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## ***JSS2 SECOND TERM ICT E-NOTE***

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- COMPUTER ETHICS I
- COMPUTER ETHICS II
- SAFETY MEASURES I
- SAFETY MEASURES II
- FEATURES OF GRAPHIC PACKAGE
- GRAPHICS PACKAGE (1)
- GRAPHICS PACKAGE (2)
- ICT AS A TRANSFORMATIONAL TOOL
- BENEFITS OF ICT
- ICT GADGETS: THE GSM
- INFORMATION COMMUNICATION TECHNOLOGY GADGETS

### **WEEK 1**

#### **Topic: COMPUTER ETHICS I**

#### **COMPUTER ETHICS**

Computer ethics are rules that govern the use of a computer system. **Ethics** deals with placing a “**value**” on acts according to whether they are “**good**” or “**bad**”. Every society has its rules about whether certain acts are ethical or not. These rules have been established as a result of consensus in society and are often written into laws. Computer ethics are increasingly becoming important because of the rising number of cyber crime issues, including software piracy, unauthorized access, pornography, spamming, target marketing, and hacking. The widespread popularity and use of the Internet has given rise to a number of

cybercrime issues and concerns about user privacy. Various computing applications are tampered with to invade into other's privacy. Malware, spyware, freeware, and browser cookie exploits are some of the notorious computing applications that have spurred the debate of importance of ethical behavior in technology. Some of the rules you should follow while using computer are:

## **BASIC RULES**

- Check your email regularly
- Avoid liquid and moist from dropping into the computer system
- Protect the system from power fluctuation
- Unplug the system when not in use
- Respond to email promptly and politely
- Use dust cover or proof to cover the system after use

## **GENERAL RULES**

- Any restricted files stardom the computer should not be accessed
- You should not give your user name and password to any one
- You should not alter any information on the system except your own
- Be polite to others on the net
- Be careful not to use rude or bad language online
- Do not break any laws
- Be patients with new comers
- Your message should be simple on the point.

## **Assessment**

- Mention five Basic rules in computer ethics
- List four General rules in computer ethics

## Week 2

### Topic: THE TEN COMMANDMENTS OF COMPUTER ETHICS

The **Ten Commandments of Computer Ethics** were created in 1992 by the Computer Ethics Institute. The Ten Commandments is “a set of standards to guide and instruct people in the ethical use of computers.”

1. Thou shalt not use a computer to harm other people.
2. Thou shalt not interfere with other people’s computer work.
3. Thou shalt not snoop around in other people’s computer files.
4. Thou shalt not use a computer to steal.
5. Thou shalt not use a computer to bear false witness
6. Thou shalt not copy or use proprietary software for which you have not paid.
7. Thou shalt not use other people’s computer resources without authorization or proper compensation.
8. Thou shalt not appropriate other people’s intellectual output.
9. Thou shalt think about the social consequences of the program you are writing or the system you are designing.
10. Thou shalt always use a computer in ways that ensure consideration and respect for your fellow humans.

#### EXPLANATION:

- **Commandment 1**

Simply put: Do not use the computer in ways that may harm other people.

Explanation: It is unethical to use a computer to harm another computer user. It is not limited to physical injury. It includes harming or corrupting

other users' data or files. The commandment states that it is wrong to use a computer to steal someone's personal information. Manipulating or destroying files of other users is ethically wrong. It is unethical to write programs, which on execution leads to stealing, copying or gaining unauthorized access to other users' data. Being involved in practices like hacking, spamming, phishing or cyber bullying does not conform to computer ethics.

- **Commandment 2**

Simply put: Do not use computer technology to cause interference in other users' work.

Explanation: Computer software can be used in ways that disturb other users or disrupt their work. Viruses, for example, are programs meant to harm useful computer programs or interfere with the normal functioning of a computer or delete files on a computer. Malicious software can disrupt the functioning of computers in so many ways. It may overload computer memory through excessive consumption of computer resources, thus slowing its functioning. It may cause a computer to function wrongly or even stop working. Using malicious software to attack a computer is unethical.

- **Commandment 3**

Simply put: Do not spy on another person's computer data.

