

Multi Media

17UACCT602

Unit - 1

Multi media overview - Introduction - MM presentation & production - characteristics of MM presentation - Hardware & Software requirements - uses of MM - promotion of MM based content - Steps for creating MM presentation - text - Types of text - file formats

Unit - 2

Image - Image types - colour models - basic steps for image processing - Scanner - specification of digital images - image processing software - file formats - graphics - Surface characteristics and texture - lights.

Unit - 3

Audio - introduction - Acoustic - Nature of sound wave - fundamental characteristics of sound - elements of audio system - Audio file formats and codes - Audio and MM - Audio processing software.

Unit - 4

Video - Analog video camera - Transmission of video signal formats - PC video - video formats & codes - Video editing - video editing software

Unit - 5

Animation - intro - uses of Animation - key frames and tweening - Types of Animation - computer assisted Animation - principles of Animation - Some techniques of Animation

Animation on the web - 3D Animation - Animation Software - file formats

Unit - I MultiMedia

The term 'MM' comes from the Latin word "Multus", which means "numerous" and Media which means middle or centre.

- * The MM means multiple intermediates.
- * The MM is a combination of following thing:
 1. Text (Eg - Book, newspaper)
 2. Image (Eg - photograph)
 3. Sound (Eg - Radio, Audio casset)
 4. Video & Animation (Eg - motion picture, video cassette)

MM presentation and production :-

MM production:

- * The creative work of MM presentation is called MM production.
- * The production work is carried out by the team of technical and skillful professionals.
- * The production work requires knowledge & skill in the particular domain.
- * The professionals are also called as developers.
- * The production work takes much time than the presentation.

MM presentation:-

- * MM presentation is basically a digital show.

- * The MM uses diff media types such as text, image, Audio, video & animation.
- * It is basically used in education sector, corporate companies, tourism industries, marketing sector, computer based training etc..
- * It is to target the audience.
- * The presentation is mainly used in the form playback mode.

characteristics of MM presentation :-

The Basic characteristics of MM presentation are :-

- * Multiple Media
- * Non linearity
- * Scope of interactivity
- * Integrity
- * Digital representation.

1. **Multiple media**:- The first characteristic of multi media presentation is multi media. it means combination of two or more media. (Eg): text, image, audio, video and animation.

2. **Text** is the main mode of comm among the years. A picture is worth than thousand words.

- , picture can be divided into image & graphics.
- , Text, image & graphics are together referred to as static elements.
- , movies are combination of audio & video.
- , A movie must be worth than million words.

Non linearity: It is the process of jumping from one position to another within a presentation.

- * TV show & motion picture are considered to be linear presentation.
- * In linear presentation the viewer cannot change the order of the presentation.
- * In Non-linear presentation the viewer can change the order of the presentation.
Eg: for non-linear presentation are The viewer watching movies on the CD player.

Scope of interactivity :-

- The non-linearity is possible only when user interact with the presentation.
- * A linear presentation is not considered to be interactive presentation.
- * The interactivity is considered to be one of the factors of next generation E-learning tool.
- * The E-learning tool is considered to be one of the very useful interactivity.

Integrity:

- * Most important characteristics of MM is integrity.
- * The presentation is produced with background music and it has to be heard by all the users.
- * The user can't avoid the background music.
- * The individual user can't decide the background music.

Digital Representation:-

- * Audio & video cassettes players use at magnetic tape for recording.

* In the magnetic tape the data can be stored in the form of Analog.

* The magnetic tape are called as sequential action storage device.

* The MM presentation are stored in digital formats.

* The MM presentation stores the data in Random access devices. [pendrive, hard disk].

* The digital platform allow us to switch over from one point to another without any delay.

Hardware and Software Requirements :-
of MM presentation are

Hardware :-

* Mouse

* Keyboard

* Monitor

* Projector

* Speaker

* Printer

Software :-

1. MS. office

2. Photoshop

3. Sound card

4. VLC card

5. Graphics card

* Hardware & Software are classified into 2

i) MM playback

① projector

② speaker

③ monitor

ii) MM production

① Mouse

② MS. office

③ Keyboard

④ System software

Uses of MM:-

1. Home Entertainment (TV)
2. Educational Purpose (projector presentation)
3. Industrial training.
4. Corporate presentation.
5. Business.
6. Tourism & travel industry.
7. Communication Networks.
8. E-shopping
9. Medicine.
10. Sports.

Promotion of MM based content :-

- * Demand from the customer.
- * Compression technique.
- * Processing power.
- * Standard.
- * Bandwidth.
- * Distributing mechanism.

Steps for creating MM presentation :-

1. Choosing a topic.
2. Writing a story.
3. Writing a script.
4. Preparing a storyboard.
5. preparing a flow line.
6. Implementation.
7. testing.
8. feedback
9. final result.

