

## Quadrant-I (e-Text)

### Details of Module and its structure

Module Detail	
<b>Subject Name</b>	Education
<b>Course Name</b>	ICT in Education
<b>Course Code</b>	EDU504
<b>Module Name/Title</b>	<i>Use of digital, still and video camera, digital sound recorder, scanner, printer, interactive white board, visualizer and multimedia projector</i>
<b>Module Code</b>	IIE010
<b>Pre-requisites</b>	.....
<b>Learning Outcomes</b>	The students will be able to (i) Illustrate use of technology for communications (ii) Analyse dynamic processes through animation in the classroom (iii) Apply non-textual media like image, audio and video for communicating information in the classroom (iv) Explain the real world situations and processes through powerful medium of resources (v) Demonstrate the advantages of using digital resources in the classroom (vi) Design a multi-media presentation for classroom learning
<b>Keywords</b>	Digital camera, video camera, Digital sound recorder, scanner, Printer, Interactive white board Visualizer and Multi-media projector

### Development Team

Role	Name	Affiliation
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## **1.0 Introduction**

There are many reasons why teachers and students fail to create a congenial learning environment in the class. One of the reasons is instructional resources utilised for the purposes of teaching and learning. The instructional resources can value different learning scenarios. These focus on rich contexts to produce laboratory work, writing projects, study teams and collaborative learning. The importance of these instructional resources is to improve student's knowledge, abilities, skills and attitudes to contribute towards their overall development. These resources may involve considering new ideas or techniques of teaching-learning. There are different applications, out of which are: Digital, still and video camera

- Digital sound recorder
- Scanner
- Printer
- Interactive white board Visualizer
- Multi-media projector

## **2.0 Digital Camera**

Digital camera is a device used to digitalise real world images. It has a lens through which light from real world objects enter into the camera. The image is converted to binary representations and stored as a digital image file. Most of the digital cameras have an LCD screen at the back which can be used as view finder and adjustment. Images may be stored in a variety of file formats. Joint photographers Expert Group (JPEG) format is commonly used to display photographs and other images in HTML documents. Tagged Image File Format (TIFF) is used to exchange files between applications and computer platforms. This format supports all paint, image-editing and page layout applications

### **2.1 Use**

- Capture sheets of material or book pages are displayed in the class room. The handouts, written materials or particular page of the book showing data which can be referred by the students are supplied

- The organisation of the content, the screen designs, navigating from one frame to another are important benefits. Arrangement of the content from simpler to complex, easy to difficult, known to unknown can be organised
- Incorporation of various kinds of media within a presentation is set. Text with audio and video can be included for effective presentation
- Considerations about the various media types incorporating into the content matter are decided i.e. which part of the content is to be displayed as text, how images will be used to supplement the text and how interactivity can be done between various content matter
- Interactivity can be used in explaining different contents.
- Blending effect by splitting the content into sub concepts and include questions with feedback, reviews and summaries for each sub units are other benefits.

### **3.0 Still Camera**

Still Camera is used to record a succession of still images and then converted the brightness and colour information of the images into electrical signals. These signals are transmitted from one place to another by wireless means; at the receiving end these signals are again converted to form the images.

#### **3.1 Use**

- This can be used to illustrate abstract principles through use of constructed models. The model shown through camera will help to understand concretely.
- Exhibit practical activities- step by step activities can be demonstrated
- Synthesise and summarise contextually- The discussion of activities done in each step can be summarised

### **4.0 Video camera**

Video is a means of delivery of the moving images. It is linked with technologies used to record and transmit the visual images and visually associated with sounds. An educational idea is turned into a video reality. The purpose is to assist students in their attainment of a learning goal. A teacher having an idea may be abstract in nature, based on their knowledge of scheme of lessons or syllabuses their classes follow or on their knowledge of their

students. It may be needed to support students at different points in their learning.

