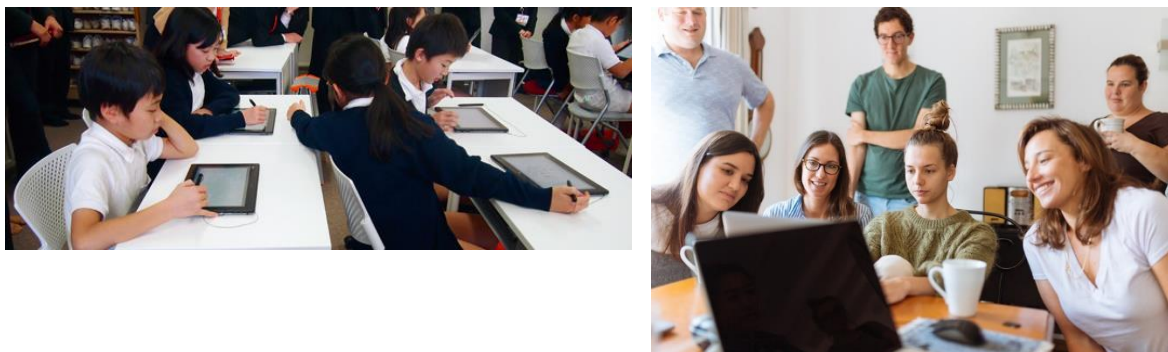
- **Simulations:**

Computer simulators and prototypes can be used to perform the rather impossible experiments on the subjects which seemed impossible to be done in the labs especially in the field of medicine and engineering.



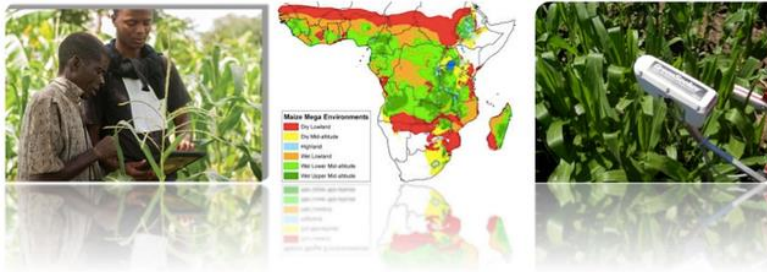
- **Distance Learning and E- Learning:**

This is the trend in 21st century education where the obstacles arise due to distance are being eliminated. One can attend classes and access learning materials remotely, without having to travel to the learning center.



- **Better Content Delivery:**

The motivation effect that comes about due to embracing ICT in teaching and learning is a common factor. For instance, multimedia and interactive content on interactive boards remain quite engaging and motivating making students pay more attention in class.



- **Individualized Learning:**

ICT help students with individual needs to have better suited assignments and making it easy to organize their learning.



Healthcare

Computers have become an important part in hospitals, labs, and dispensaries. They are being used in hospitals to keep the record of patients and medicines. It is also used in scanning and diagnosing different diseases. Electrocardiogram (ECG), Electroencephalograph (EEG), ultrasounds and Computed tomography (CT) scans are also done by computerized machines.