Diagram

6

Text :-

- * Text is a group of characters.
- * Text can be of 3 different types:
 - (1) unformated text (Non-Align) } diagram
 - (2) formated text (Align)
 - (3) Hyper text (Google Search)
(Blue color highlighted word)



im

Unformated Text : It is also called as plain text.
→ It consist of fixed size of character from a limited character set.
→ The character set is called ascii Table.
→ The ASCII means American Standard code for Information Interchange.
→ In ASCII each character is represented by 7 bit binary code.

Formated Text :-

- It is nothing but defining the unformated text. (bold, italic, underline)
- The text processing software uses such formating options to change the text appearance.
- The text formating is mostly used in publishing sector. (Eg:- Book, Newspaper)
- The text formating is also available in HTML Document.
- The control character is used for formating the text in the Application. (Eg: ctrl + key combination)



Hyper Text :-

- The Term Hyper means Something beyond.
- The Hyper links are called as Hyper text.
- The links are used in HTML document, ppt presentation as well as mm presentation.
- The Hyper text are mostly used in WWW

- There are two main things in Hyper text
- (i) Anchor (ii) link
- The Anchor is called node.
- The link is called pointer.
- The Anchor is actually text element.
- The link connectivity to another page.

Font : ~~bottom of the page font~~

There are two main categories in font.

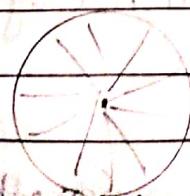
- ① Font Appearance (Diff. types of font)
- ② Font Size & Style (bold, italic)



Text file formats:

There are different text file formats.

- * .txt (notepad)
- * .doc (word document)
- * .rtf (rich text format)
- * .pdf (portable document format)
- * .ps (post script)



Unit - IIImages

* A Picture is worth of 1000 words.

* The picture can be classified into 2 groups:

1. Image

2. Graphics

* Image is a picture captured by camera

* Graphics is a picture which is drawn or painted

* The image can be either black & white or grey scale (black & white)

* The image may also be in color shades.

* The color model is classified into 2 categories:

→ RGB (Red, Green, Blue)

→ CMYK (Cyan, Magenta, Yellow, Black)

* The digital camera is used to convert real world image into digital image.

* The digital camera contains number of electronic sensor called CCD (charge couple Device)

Types of Images :-

○ Hard copy. (Printed Format)

○ Soft copy. (Digital format)

○ Continuous tone. (color photo)

○ Half tone. (Two color) printed using less ink.

○ Bit tone. (Black & white photo)

Seeing color :-

* It depends on different factors.

* The factors are i) Nature of light.

ii) Interaction of light.

iii) Physiology of human vision etc..

- im * light is a form of energy known as Electro magnetic energy.
- * The transmission takes place when light passes through a object.
- * RI is the ratio of the speed of light in a vacuum.
- * RI means Refractive Index.

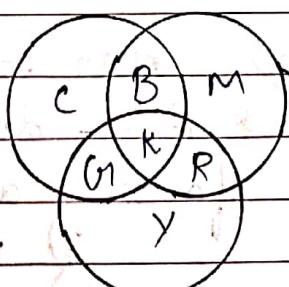
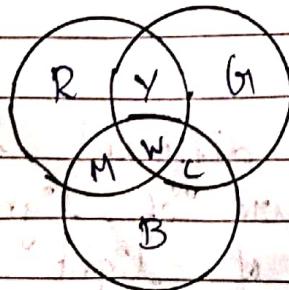
most
repeated

(+) Color Models :-

- * The color Models help us in expressing content related to color.
- * It says that different combination of colors are divided to form four elementary colors.
- * The elementary colors are also called as Primary colors.
- * The primary colors are mixed with the different ratios to produce composite colors.
- * The primary colors mixed with equal ratio to give Secondary colors.
- * The color models are classified into three categories :-
- (i) RGB (Red, Green, Blue) model.
 - (ii) CMYK (Cyan, Magenta, Yellow, Black) model.
 - (iii) Device dependency model.

RGB

CMYK



RGB model :-

- * It is a combination of Red, green, blue color
 - * The R & G combine to produce yellow color
 - * The R & B combines to produce magenta.
 - * The G & B combines to produce cyan.
 - * All the 3 colors combine to produce white
 - * The primary colors of RGB model is Red, Green, blue
 - * The Secondary colors of RGB model is cyan, magenta and yellow.
 - * The RGB model is used in TV screen and the monitor
 - * The 100% of RGB color will produce white
- $$\text{R} + \text{G} + \text{B} = \text{W (white)}$$
- 100%. 100%. 100%.