Explanation: We know it is wrong to read someone's personal letters. On the same lines, it is wrong to read someone else's email messages or files or documents. Obtaining data from another person's private files is nothing less than breaking into someone's room. Snooping around in another person's files or reading someone else's personal messages is the **invasion of his privacy**. There are exceptions to this. For example, spying is necessary and cannot be called unethical when it is done against illegitimate use of computers. For example, intelligence agencies working on cyber-crime cases need to spy on the internet activity of suspects.

- **Commandment 4**

Simply put: Do not use computer technology to steal information.

Explanation: Stealing sensitive information or leaking confidential information is as good as robbery. It is wrong to acquire personal information of employees from an employee database or patient history from a hospital database or other such information that is meant to be confidential. Similarly, breaking into a bank account to collect information about the account or account holder is wrong. Illegal electronic transfer of funds is a type of fraud.

- **Commandment 5**

Simply put: Do not contribute to the spread of misinformation using computer technology.

Explanation: Spread of information has become viral today, because of the Internet. This also means that false news or rumors can spread speedily through social networking sites or emails. Being involved in the circulation of incorrect information is unethical. Mails and pop-ups are commonly used to spread the wrong information or give false alerts with the only intent of selling products.

- **Commandment 6**

Simply put: Refrain from copying software or buying pirated copies. Pay for software unless it is free.

Explanation: Like any other artistic or literary work, software is copyrighted. A piece of code is the original work of the individual who created it. It is copyrighted in his name. In case of a developer writing software for the organization he works for, the organization holds the copyright for it. Copyright holds true unless its creators announce it is not. Obtaining illegal copies of copyrighted software is unethical.

- **Commandment 7**

Simply put: Do not use someone else's computer resources unless authorized to.

Explanation: Multi-user systems have user specific passwords. Breaking into some other user's password, thus intruding his private space is unethical. It is not ethical to hack passwords for gaining unauthorized access to a password-protected computer system. Accessing data that you are not

authorized to access or gaining access to another user's computer without his permission is not ethical.

- **Commandment 8**

Simply put: It is wrong to claim ownership on a work which is the output of someone else's intellect.

Explanation: Programs developed by a software developer are his/her property. If he is working with an organization, they are the organization's property. Copying them and propagating them in one's own name is unethical. This applies to any creative work, program or design. Establishing ownership on a work which is not yours is ethically wrong.

- **Commandment 9**

Simply put: Before developing a software, think about the social impact it can have.

Explanation: Looking at the social consequences that a program can have, describes a broader perspective of looking at technology. A computer software on release, reaches millions. Software like video games and animations or educational software can have a social impact on their users. When working on animation films or designing video games, for example, it is the programmer's responsibility to understand his target audience/users and the effect it may have on them. For example, a computer game for kids should not have content that can influence them negatively. Similarly, writing malicious software is ethically wrong. A software developer/development firm should consider the influence their code can have on the society at large.

- **Commandment 10**

Simply put: In using computers for communication, be respectful and courteous with the fellow members.

Explanation: The communication etiquette we follow in the real world applies to communication over computers as well. While communicating over the Internet, one should treat others with respect. One should not intrude others' private space, use abusive language, make false statements or pass irresponsible remarks about others. One should be courteous while

communicating over the web and should respect others' time and resources. Also, one should be considerate with a novice computer user.

### Assessment

- Briefly explain the ten commandments of computer ethics

## Week 3

### Topic: SAFETY MEASURES

#### SAFETY MEASURES

A person who uses computer sometimes face many problems if the computer is used for a long period of time. The problems may be health related, like headache or vision problems and waist pain.

#### ERGONOMICS

Ergonomics is the study people, their physical character and the ways in which the function in relating to their working environment, the finishers and the machine they use the main goal of ergonomics is to the design of keyboard, computer, desk, chairs and others in the work place.

Back and neck strain can be avoided by ensuring that the chair which you seat provide proper support and by placing the monitor when you can comfortably.

- **MONITOR PLACEMENT:** The top edge of the monitor should be at the level of the eye or slightly lower than it. You can use a stand to raise the monitor to appropriate level on your desk.

