Unit 1

INTRODUCTION TO INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)

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CONTENTS

INTRODUCTION TO ICT

1.1. Introduction

This unit covers basic concepts of ICT (Information and Communication Technology). It mainly covers with ICT introduction/definition and its application examples which may help the readers to understand the importance and role of ICT in the society. This unit also describes, how ICT can be used as an aid to computer teaching and learning.

1.2. Objectives:

After reading this unit, the learners may be able to:

- Understand the basic concepts of ICT
- Explore the role of ICT in society
- Identify importance of ICT in society
- Explain and exemplify applications of ICT
- Determine how ICT can be used as an aid to computer teaching as well as learning.

1.3. ICT Introduction

ICT is an abbreviation of a term "Information and Communication Technology". It generally refers to use of new or modern technologies to aid in analysis, storage,

processing as well as communication of information. The world is growing rapidly through an explosion of Information Technology.

In order to fully understand the concepts of ICT, first of all it is important to know the meaning of three important terms "Information", "Communication" and "Technology" individually; which are described below:

1.3.1. Information

Information is generally referred to data which can be recorded, organized and interpreted within a context in order to convey meaning.

For example "NADRA" (National Database & Registration Authority) is an organization which collects data from people. This data is basically organized or compiled with the help of computers for generating computerized National Identity Cards.

1.3.2. Communication

Communication is basically the transfer of ideas and messages among people through different systems, devices or media such as computer, internet, cell phone, telephone, television or radio etc.

A figure named as "Communication Model" (Figure 1) shows the above basic concept in a clear way:
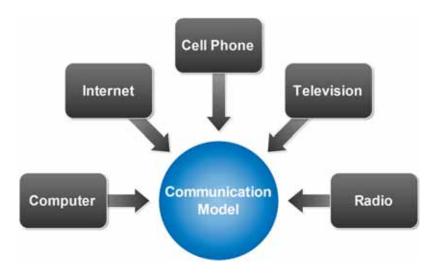
Figure 1: "Communication Model"

1.3.3. Technology

Technology is generally defined as making, modification, adaptation and usage of tools, techniques, systems or machines for the purpose of solving problems or achieving goals in less time period.

After having a brief concept of all these terms individually, ICT can be easily defined as "Any system, product or machine which can receive, store or transmit data/information electronically in digital form". Personal computers, digital television or internet can be considered the best examples of ICT. It basically revolves around those systems or devices which can

easily record and interpret information electronically within a context in order to convey meaning. Its basic purpose is to transfer ideas and messages among people for solving their problems in short time period.

After defining the term Information and Communication Technology, it will be good to briefly describe basic concept of ICT.

1.4.   Basic Concept of ICT

The ICT is just like an umbrella comprising of different communication devices or applications such as radio, television, satellite systems, internet, cellular phones or computer etc.

Information and communication technologies are rapidly evolving nowadays. New products as well as services are developed and launched constantly in the market. This highly effects the definition, meaning and description of ICT concept as its boundaries are continuously being modified or redefined.

Therefore, it can be said that the ICT sector is basically considered to include:
- The manufacturing as well as assembling of various ICT-equipment.
- A variety of numerous service activities ranging from telecommunication to software-development.

A figure named as "ICT: A combination of different Communication Devices" (Figure 2) shows the above basic concept in a clear way:
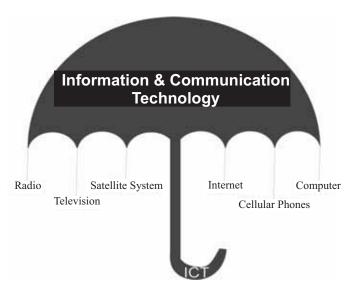
Figure 2: "ICT: A Combination of different Communication Devices"

In past decades, it has been seen that ICT has provided a wide range of new and essential communication capabilities to society. No doubt, latest information and communication technologies have already created a global village by which people can easily communicate and share their ideas with each other.

ICT basically refers to those technologies which provide access to the information by means of telecommunications. It is very similar to IT (Information Technology) but it focuses mainly on different communication technologies. Internet and cell phones are the best examples of communication technologies and also the best communication mediums today.