CMYK model :-

- * It is a combination of cyan, magenta, yellow and the black.
- * The cyan and magenta combines to produce Blue color.
- * The M and Y combines to produce Red color.
- * The C & Y combines to produce Green color.
- * All the 3 colors combine to produce black
- * The primary colors of CMYK model is cyan, magenta, yellow and black.
- * The Secondary colors of CMYK is Red, Green and blue
- * The CMYK model is also called as Subtractive model.
- * The 100% of CMYK color will produce black.

$$\text{C} + \text{M} + \text{Y} = \text{K (black)}$$

100%. 100%. 100%.

Device dependency model:-

- * The RGB and CMYK does not have universal color value.
- * The different devices will give rights to different set of colors.
- * The RGB & CMYK model is also known as device dependent color model.
- * The total range of color supported by each color model is known as Gamut.

Basic steps for image processing:-

The image processing involves 3 basic steps

(i) Input

Digitization → 

(ii) Editing

with number photo

(iii) Output

Input:

* Image input is the 1st stage in image processing.

* It is the process of Getting natural images into the system.

* The image input is the process of converting analog images into the digital images.

* The conversion process is done by means of 2 devices \Rightarrow Scanner \Rightarrow digital camera.

Editing:-

* The 2nd stage in image processing is Editing.

* The Editing is done by means of image editing software.

* The images are compressed using mathematical Algorithm.

* After compression the images will be

✓ Stored in diff file format

Output :-

- * Output is the last stage in image processing.
- * The image can be displayed in two diff formats
 - ⇒ Stand alone
 - ⇒ presentation on Web page.
- * Most of the images will be displayed on the monitor.
- * The other way of displaying image is by means of hard copy.
Eg:- printed photo, broucher.

Scanner :-

- * Scanner is the input device.
- * It is used to convert analog images into digital image.
- * The Scanner is similar to digital camera.
- * There are diff types of scanner.
 - ⇒ Flat bed Scanner → CCD
 - ⇒ Drum Scanner → DPMT
 - ⇒ Bar code Scanner → UPC

Flat bed Scanner :-

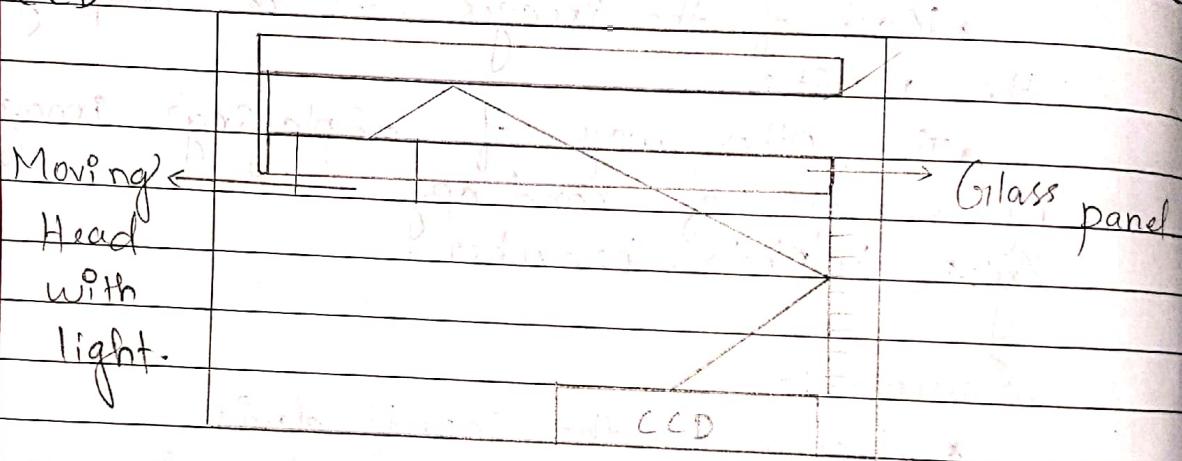
- * It is the most common type of scanner used in office environment.
- * It looks like a photo copy machine with a glass panel on which the document to be scanned which is placed.
- * A moving head with a source of light using xenon lamps will be attached below the glass panel.
- * The moving head will slowly moves from one end to another end.

CCD

PMT

V.P.T

- * Depending on the light & darkness of the document the voltage will be supply.
- * The Electronic Sensor CCD (charged couple Device) will capture the image.
- * The process will continue until the whole document is scanned.
- * The final result will be visible on the CCD.



Drum Scanner :-

- * It is used to obtain Good Quality of Scan for professional purpose.
- * It generally provides better performance than flat bed scanner.
- * It consist of cylindrical drum maid out of high plastic material.
- * The image will be scanned on the film which is mounted on the drum.
- * The film will be dipped into the solution to get a image.
- * The main difference b/w the drum scanner & flat bed scanner is usage of PMT (photo Multiplier tube) instead of CCD.