- **POSTURE:** When you are seated, your feet should be flat on the floor and you should not lean forward or slouch in your chair. You should shift position often and stand up to stretch your arm and legs at least one hour.
- **CHAIR:** Adjustable chair that provide support for the lower back should be used.
- Ergonomic keyboard: They are designed to reduce the risk of the waist and hand injury that results from prolong use or repetition movement. An ergonomic keyboard includes alternate key layout and plans set to minimize strain while typing.
- To prevent wrist strain while typing, keep your elbow level with the keyboard and your wrist straight and higher than your fingers while you use a mouse, move the mouse with your entire arm instead of your wrist.

### GENERAL SAFETY MEASURES

1. The lighting in the room or office should be moderate
2. Keep liquid away from the computer
3. Protect the computer from dust
4. A glare filter should be used to reduce or prevent eye strain

### Assessment

- Mention safety measures in computer use

## Week 4

### Topic: Safety Measures – The Computer Laboratory

#### Computer Laboratory

A **computer lab** is a space which provides **computer** services to a defined community. **Computer labs** are typically provided by libraries to the public, by



academic institutions to students who attend the institution, or by other institutions to the public or to people affiliated with that institution.

### **Rules and Regulations of Computer Laboratory**

1. Students are not allowed to enter the Computer Laboratory without their Instructor or any authorized personnel. The Instructor should be the first person to come in and the last one to leave the laboratory. No computer laboratory shall be opened if there will be no instructor or IT personnel present in the laboratory.
2. Instructors shall closely monitor the conduct of their students while they are inside the laboratory. The Instructor shall not be allowed to leave the class during the instructor's assigned laboratory hours. In the exceptional event that the instructor must leave the class, the instructor must inform IT Personnel.
3. The student must check the computer unit and its peripherals attached before using it. The student must immediately inform the instructor if there's any defect, error or damage observed at the computer (hardware/software) assigned or if there are any missing peripherals (mouse, keyboard, etc.). The instructor should immediately report the incident to IT Department.
4. Students are not allowed to bring bags, food and beverages inside the laboratory. Chewing gum, eating, drinking, smoking, littering are prohibited inside the computer laboratory.
5. Users should always be on guard with their valuables (such as mobile phone, USB flash drive, wallet, and other electronic devices). The IT Department will not be held liable for the loss or damage of any personal belongings of laboratory users.
6. Users are responsible for saving their documents on their own flash drives, any information saved or installed on the systems hard drive will be deleted once the Computer is rebooted (restarted).
7. No one is allowed to alter or delete configuration settings of any computer laboratory equipment. Tampering, deleting or modifying CMOS/BIOS settings, IP Configuration, system parameters, or system files stored in the hard disk are strictly prohibited.

8. Students shall not be allowed to bring in any other computer unit, laptop and/or peripherals inside the laboratory. In cases where there is a need to bring in computer equipment or peripherals, appropriate permission from school authorities must be secured and proper company procedures must be observed.

9. No student or personnel shall be allowed to attach or detach any peripheral to and from any IT equipment or devices without explicit permission from the Head of the IT Department. Users are not allowed also to attach personal devices in any computer laboratory's network without permission from IT Department.

10. Accessing Pornographic, Gambling, Hate/Discrimination, torrent and other unsafe sites is strictly prohibited.

11. Users are not allowed to install, update or download any software in any computers inside the laboratories. It is also prohibited the users to boot from any bootable devices to run software in any computers in the laboratory.

12. All mobile phones must be in silent mode before entering computer laboratory. In cases where the student has to make or receive call, he/she must leave the laboratory to avoid distracting other students. Charging of mobile phone batteries is not allowed inside computer laboratory.

13. Playing games are not allowed inside the computer laboratory, this includes video games, card games and other games. However in cases of the topic is related to games the instructor must inform the IT personnel on duty.

14. Anyone who is causing disturbance, trouble and exhibiting hostile or threatening behavior will be requested to leave the computer laboratory. Personal display of affection (PDA) inside the laboratory is not allowed.

15. Printing of manuscripts, business letters, banners, personal documents and research works are not allowed in the laboratory. Only the printing of program listings is allowed using the laboratory printer.