Basically the internet provides a lot of facilities to the users through various ways such as Email, Social-networking-websites (e.g. Face-book, Twitter or LinkedIn etc.) or numerous search engines like Google/Google Scholar. With this significant

information and communication technology, the people can communicate with each other and share their views easily. Overall, it can be said that this technology connects people with each other.

Similarly, the cell phones are widely famous among the people of all ages and have become an important need of everyone. With the help of this interactive information and communication technology, the people can communicate with each other at any time easily through call. Instant messaging (a very safe way of communication) is also another important feature of this technology which makes the life of people easier.

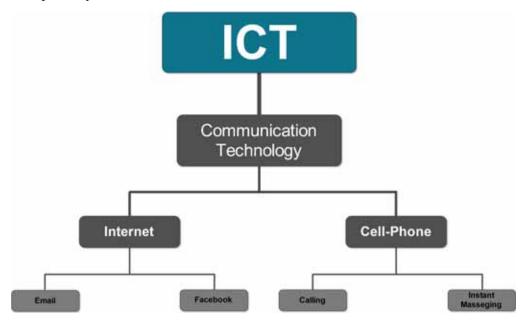A figure named "ICT & Communication Technologies" (Figure 3) shows this concept easily:

Figure 3: "ICT & Communication Technologies"

The information and communication technologies involve innovations in computing (both hardware and software) as well as telecommunications. The telecommunication is an essential and basic infrastructure which is very necessary for economic as well as social development or rapid growth of a country.

1.5. Role of ICT in Society

No doubt ICT plays an important role in every walk of life or society through use of various devices such as computer, internet, and cell phones. These ICT devices are most convenient and cheaper means of communication across the globe.

One can say that the ICT has turned a significant change in todays' society. The importance and positive influences of information and communication technologies can be easily seen in various fields such as education, business, training, health, environment, employment or government (public administration) etc.

A figure named as "Importance of ICT" (Figure 4) shows its importance in various areas:

Figure 4: "Importance of ICT"

In all these and many more areas, the ICT has brought a significant change, and is therefore growing rapidly.

The role of ICT in society is further explained with the help of various ICT applications.

1.6. ICT Applications

The ICT applications enable people to communicate with each other in real time all over the world. The detail of some of the most important examples of ICT application is described below:

1.6.1. Computer and Internet

Computer is a most significant and major application of ICT which has gained an immense importance in our society. It is one of the basic needs of today's generation. While using computer, it can be easily observed that the people are highly involved in it. They use their minds in order to achieve the target whether the goal belongs to play video games or using any type of software or to solve any educational related problem.

A figure named as "Computer and its Accessories" (Figure 5) shows the various components of a computer:

Figure 5: "Computer and its Accessories"

With the help of computer and internet, people can communicate with each other through various ways. This improves their interaction with the whole world. In this way, they face different experiences which can be beneficial for them.

The computer and internet provide many important benefits to its users such as they can play games, listen music, watch videos, solve many problems related to their education as well as communicate with each other through email facility/social networking websites etc.

Computer in conjunction with internet is a well known social ICT application which enables people to communicate easily through different communication mediums such as face-book (a widely used social networking website) and electronic-mail (generally called email).

The internet has become basic need of everyone in the society. Following are few common advantages:

- ☞ Online sale and purchase
- ☞ Source of entertainment (movies/music)
- ☞ Software's and document's downloading
- ☞ Document's sharing with each other through internet
- ☞ Searching through various search engines like Google or Yahoo etc.
- ☞ People's communication through email, Skype or social networking websites (Face-Book, Linked-In or Twitter) etc.

1.6.2. Cell Phone

Cell phone is another well known ICT device which allows users to communicate with each other. It provides many facilities to the users such as calling, instant messaging, listening music, watching videos, playing games, using internet, maintaining phonebook and many more.

Out of these basic features like calling, messaging, maintaining phonebook, and playing games are available in almost all cell phones. However, additional multimedia like voice, video, and graphics are also included in many cell phones which make this application more attractive, valuable, efficient and interactive. The cell phone has become so popular among the people of all ages, especially the young generation is looking fully dependent on it.