Barcode Scanner :-

- * It is a special type of scanner which reads the information printed on any surface.
- * A barcode is a machine readable info in the form of visual format.
- * In general barcode uses set of vertical lines.
- * The barcode is based on UPC (Universal product code).
- * A barcode is smaller than flat bed and drum scanner.
- * A barcode scanner consist of LED or laser light.

Specification of digital images :-

The Specification of images is based on five main things:-

- i) pixel dimension (height & width)
- ii) Image resolution (pixel per inch)
- iii) File size (KB, MB, GB, TB)
- iv) color depth (16 bit, 32 bit, 64 bit)
- v) Bit Map (number of dots)

(10m) Image Processing Software :-

- * It is used to enhance the images.
- * The diff tools in image processing software are:
 - i) Selection tool  & shape tool.
 - ii) Text tool T  viii) crop tool 
 - iii) painting and drawing tool 
 - iv) color selection tool 
 - v) Gradient tool.
 - vi) color channels.
 - vii) layers.
 - viii) background layer of picture.
 - ix) transformation tool.
 - x) clone tool To take the unwanted in image.
 - xi) Eraser tool. ↳ background
 - xii) magic eraser. ↳ magic eraser

⑥ File formats :-

Image may be stored in diff file formats.
Each file formats characterized by specific compression type.

The diff file formats are :

- .bmp (Bit Map)
- .jpeg (Joint photographers Expert (group))
- .Gif (Graphic Interchange Format)
- .png (portable Network Graphics)
- .pict (Picture)
- .tiff (Tagged Image file format)
- .psd (photo shop document)

Graphics :-

* A Graphics is related to something which is hand drawn.

* The digital graphics is classified into 2

- Vector graphics

- Raster graphics

* Raster graphics is similar to images.

* The Hand drawn images scanned by an scanner is called raster images.

* The vector graphics is generated by using software tool.

* Eg for vector graphics is using photo shop.

Surface characteristics And texture:

- * The Surface characteristics determines the color, text and reflectivity of the Object.
- * The collection of set of characteristics of a particular surface is called Shader.
- * Some of the basic parameters of a surface characteristics are
 - i) color
 - ii) highlight color
 - iii) Reflectivity
 - iv) transparency.
 - v) Refractivity

Lights :-

- * Light is a form of energy which is used to see the object.
- * without light we cannot able to get the visibility of the object.
- * The diff parameters of lights are
 - position
 - Direction
 - color
 - Spread
 - Intensity
 - Decay
 - Drop-off

Intensity → power of the light.

Drop-off → Distance between the light.

Decay → light for a particular distance.

Direction → reflection of light.

color → suits according to the place or room

Types of light

- (i) Point light (ii) Directional light.
 - (iii) Spot light (iv) Area light.
- ii) Only reflects for a particular place.
- iii) Ex: Street light.
- iv) Ex: focus light (visibility in a cricket ground)
i) used to identify the text or highlighting through the pointer

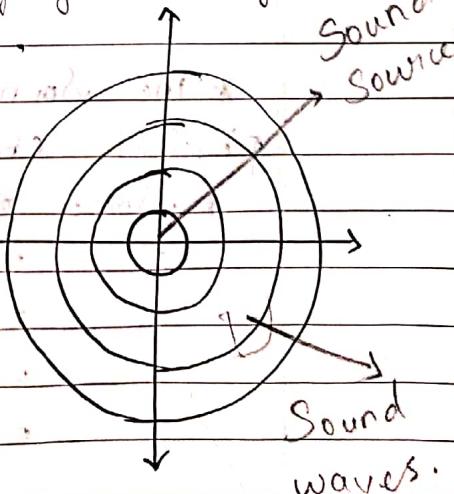
Unit - III

Audio

- * Sound is a form of energy capable of flowing from one place to another through material medium.
- * Sound is generated from vibrating the objects.
- * The Amplitude of sound waves corresponds to loudness.
- * The frequency corresponds to pitch.
- * The sound card is necessary for digital devices to play back the sound.
- * Sound is a form of energy similar to heat and light.

(ii) Acoustic :-

- * It is a branch of science dealing with study of sound.
- * It is concerned with generation (producing), transmission and receiving of sound waves.
- * The Application of acoustic technology is called Acoustic Engineering.
- * The main sub-division of acoustic are
 - Architectural of Acoustic, a Good Sound within a building concerned with sounds produced by or
 - Bio Acoustic, affecting living organisms, relating to sound of ultrasound energy.
 - Bio medical Acoustic.
 - Physical Acoustic.
 - Musical Acoustic.
 - Psycho Acoustic.
 - ↳ (including noise, speech, music)
 - Interaction of acoustic waves with a gaseous, liquid or Solid medium on macro and the micro level.



Nature of Sound waves :-

* Sound is a form of energy which is produced through material medium.