16. If the computer laboratory is to be used for thesis presentation, special training sessions, tutorials, and case study sessions or for other purposes outside the regular offerings of the campus, a formal written request must be approved by the Head of Administration duly endorsed by the Dean. The written request

must state the name of AMA personnel who will be responsible in the safekeeping of all laboratory resources during the conduct of the event.

17. Proper computer laboratory etiquette must be observed;

- Ensure that no trash is left behind.
- Turn-off computer units and arrange the computer peripherals (mouse, keyboard and headset) after use.
- Wearing of hats/caps inside the laboratory is not allowed.
- Chairs must be returned properly to its original places
- Orderly dismissal must be observed by the instructor and the class.

18. Theft, vandalism, or abuse in any form is a grave offense and shall be dealt with accordingly. Willful violations of the above provisions shall constitute disciplinary actions. Violators of these guidelines may be subject to any, but not limited to, the following sanctions:

- admonition
- temporary or permanent suspension of computer laboratory privileges
- dismissal from the school

### **Advantages of Computer Labs:**

**1. Equity:** One of the greatest advantages of having labs in schools is the fact that in the majority of cases it means everyone can have equal access to the computers. Most labs are equipped with enough computers for each student to have a machine. This is both equitable and engaging for the students.

**2. Security and Maintenance of the Computers:** Lets be realistic...computers are expensive! When they are kept in a dedicated room controlled by a specialist teacher, they are more secure and far less prone to becoming misused or broken. Also, the computer lab teacher will be able to perform small maintenance jobs and oversee compatible software delivery.

**3. Specialist Teacher:** The actual computer lab teacher is a huge advantage of having computer labs. These are typically teachers who have been selected due to their extensive knowledge in the area of I.T. Not only do they provide solid instruction in technology for the students, but also help the regular teachers with anything technology related as well. The computer lab teacher becomes the “go

to” and resource person when it comes to do with anything I.T. related in the school.

**4. Group Work Capability:** Another key advantage of having computer labs in the school is the capability to train groups of students (a whole class for instance) in key concepts or applications at the same time. If there is a particular program or application which the teacher wants the students to learn and master, the whole class can be given instruction on it at the same time and work through the technological challenges in a supported group.

#### **Disadvantage of Computer Labs:**

**Frequency of Instruction:** This is one of the more obvious disadvantages when we are discussing computer labs. Essentially, the lab is shared by the entire school and therefore is not available very often. It becomes a real juggling act to ensure that the students and their classrooms are all granted equal access. If the majority of the technology is kept in the lab, the only time the students are thus able to expand their skills in this area is when it is their turn to visit the lab. Of course, most labs have open periods for drop ins, but this does not always work out so well as these often conflict with existing schedules.

#### **Assessment**

- List ten rules and regulations of the computer laboratory.
- Mention three advantages of computer laboratories.

#### **WEEK 4**

#### **Topic: Graphic Package (1)**

#### **GRAPHICS PACKAGE**

Graphics package is application software that enables a computer user to create images and graphics. With graphic packages, book cover, magazines, logos e.t.c can be created. A **graphics package** is an application that can be used to create and manipulate images on a computer. There are two main types of **graphics package**: painting **packages**. drawing **packages**.

## TYPES OF GRAPHICS PACKAGE

### Painting Packages

- A painting package produces images by changing the colour of pixels on the screen.
- These are coded as a pattern of bits to create a bit-mapped graphics file.
- Bit-mapped graphics are used for images such as scanned photographs or pictures taken with a digital camera.

### Advantage

- The main advantage offered by this type of graphic is that individual pixels can be changed which makes very detailed editing possible.

### Disadvantages of painting packages

- Individual parts of an image cannot be re-sized;
- Only the whole picture can be increased or decreased in size.
- Information has to be stored about every pixel in an image which produces files that use large amounts of backing storage space.

Examples of graphics packages that produce bit-mapped images include:- MS Paint, PC Paintbrush, Adobe Photoshop and JASC's Paint Shop Pro.

### Drawing Packages

- A drawing package produces images that are made up from coloured lines and shapes such as circles, squares and rectangles.
- When an image is saved it is stored in a vector graphics file as a series of instructions, which can be used to recreate it.

### Main advantages of vector graphics are:

- They use less storage space than bitmap graphics
- Each part of an image is treated as a separate object, which means that individual parts can be easily modified.