#### **4.1 Use**

It helps to both teacher and students in

- Active planning in lessons- The teachers can plan their lessons and students can plan their activities for discussion of lessons
- Organisation of course content- The transaction of the Contents are so organised as to make achievable by the students. Hence the content is analysed and organised accordingly before presentation of the topic
- Class room management- The activities like students asking questions, teacher's repeating the questions, purpose of audience video viewing and etc. can be managed
- Assessments- Assessment is recorded during presentation of the lesson and after completion of the lesson
- Preparing sketches- it values in communicating an idea to others
- Script production by integrating text with audio and video elements-
- Creating storyboard- It consists of drawings, illustration or discussion pertaining to an issue or perspectives of a lesson

#### **5.0 Digital Sound Recorder**

The intent of digital sound recorder is to record digital audio. It is used to store an exact replica of the original digital data. It contains recordings of duration 15 minutes to 180 minutes depending on digitization and computer parameters. The audio content should have the following features:

- Use a conversational tone
- Avoid lecturing note
- Modulation to motivate, explain, emphasise the idea
- Synchronize narration with visuals
- Support visual information
- Emphasise important points using music
- Sound effect providing key information about a word

## **5.1 Use**

- Brainstorming in pairs can be efficient- Students can be exposed to certain multidimensional issues for brainstorming. Each one can be able to counter self and others idea through rewind, replay this recorder.
- Fluency and pronunciation can be improved- one's fluency and pronunciation can be checked and reviewed repeatedly for improvisation through this aid
- podcasts can be created- Unlike broadcasts of radio and television the students can listen or view according to their own pace of time and view a podcast
- story telling can be prepared
- Practice transcribing- Transcribing is an art of the teacher. It is highly required for listening to voice recording in preparing the documents. Reviewing and editing the documents are also done with the help of this recorder.
- updating the materials- the materials are modified and updated
- self-evaluation-Student can self-evaluate through recorder by replaying the voice recorder

## **6.0 Scanner**

Scanner looks like a photocopying machine with a glass panel and a moving scan head below it. The paper document to be scanned is placed face down on the glass panel and the scanner is activated using software from a computer to which the scanner remains attached. The traditional way of attaching a scanner to the computer is through an interface cable connected to the parallel port of the personal Computer, but now-a-days other forms of interface like USB are predominantly used. The quality of a scanned image is known by its resolution. Scanning allows the user to do the followings:

- Determine the colours
- Storing inside the computer as a file and /or directly sent to the printer
- The standard file types like JPG, TIFF can be scanned

## **6.1 Use**

- Scanning student's drawings in order to use it school website
- Scan and email PDF files for grading reports
- Collaborate the documents with peers

## **7.0 Printer**

Mostly LASER printer and the inkjet printer are used for printing multi-media content. LASER works similar to a photocopier, the difference being the light source.

## **7.1 Use**

Printout of

- A historical artifact is used for learning of history- The historical artifacts can be used for giving live experiences about the past events. This will help in understanding the abstract concepts in history
- Prototypes for science design- The layout of science projects and experiments can be shown in clear format.
- 3D models of design- Designs of 3D structure can be spotted to be used in learning of school subjects
- Graphic designs for artwork- Computer designs of art work can be graphically printed out.it can be used for learning purpose
- Topography, demographic and population maps in printed form can be used

## **8.0 Interactive White board visualizer**

An interactive white board visualizer is basically a digital camera on a stand. When it is connected to a projector whatever is in the visualizer's view, appears on the big screen. Then, one can move the objects as per the requirement. The students then can interact with what is on the screen using a finger pen. With this visualizer, 2D & 3D objects can be displayed.it has advanced 5mp camera that will project high quality display through projector over any plain surface

## **8.1 Use**

It is vital teaching and learning tool for any institution. It is used for

- Laboratories experiments- The laboratory experiments can be demonstrated through interactive visualizer. It will help to the students to conduct experiments step by step.
- Record movie demonstrations- The demonstrated movie can also be recorded
- features of annotation to label key areas can be used
- Examples through shared writing can be illustrated for better understanding of a concept
- Sharing student's work with the whole class- The collected work of each individual can be shared with other peers in the class. It will be helpful for refining the contributed work of each student in understanding a key idea.
- Editing student's work- it is the platform for editing student's work
- Sharing projects- The projects for science learning can be prepared through sharing. It helps in the problem identification, preparation of data collection tools, analysis and etc, for finalisation of the projects
- Discussing an examination paper- The questions along with answer key can be placed for discussion of an examination paper. It will be very much helpful to analyse the errors done by the students in some subjects.
- Show spelling punctuation and grammar- Correct Spelling, punctuation and grammar of any language can be shown to the students through this aid. It will facilitate the novice students in language learning.

### **9.0 Multi-Media projector**

Multi-media contribute two words: 'multi' which means numerous and 'Media' means centre. Therefore, multi-media means multiple means by which information can be stored, transmitted and presented. The multiple means by which we can perceive information are:

- Text
- Images and graphics (e.g. photos/maps/charts/sketches)
- Audio (e.g. radio and etc.)