* The nature of sound has 2 properties

i) longitudinal waves.

ii) Mechanical waves.

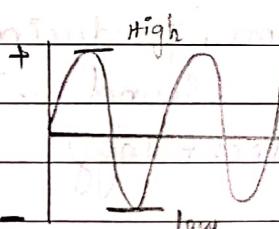
* The longitudinal waves means the direction of propagation of sound is same as the direction along which the medium moves.

* The Mechanical waves means sounds are compressed and expanded.

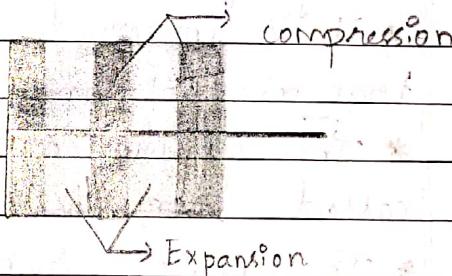
* In mechanical waves on compression the sound waves increases.

* In mechanical waves on expansion the frequency decreases.

LONGITUDINAL WAVES



MECHANICAL WAVES.



Fundamental characteristics of sound :-

* The sound waves are associated with physical characteristics.

* Some of the characteristics are.

- o Amplitude.

- o Frequency.

- o wave form.

- o Speed.

Characteristics of Sound

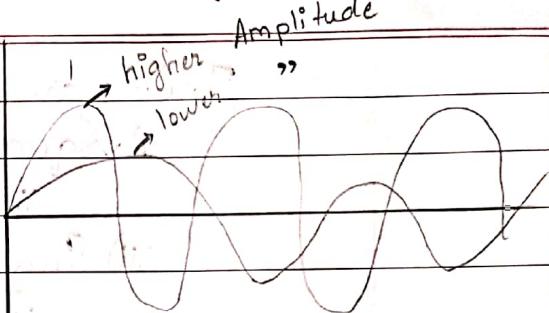
classmate

Date _____

Page _____

Amplitude:

- * Amplitude is the wave of maximum displacement of the particle in the path of the wave.



- * Sound waves is correspondence to loudness of the sound.
- * Loudness is measured by unit called decibel.
- * Amplitude is the measure of peak to peak height of the wave.

Frequency:

- * It is the no. of vibrations of particle in the path of the wave

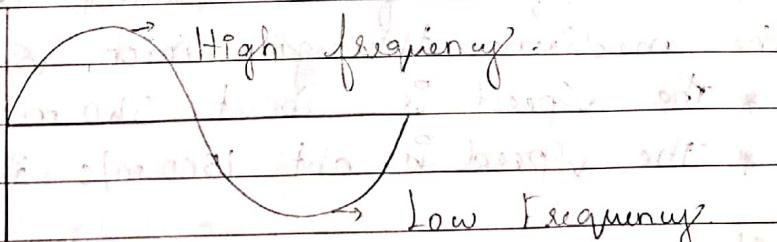
- * The frequency of the sound wave is the pitch of the sound.

- ~~* A frequency is measured in hertz.~~

- ~~* It is denoted by the symbol Hz~~

- ~~* The audible frequency is referred to as ultra unit~~

- * The lower frequency is called infrasonic



Wave Form:

- * The 3rd characteristics of sound is called wave.

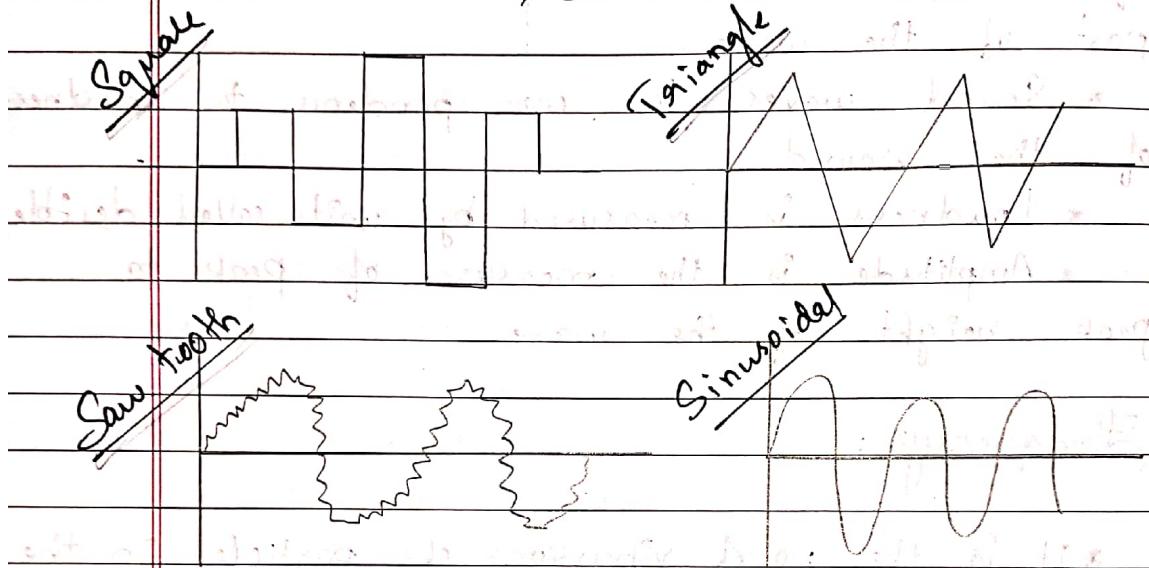
There are diff shapes of wave form.