ECG

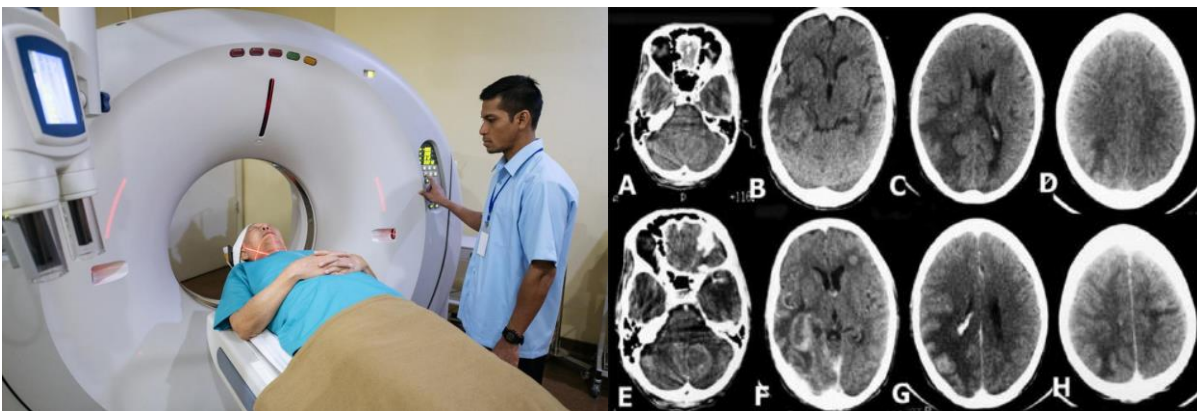


EEG - electrocardiogram of the brain





Ultrasound Scanner



CT scanner

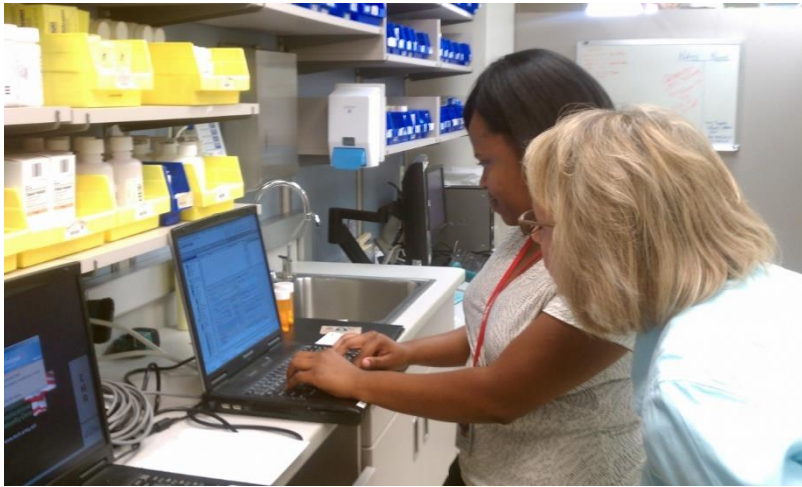
Following are some major fields of health care in which computers are used.

- **Diagnostic System** - Computers are used to collect data and identify the cause of illness.
- **Lab-diagnostic System** - All tests can be done and the reports are prepared by computer.



- **Patient Monitoring System** - These are used to check the patient's signs for abnormality (ECG)

- **Pharmacy Information System** - Computer is used to check drug labels, expiry dates, harmful side effects, etc.



- **Surgery** - Nowadays, computers are also used as a supporting tool for surgery.

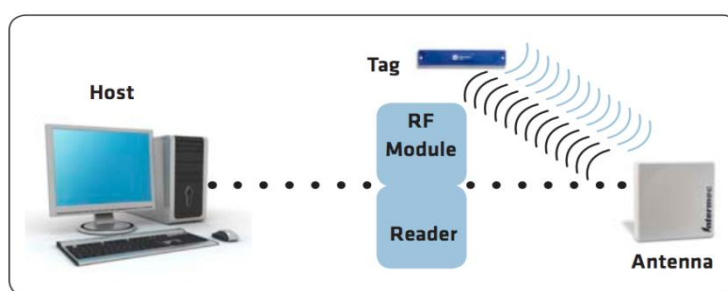


Agriculture

ICT is applied in the field of agriculture, animal farm houses and fisheries industries. ICT is used to control light, moisture and air inside the greenhouses. Robotic machines are used to monitor plant growth levels, record them and harvesting in large scale farm lands. Crop harvesting and seedling planter robotics are also useful to keep efficiency of agriculture industry. Automatic weed removers and insect control devices protect the crop from weed plants and insects respectively. Monitoring devices are used to monitor factors affect crop production such as weather, climatic changes, rainfall, wind direction, soil fertility and water content.



Radio Frequency Identification Device (RFID) helps in identifying and counting the number of animals in farmhouses. Automated milking and examination of cows can be done with computer controlled systems which is helpful in monitoring the health status of the cows and the quality of milk.



Business and finance

A computer has high speed of calculation, diligence, accuracy, reliability, or versatility which has made it an integrated part in all business organizations.

Computer is used in business organizations for payroll calculations, budgeting, sales analysis, financial forecasting, managing employee database and maintenance of stocks etc.



Today, banking is almost totally dependent on computers. Banks provide online accounting facility, which includes checking current balance, making deposits and overdrafts, checking interest charges, shares, and trustee records. ATM machines which are completely automated are making it even easier for customers to deal with banks.

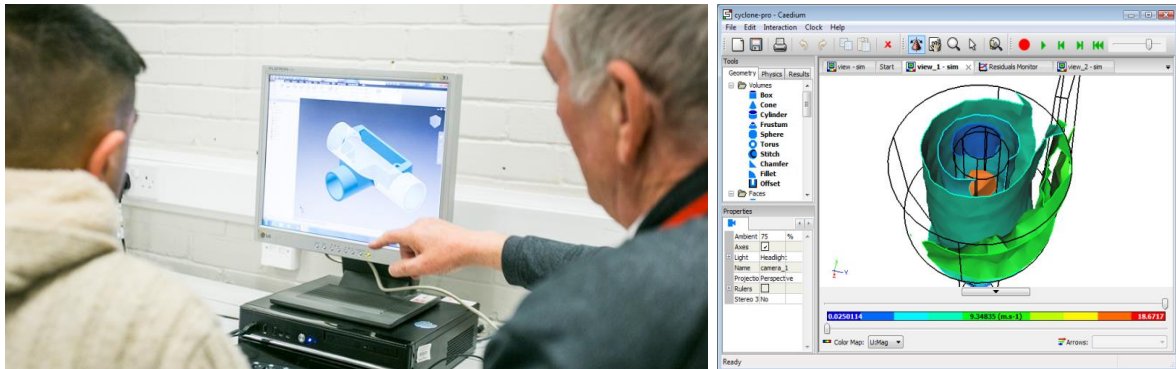


In marketing, advertising and home shopping, computers are widely used today. Advertising professionals use graphics, and animations fascinatedly to get customer attractions. Home shopping has been made possible through the use of computerized catalogues that provide access to product information and permit direct entry of orders to be filled by the customers.