### Disadvantages of Drawing Package

- They don't look as realistic as bitmap graphics.

Examples of drawing graphic packages include CorelDraw, Micrographix Designer and Computer Aided Design (CAD) packages such as AutoCAD

- **PHOTO PAINT:** This is a graphic package that comes with the system software of a computer. A computer user does not need to install this application. All the user needs to do is follow the list below
  1. Click on start button on the screen
  2. Point to all programs
  3. Point to accessories
  4. Select paint inside a box that appears. This takes you to the paint environments.

### ASSESSMENT

1. What is a Graphics Package?
2. List TWO types of Graphics package?

WEEK 5

### Topic: Features of Graphic Package

Vector mapped software is ideal for drawings, charts, graphs, and diagrams. It creates an image by defining line, position, shape, and fill pattern. You plot or vector a series of points to define a shape. This shape is calculated into a mathematical formula called an algorithm. Image manipulation and editing is automatically calculated by the computer when you change parameters, making

modifications easy and fast. The use of a vector-based program requires preplanning and more computer savvy than a bitmapped program.

Graphics Drafting, drawing, and painting are distinctly different functions and not all software programs will be equally adept at processing all three. Base your choice of features program on command requirements. Also, let your software drive your hardware. Select a software program that fulfills the needs of the command and allows for some growth. Purchase hardware based on software requirements. Invest in the very best monitor possible. All of this affects the graphics resolution, the ease of processing, and the end product. In general, graphics software programs offer the following features:

### **FEATURES OF GRAPHIC PACKAGE**

**TITLE BAR:** The Title bar display the name of the user of the application and the application name on top of the screen

**MENU BAR:** Menu bar contains menu and commands in all graphic packages. The user of the graphic select their command from there.

**TOOL BAR:** Tool bar contains every tools need for graphics to be created.

**FILL:** Fill is a command to fill a shape with color or pattern. Make sure the shape is completely closed or the fill will bleed into the adjacent area. Color or pattern selection is nearly limitless.

**BELZIER CURVES:** The axis of a Belzier curve automatically changes as you move the cursor or mouse across the screen.

**GEOMETRIC SHAPES:** These are closed shapes whose major and minor axis change with the movement of the cursor or mouse.

**DELETE:** Use a geometric shape to surround or isolate segments you want removed from the image and click into place. Then press the DELETE key to remove everything inside the geometric shape.

**UNDO:** UNDO is a feature that eliminates the last command given and its associated affects.

## **ASSESSMENT**

1. Highlight FIVE features of graphic package?

### **Week 7**

#### **Topic: GRAPHICS PACKAGE 2**

#### **Graphics Package**

Graphics is a word used for all the different types of artwork, such as photographs, graphs, charts etc.

#### **Graphics Package**

A Graphics package may not be as detailed as you think. It can be a simple paint package, which has features of shading, drawing line diagrams and many other simple but effective features. These packages can be an alternative to complicated DTP packages. As it is very difficult to draw with the mouse, many people scan the drawings on the computer and now there are software packages, which do not use a mouse.

New equipment used by professionals so that they can get pictures from a variety of places. A video grabber lets you get pictures from the television or a video camera and you then can alter it on your computer. A digital camera is also very popular as you can take pictures and then put them on your PC and alter them. This also means that you do not have to pay for the developing cost. You can also use clip art for pictures.

#### **Bit map Vector graphics**

When using a graphics package the graphics file can have the image represented as a:



1.Bit map

2 .Vector image

A bit map files makes every dot or pixel on the screen has a single bit of information in a file. If it is in colour, you then need to store additional bits. The disadvantage to this is that if you want to alter anything you have to change it at a pixel at a time. When you enlarge an image, the number of pixels stays the same.

In vector graphics, the lines are stored as equations on the computer. They are stored in vectors. The advantage of vector graphics over bit map files is that it is easy to alter things without any loss in resolution. When you enlarge an image, the number of pixels increases to the proportion of the image. CAD packages use vector images.

### **Clip Art**

Clip Art is a collection of copyright-free drawings which you can place on your drawings. The drawings on clip-art look very professional, as they have been drawn in detail.