i) Square

ii) Triangle

iii) Saw Tooth

iv) Sinusoidal

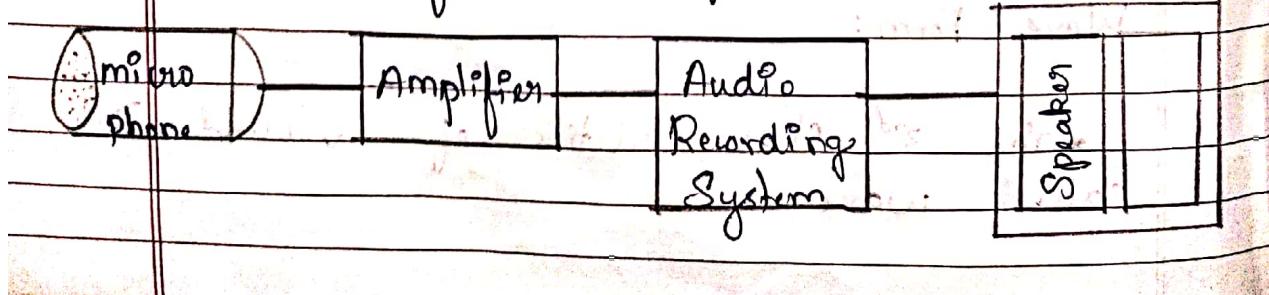


* Then actual shape of the wave will be represented in pictorial form.

Speed :

- * A Sound wave is also characterised by Speed
- * The Speed of the sound depends on the medium through which sound travels
- * The speed is about 340 m per sec
- * The speed is abt 1500 m/s in water

Elements of audio system:



There are diff elements of audio system
and some of the basic elements are:

1. Micro phone
2. Amplifier
3. Audio recording system
4. Speaker

* The micro phone is responsible for input of sound to the audio system.

* Sound cannot be processed in original form.

* The sound needs to be converted into different form.

* The microphone converts the sound into electrical form.

* The electrical signals can be recorded in the magnetic material by means of audio recording system.

* The sound can be played back through speakers.

Audio File Formats:-

There are diff audio file format

- wave (wave form audio)
- adatr (audio)
- aiff (audio interchange file format)
- mp3 (media player 3)
- rmf (rich musical format)
- wma (windows Media Audio)
- wav (real audio)
- aac (Advanced audio coding)

• Ha (True audio)

• voc (voice)

Audio and Multimedia:-

Types of Audio:-

i. Speech

ii. Music

iii. Sound Effects.

Speech:

* It is the important element of human communication.

* Speech can be used to efficiently transmit information.

* Advantage of using natural speech is the power of human voice.

* There are 2 types of speech.

i) Digital - clarity of natural voice

ii) Compressed - decrease the size

Music :

* It is also an important part of human communication.

* Music usually does not carry primary message.

* It is most oftenly used to set a tone.

* It is used to make interest and enhance emotions.

* Music is combined with speech to enhance visual presentation.

Sound Effects:-

* They are used to enhance presentation of an information.

* There are 2 types of Sound effect.

i. Natural

ii. Synthetic

* Natural Sounds are occurred in the common place.

* Synthetic Sounds are produced Artificially

Reason for Using Audio:-

1. The primary reason for using audio is for better communication.

2. The Second reason for including audio content is for motivation.

3. The Audio is used to vary different components of information.

4. Audio can also provide alternative learning mode.

5. Information presents in each mode will be different.

If the mode of visibility is long the audio can be reached for that particular places.

10 m Audio Processing Software :-

1. It is nothing but ~~Audio~~ Editing Software.

2. The main thing arrived in audio processing software is automation.

- * Opening a file
- * Playing a file
- * Playing a file from selected part.
- * Accurately positioning the playback.
- * Copying & pasting a file
- * Saving a file
- * Using Cut, trim & undo option
- * Zooming
- * Mixing of sounds
- * cross fading (High & low pitch)
- * changing the bit depth.
- * Recording
- * Normalizing
- * Special Effects
- * Removing Noise

Unit - IV

Video

- * Video is a combination of image & audio
- * video consist of set of still images called as Frame.