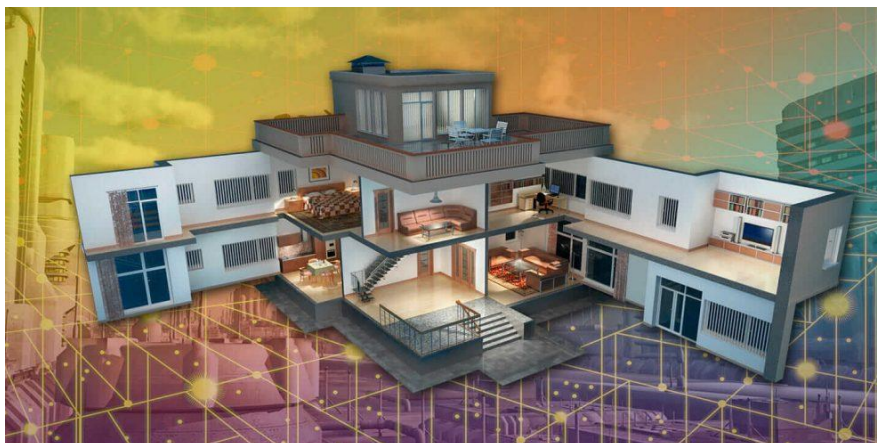


Engineering

CAD (Computer Aided Design) that provides creation and modification of drawing.



3D virtualization also can be done in engineering industry before development of buildings, machinery, and vehicles also. Some machinery can be developed virtually and can be monitored functioning animations on screens.



Computer Aided Software Engineering tools (CASE) supports software engineers for designing, coding, testing and debugging of software.

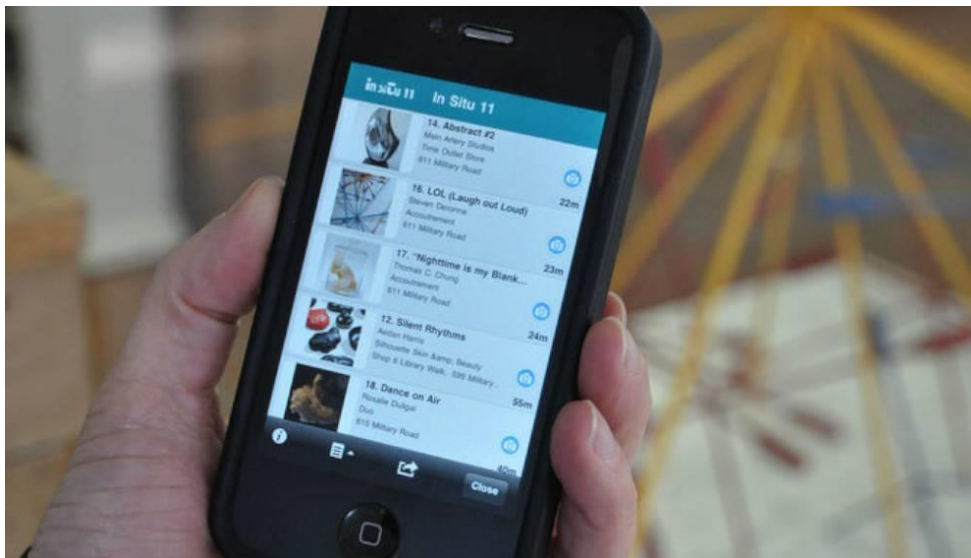
Tourism

Internet has facilitated prospective tourist services, communication, and information access. Bringing a better quality of service to the tourism industry, the Internet has pulled down prices, made information widely available, and allowed sellers and buyers to connect more easily and make transactions.



Media and journalism

ICT is effectively used in media and Journalism which helps in designing of articles interactively as well as organizing information. Content sharing between broadcasters, and reaching global news fast have become easy with the use of the Internet and Internet services such as www, email, video conferencing and so on.



Law enforcement

ICT is applicable in law enforcement which facilitates information recording and storage, investigations, reporting and statistics. ICT supports the investigations carried out to apprehend criminals. Today CCTV systems, GPS, and telecommunication services provide severe support on criminal investigations.



China turn robotic policing



References

Teachers' Guide 2017

Grade 11 ICT Textbook

http://www.teach-ict.com/gcse_new/organisations/schools/home_schools.htm