### **Presentation software**

Pictures let you give ideas and concepts a better understanding than only words. Good presentations use things such as slides and transparencies to express views. A projector could be used for a large audience or a rolling slide show could be produced on a computer for smaller audiences.

### **Multimedia presentations**

These presentations are useful for training students as the students can see demonstrations and interact with the software. There are many different types of packages, for multimedia presentations, that suit each person's need.

### **Colour**

If you want to print out your graphics then you will need a printer. An ink-jet printer is not that expensive if you need one or you could buy a laser printer which is a better quality but tends to be quite expensive. If you do not have a

colour printer then you do not need to worry about colour in the design. If you use black and white on screen then it will come clearer if you have a black and white printer.

## Computer Aided Design

Engineers, architects, etc use CAD, short for computer aided design, so that they can produce high quality drawings. You can have plans of houses, maps, 3-D plans of a room etc. CAD lets the designers to make changes quite easily. They packages even let you rotate the images at different angles. The most popular CAD package is AutoCAD, which is quite expensive but there are many cut down versions available here are the advantages of using CAD:

1. It can save time
2. It enables you to produce accurate scale diagrams
3. It is easy to alter images
4. You can produce a 3-D image, which is useful for diagrams of rooms, buildings etc.
5. Images can be saved on disk and retrieved later
6. Drawings can be scaled up and down

## ASSESSMENT

1. Graphics is a word used for all the different types of artwork, such as\_\_\_?
2. List FIVE advantages of Computer Aided Designs?

## Week 7

### Topic: ICT as a transformation tool

## ICT

ICT – ICTs stand for Information and Communication Technologies and are defined, for the purposes, as a “diverse set of technological tools and resources used to communicate, and to create, disseminate, store, and manage information.” These technologies include computers, the Internet, broad casting technologies (radio and television), and telephony.

**AS A TRANSFORMATIONAL TOOL:** Information communication technology is so important in the world today that it makes it necessary for every person to be competent in the use Information communication technology for the task they have to accomplish. Organization of all sizes, even the smallest schools and businesses, rely on computer to help them operate more efficiently and effectively.

### ADVANTAGES OF INFORMATION COMMUNICATION TECHNOLOGY

These are some the advantages of information communication technology

1. **COMMUNICATION:** Communication has become cheaper, quicker and more efficient. We can now communicate with anyone around the globe by the simply text messaging them or sending them an e-mail for an almost instantaneous part of the world with the help of video conferencing.
2. **COST EFFECTIVENESS:** Information communication technology helps to computerize the business process. Thus streaming business to make them extremely cost effective, money making machine. This in turn, will increase productivity, which will also increase profit and that means better pay and less strenuous working condition.
3. **BRIDGING THE CULTURAL GAP:** Information communication technology has helped to bridge the cultural gap helping people from different cultures to communicate with one another and allowing for the exchange of views and ideas, thus increasing awareness and reducing prejudice.
4. **MORE TIME:** Information communication technology has made it possible for business to be open 24×7, all over the globe. This means that a business can be open anytime, anywhere, making purchase from different countries easier and more convenient. It also means that you can have goods delivered right to your door step without having to move an inch.

5. **CREATION OF NEW JOBS:** The best advantage of information communication technology is the creation of new and interesting job. Computer programmers, system analyzers, hardware and software developed and web designers are just some of the new job opportunity created with the help of it.
6. **VERSATILITY:** Computer can perform vast activities effectively. Where the human imagination fails, computer comes into the picture, for instance, observing the motion of very fast moving particles. They can also work with different types of data and information like graphics and audio visual character.

### **DISADVANTAGES OF INFORMATION COMMUNICATION TECHNOLOGY**

1. **UNEMPLOYMENT:** While information communication technology may have streamlined the business process, it still has created job redundancies, downsizing and outsourcing. This means that a lot of lower and middle level jobs have been done away with, causing more people to become unemployed.
2. **PRIVACY:** Though information communication technology may have made communication so easy, quicker and more convenient, it has also given rise to privacy issues, from cell phone signal interceptions to e-mail hacking, people are now worried about their private information becoming public knowledge.
3. **LACK OF JOB SECURITY:** Industry experts believe that the internet has made job security a big issue since technology keeps advancing each day. This means that one has to be in a constant learning mode, in order for job to be secure.