- Video (e.g. Animation)

Multi-media projector is an optical device that projects an image onto a surface, commonly on projection screen.

### **9.1 Use**

- Animations are created

Images are manipulated in moving images. Animations in 2D and 3D can be used in abstract concepts of school subjects. Virtual learning objects used with multimedia projector is a way for students to interact with the concepts

- Visualising simulation of processes

Dynamic processes like scientific phenomena and etc. can be simulated. The real object which cannot be seen is modelled and simulated through multi-media projector. It will facilitate students learning

- Versatility of teaching and learning

Broad range of activities which is cost effective and manageable for teaching and learning are organised. The flexibility and mobility of teaching and learning activities can be facilitated through this powerful device.

- Integration of technology in teaching

Integration of technology into student's learning experience is possible through this device. By incorporating technology into classroom, teachers can be well equipped to deal with student centred learning and thus to engage students who prefer to learn in other ways.

- Step wise problem solving in mathematics

Problem solving in mathematics is encouraged in group learning. This device will help in the use of multiple modes of presentation. This is embedded in collaboration. The whole class can be engaged in real life problem which will encourage self-awareness in the learning process. Each step of problem solving process can be interacted among the class. This will result in solving of mathematics and science problems

- Mapping of concepts

The concepts are well organised through mapping. Its visual organisation can be represented through multi media. The map depicts the graphical

relationships between concepts. It can be designed through this device to structure the students' knowledge

- Group learning

Working in group provides an opportunity to articulate others, understand better and uncover the misconceptions in collaboration. Multi media will increase learning opportunities. Digital collaboration will help to exchange more related to planning rather than challenging viewpoints occur more frequently.

### **10.0 Conclusion**

The content is designed keeping in mind of the target audience. So, the organisation of the content is one of the important tasks for the effectiveness of teaching and learning. These instructional aids provide necessary support to both teachers and students. Various kinds of media within the presentation of the contents are set. How to incorporate those types of media into the content matter are facilitated with those instructional resources. Students become familiar with a topic and possess significant knowledge about the content. These resources are opportunities for finding students' interaction. Students' curiosity can be stimulated. Designs of instruction are also framed so that students can discover information through active exploration in the course. Hence, the instructional resources are inherent part of any instructional programme.

### **11.0 Summary**

The diversity of class room learning demands various ways of learning. This causes use of multiple instructional resources like audio, video, multi-media scanner, printer and interactive visualizer. Utilisation of each resource requires necessary technological knowledge. The software aspect of knowledge of these resources is required to be possessed by the teachers in order to use effectively in the class. Therefore, in this module the benefits of each resource in the planning, presentation and assessments of contents are discussed. This will help to plan diverse teaching techniques for learning, simplify and explain complex problems and allows students to learn at their pace with instant playback, rewind and pause. In this way, it will reduce

frequently asked questions from the students' corner and maximise the output of learning.

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### Multiple Choice Questions

- Q1. Which of the followings provide access to excellent resources to scan JPG file?
- a) Multi-media projector b) scanner c) internet d) interactive board
- Q2. In order to demonstrate decision making process of competition in a school, which of the following is the best resource?
- a) printer b) scanner c) Digital video d) Digital Audio recorder
- Q3. In the learning of history, which of the following provides excellent access to historical artifacts?
- a) Printer b) camera c) scanner d) digital sound recorder
- Q4. Brain storming in pairs is best supported through
- a) Digital camera b) Digital sound recorder c) digital visualizer d) interactive board
- Q5. In order to demonstrate examples through shared writings, which of the following is an excellent aid?
- a) Interactive visualizer b) video camera c) still camera d) digital camera
- Q6. Video can be best useful for \_?
- a) story telling b) scanning of drawing c) map d) script production
- Q7. Digital camera is a device used for \_?
- a) Storing file b) scanning of document c) imaging file d) determining the color of material
- Q8. Which device is used to edit the student's work?
- a) Visualizer b) camera c) scanner d) printer
- Q9. What care should be taken for preparing audio content for sound recorder?
- a) Sound effect b) visual effect c) length of content d) None of these
- Q10. Give full form of JPEG
- a) Joint professionals expert group b) joint photographers expert group c) joint photographers excluded group d) joint professionals excluded group

**Answers:** 1-b, 2-c, 3-a, 4-b, 5-a, 6-d, 7-c, 8-a, 9-a, 10-b