1m * The frame rates is measured in number of frames per/sec (p/s) (FPS) Frame Per sec

* The frame rate should range b/w 20 & 30 pre-receiving motion.

* Audio is also added towards the image

* Motion picture is recorded on the celluloid film

* The motion video is similar to animation

Analog video camera :-

* It is used to record still image & convert the brightness and color info of the image.

* The signals are transmitted from one place to another using cables.

* The television set receives the end signal and converted into the images.

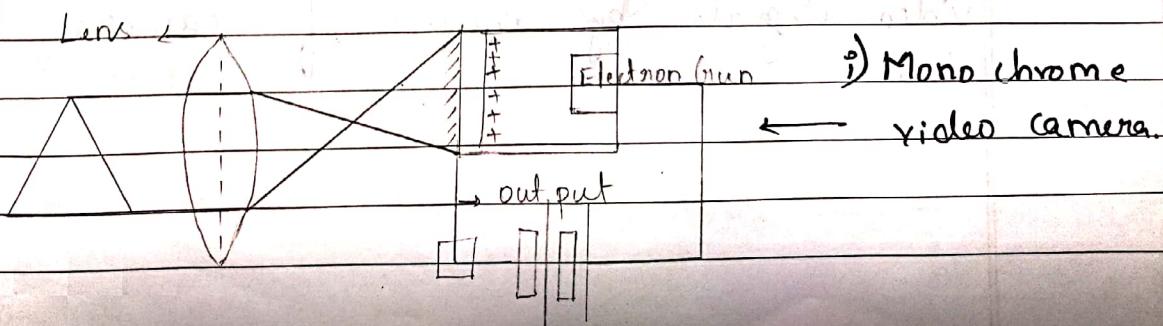
* The tube type analog video camera is generally used in studios.

* There are 2 types of analog video camera.

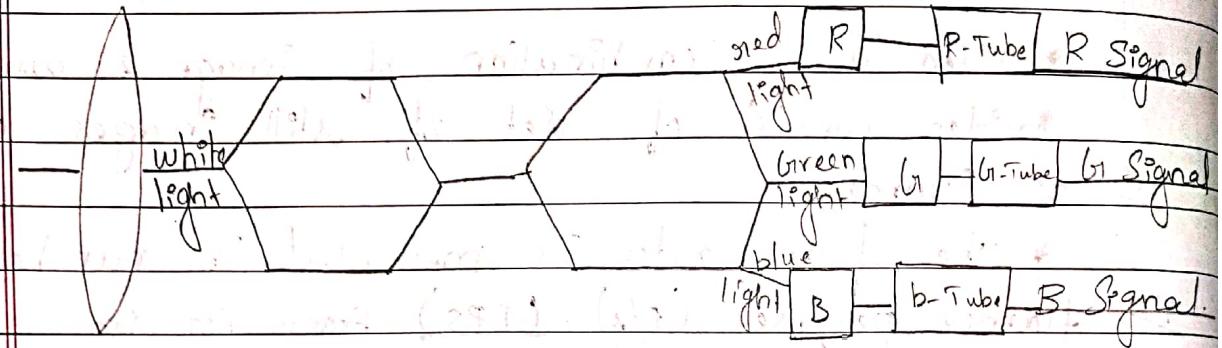


i) Mono Chrome video camera.

ii) color video camera.



ii) Color video camera.



(i) Monochrome video :-

- * It is also called as analog video camera.
- * It consists of a vacuum tube which has an electron gun and photo semiconductor plate.
- * A lens is placed in front of source of light.
- * The positive terminal of battery is connected with lens and the negative terminal is attached to electron gun.

(ii) Color video camera:-

- * It consists of 3 camera tube which is filled with primary colors (RGB).
- * The image is formed by the lens and split into 3 images by glass prism.
- * The filter will remove the other colors and passes only primary colors.
- * The primary colors will be converted into video signals by means of camera tube.

Video Signal format :-

There are 4 main things in video signal formats:

- * Component video
- * Composit video.
- * S-video.

* SCART connector. (Syndicate Construct
Apparel Radio Receiver Set Television).

Component video :-

* It is a video signal which is transmitted in 3 separate component signals.

* The simplest form of component video collection is RGB collection.

* 3 separate wires and connectors are used to connect the components signal.

Composit video :-

* It is a way of transferring data in a single wire.

* It is nothing but T.V broadcasting.

* It will reduce the cable of components. Signal combine into single signal.

* The single signal transmission is referred to as Composit video.

S-video :-

* It is also called as Super Video.

- * It is costlier than other 2 video connectors.
- * It consists of multiple wire.
- * The picture quality will be higher than the other two videos.
- * It is usually used in high graphic card display device.