### **GENERAL BENEFITS OF ICT**

- Greater efficiency throughout the school.
- Communication channels are increased through email, discussion groups and chat rooms
- Regular use of ICT across different curriculum subjects can have a beneficial motivational influence on students' learning.

### **Assessment**

What are the benefits of ICT?

## Week 8

### Topic: Benefits of ICT

ICT is beneficial to our everyday lives as the world is fast becoming a global city.

Information and communication technology is a very broad term. It refers to various gadgets that aid in communication such as mobile phones, radios and satellite communication. The term is also used to refer to various means of direct communication such as video conferencing.

In short, information and communication technology, better known in its abbreviated form as ICT, is a tool that helps in improving communication among businesses and commerce activities in different parts of the world. In fact, ICT is so commonly used in commerce field to communicate various financial matters such as acceptance of money, producing receipts and transferring funds that ICT and e-commerce have become almost synonymous terms. ICT creates inroads for better accessibility of all sorts of information for people from all over the world. ICT is useful in commerce, health and medical sciences, education, communication, entrepreneurship e.t.c but our main focus is on Education.

### ICT IN EDUCATION

**Educational technology** is the effective use of technological tools in learning. As a concept, it concerns an array of tools, such as media, machines and networking

hardware, as well as considering underlying theoretical perspectives for their effective application.

Educational technology is not restricted to high technology. Nonetheless, electronic educational technology, also called **e-learning**, has become an important part of society today, comprising an extensive array of digitization approaches, components and delivery methods.

### **Benefits To Teachers**

- ICT facilitates sharing of resources, expertise and advice
- Greater flexibility in when and where tasks are carried out
- Gains in ICT literacy skills, confidence and enthusiasm.
- Easier planning and preparation of lessons and designing materials
- Access to up-to-date pupil and school data, any time, anywhere.
- Enhancement of professional image projected to colleagues.
- Students are generally more 'on task' and express more positive feelings when they use computers than when they are given other tasks to do.
- Computer use during lessons motivate students to continue learning outside school hours.

### **Benefits to Students**

- Higher quality lessons through greater collaboration between teachers in planning and preparation resources.
- More focused teaching, tailored to students' strengths and weaknesses, through better analysis of attainment data
- Improved pastoral care and behaviour management through better tracking of students
- Gains in understanding and analytical skills, including improvements in reading
- Comprehension.
- Development of writing skills (including spelling, grammar, punctuation, editing and re-drafting), also fluency, originality and elaboration.
- Encouragement of independent and active learning, and self-responsibility for learning.
- Development of higher level learning styles.

- Students who used educational technology in school felt more successful in school, were more motivated to learn and have increased self-confidence and self-esteem
- Students found learning in a technology-enhanced setting are more vast than students in a traditional classroom.
- Broadband technology supports the reliable and uninterrupted downloading of web-hosted educational multimedia resources
- Opportunities to address their work to an external audience
- Opportunities to collaborate on assignments with people outside or inside school

### **Benefits To Parents**

- Easier communication with teachers
- Higher quality student reports – more legible, more detailed, better presented
- Greater access to more accurate attendance and attainment information
- Increased involvement in education for parents and, in some cases, improved self-esteem
- Increased knowledge of children's learning and capabilities, owing to increase in learning activity being situated in the home
- Parents are more likely to be engaged in the school community
- You will see that ICT can have a positive impact across a very wide range of aspects of school life.

### **ASSESSMENT**

1. List FIVE benefits of ICT to Teachers?
2. List FOUR benefits of ICT to students?

## **Week 9**

### **Topic: ICT Gadgets: The GSM**

**GSM (Global System for Mobile Communications, originally *Groupe Spécial Mobile*)** is a standard developed by the European Telecommunications Standards Institute (ETSI) to describe the protocols for second-generation digital cellular networks used by mobile devices such as tablets, first deployed in Finland in December 1991. As of 2014, it has become the global standard for mobile communications – with over 90% market share, operating in over 219 countries and territories.