A figure named as "Simple-Phone & Multimedia-Phone" (Figure 6) is shown below:

Figure 6: "Simple-Phone & Multimedia-Phone"

Some of the basic features of cell-phones are explained below in detail :

1) Calling: It is most important feature of this ICT application. With the help of this feature, people can connect with each other.

2) Messaging: Another important feature is instant-messaging. By using this feature, users can send messages to each other.

3) Music/Videos: Listening music and watching videos have become a hobby of young generation. The young generation seems to be very happy in listening different kinds of music and watching different kinds of videos depending on their moods. For them, it is simply a way of entertainment.

4) Games: Many different kinds of computer games are available for the

users in the cell phones. Playing games is one of the most interesting activities of the children or young generation. They play games with great passion. This excitement can be seen easily while their interaction with this ICT application. This is a way of enjoyment and excitement for them.

5) Internet: Using internet on cell phones is also becoming popular. Now modern cell phones have contained this important feature. With the help of this facility, the users can easily send instant emails and get responses too.

1.7. ICT in Teaching and Learning

No doubt, information and communication technologies have put a lot of positive effects in educational areas where teaching and learning are most important aspects. The use of ICT is very necessary for sustainable growth of young generation. With the help of ICT, many problems can be solved easily and one can work more efficiently. ICT inside the educational areas has developed enormously. Now ICT has become an important part of our society, therefore it is necessary that the people should be educated in "how to use it".

Overall, ICT enables teachers as well as learners to:

- Teach well
- Learn well
- Present well

- Work efficiently
- Share ideas easily
- Solve different problems easily
- Gain precise knowledge
- Achieve goals in less time period

Now the use of ICT is also increasing in educational areas. This theme gives young generation many ways of learning as well as generating new ideas. This facility in classroom can prove to be very helpful for teachers to teach and for the learners to learn.

At school or college level, the young generation is in their growing age. So, at that time if they use this facility then their minds can become faster and they can grow with the new technologies. So the computer can be used as a resource to sharp their minds. While solving any problem (either related to education) through computers, they can think deeply. There are a lot of excellent things which are usually done during this interaction. The teachers should also give special importance to engage learners in the design of new applications and technologies.

To achieve this target, it is very necessary to give importance to those ways which are very appropriate for the assessment of the interactive touchy systems for the learners. Deep observational and experimental research is needed, and more conceptual ideas are required for the achievement of this goal.

To enhance the learning abilities of the young generation, the teachers play an

important, energetic and active role by using ICT. Initially, the computer related education provides a platform to examine the association among different areas of learning (formal learning and informal learning).

For the learners, education related to the computer should be given at school level. Because interacting with the computer is the easiest way of learning. In this way, their vision can broad and they can think, act and describe their feelings in a better way. It may also prove to be very helpful for their participation in the field of development of new systems and technologies.

So it can be said that the ICT can be used as an aid to computer teaching as well as learning. In a classroom, the interaction of teachers as well as learners with ICT can create that environment of learning, where they face many effective experiences which are useful for the enhancement of their thinking and learning abilities.

1.8.   Self-Assessment Questions

Q.No.1.   Write down the advantages and disadvantages of "Information and Communication Technology".

Q.No.2.   Explain the role of ICT in teaching as well as learning.

Q.No.3.   Explore the importance of ICT in different fields like education, business and training. Explain it in detail with the help of examples?

Q.No.4.   Write a note on the following:
- Electronic Mail (email)
- Social Networking Websites

Q.No.5.   Explain the differences between "ICT" and "Telecommunication".

Q.No.6.   Why internet and cell phones are being considered the best examples of ICT? Explain and exemplify it in detail.

Q.No.7.   Understand what Information and Communication Technology (ICT) is and give examples of its practical applications in society.

Q.No.8.   Internet is a well known example of ICT. How it enables people

to communicate easily through different communication mediums?

1.9.   Self-Assessment Activities

1.   Create an email account and explain how to use and access it?

2.   How software(s) and documents can be downloaded through internet?

3.   How we can share documents with each other through internet?

4.   How people can communicate through social networking websites. Consider an example of face-book and give answer of this question in detail.

5.   How the internet will be used in mobile-phone.