2G networks developed as a replacement for first generation (1G) analog cellular networks, and the GSM standard originally described as a digital, circuit-switched network optimized for full duplex voice telephony. This expanded over time to include data communications, first by circuit-switched transport, then by packet data transport via GPRS (General Packet Radio Services) and EDGE (Enhanced Data rates for GSM Evolution, or EGPRS).

Subsequently, the 3GPP developed third-generation (3G) UMTS standards, followed by fourth-generation (4G) LTE Advanced standards, which do not form part of the ETSI GSM standard.

“GSM” is a trademark owned by the GSM Association. It may also refer to the (initially) most common voice codec used, Full Rate.

Advantages of GSM:

GSM (Global System for Mobile communication) is a cellular technology used for transmitting mobile voice and data services. Out of all cell technologies in use today, GSM is the most widespread. However, it is important to know that although GSM is currently the industry standard in cell technology, it has both advantages and disadvantages of which consumers should be aware.





GSM technology is the industry standard for mobile voice and data.

### 1. Extensive Coverage

The most obvious advantage of GSM is its widespread use throughout the world. According to [Gsmworld.com](http://Gsmworld.com), GSM has a harmonized spectrum, which means that even though different countries may operate on different frequency bands, users can transfer seamlessly between networks and keep the same number. As a result, GSM users essentially have coverage in over 218 countries.

### 2. Greater Phone Variety

Another advantage of GSM is that because it is used throughout the world, there is a greater variety of [phones](#) that operate on GSM. Therefore, consumers have more flexibility in choosing a handset that fits their specific desires, and they are not limited to purchasing phones only made in their respective country.

### 3. No Roaming Charges on International Calls

Because GSM is the same network worldwide, users are not charged a roaming fee for international calls. However, most providers still charge a service fee on international calls.

### Disadvantages of GSM

#### 1. Bandwidth Lag

Perhaps the greatest disadvantage of GSM is that multiple users share the same bandwidth. With enough users, the transmission can encounter interference. Therefore, faster technologies, such as 3G, have been developed on different types of networks than GSM, such as CDMA, in order to avoid such bandwidth limitations.

#### 2. Causes Electronic Interference

Another disadvantage of GSM is that it can interfere with certain electronics, such as pacemakers and hearing aids, according to Inc.Technology.com. Such interference is due to the fact that GSM uses a pulse-transmission technology. As a result, many locations such as hospitals and airplanes require cell phones to be turned off.

### **ASSESSMENT**

1. List TWO advantages and disadvantages of GSM?

## Week 10

### Topic: Information Communication Technology Gadgets

#### **ICT GADGETS**

An information communication technology gadget involves the technology and the applications which are used in creating communication, transmission and

storage devices. There are many **ICT gadgets** which are used in communication technology. Some of them are:

1. **GLOBAL SYSTEM FOR MOBILE (GSM)**: Global system for mobile communication is an ICT gadget and second generation digital technology. GSM is top-class standard gadget relied on by millions of people worldwide. Today's GSM is a huge success wireless technology and an unprecedented story of global achievement. It is approximated that 80 percent of the world used GSM technology while making wireless calls.
2. **FAX MACHINE**: The fax machine is a device that can send or receive picture and text over telephone line. The idea of fax machine has been around since 1842, when Alexander Bain invented a machine capable of receiving signals from telegraph wire and translating them into images on paper. However, fax machine did not become popular until mid 1980s. A fax machine consist of an optical scanner for digitizing image on paper, a printer for printing incoming fax message and a telephone for making the connection.
3. **TELEPHONE**: Telephone is an electronic telecommunication device used for transmitting and receiving sounds. The most basic function of a telephone is to allow communication between two points, whether they are near or far from each other.
4. **COMPUTER SYSTEM**: The computer system will include the computers along with software and peripherals devices that are necessary to make the computer function. Every computer system requires an operating system.
5. **PAGER**: A Pager is a small telecommunication device that receives and sends alert signals or short messages. It is the size of a pocket calculator and has built in miniature keyboard and LCD screen that can display several lines of text.
6. **TELEX**: Telex is a communication system consisting of small typewriters connected to a telephonic network to send and receive signals or message.

## ASSESSMENT

1. There are many **ICT gadgets** which are used in communication technology, mention FIVE?