SCART connector :-

- * It consists of 21 pin audio and video connector.
- * It is a standard connector across different manufacturer.
- * The signal levels are around 1 volt.
- * The drawback of SCART connector is it cannot carry both S video and RGB signals at the same time.

PC video :-

- * It is nothing but video displayed on the personal screen.
- * The Analog video is converted into digital format before it can be displayed on the personal screen.
- * The procedure for conversion of video is classified into 2 types

- i) Source device.
- ii) capture device.

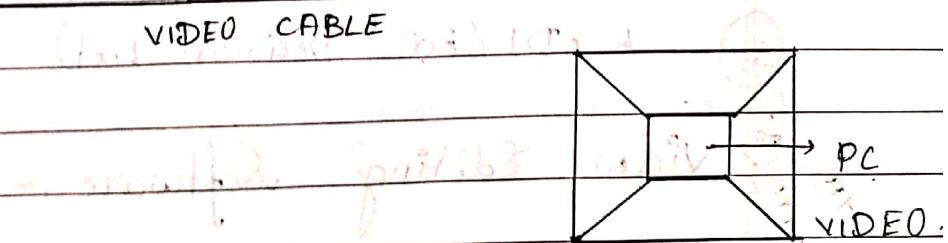
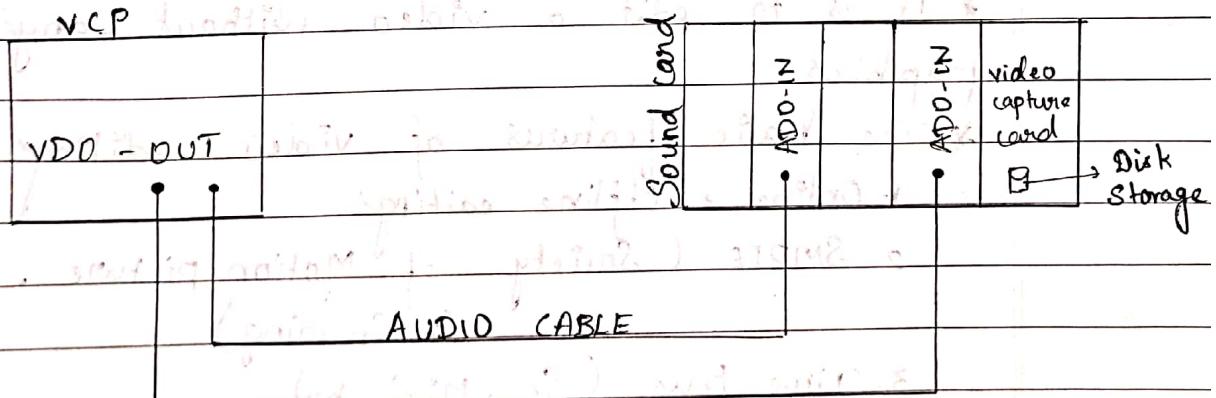
Source device :-

- * It is media on which analog video is recorded.

- * Most of the video is recorded on the magnetic tape.
- * The recorded video can be play back using source device.
- * The source device signal is output to the personal screen.

Capture Device :-

- * It is also called as video capture card
- * The capture device is able to handle different audio and video input signals.
- * It can convert analog video into digital as well as digital video into analog.
- * The different video capture software are
 - i) AVI capture
 - ii) MPEG (Motion Photographic Expert Group)
 - iii) MPEG Editor
 - iv) AVI to MPEG converter



Video File Formats. ~~with Diagram~~

- There are diff video file formats :-
- VCR - video cassette recorder.
 - Video 2000
 - VCC - video compact cassette.
 - Video 8
 - VHS - Video Home System.
 - DV - Digital video.
 - D₁, D₂, D₃, D₄, D₅, D₉
 - DVD - Digital video Device (15-261B)
 - VCD - video cassette (745 MB) ← memory capacity
 - AVI - Audio video Interleave
 - MPEG
 - RV - Real video
 - WMV - Windows Media Video

Video Editing :-

* It is to edit a video without ~~any~~ graphics.

* The basic features of video editing are

1. Online & offline editing.
2. SMPTE (Society of Motion picture & Television Engineering).
3. Time Base (Sec, Min, hr)
4. EDL (Edit Decision List)

Video Editing Software :-

The basic features in video Editing software are.

- * Importing clips P. 191
- * Timeline structure.
- * Splitting a clip ~~with diagram~~
- * Play back a clip.
- * Trimming a clip. ~~between 10-15~~
- * Manipulating the audio content.
- * Adding transition.
- * changing the Speed of the clip.
- * changing the Opacity of the clip.
- * Applying the visual effects.
- * Super imposing an image.
- * Exporting a movie.

Answers part (1)

→ materials to next

Unit - 2

Animation

- * It is created from Sequence of still image
- * Each image is changed from previous one with respect to one or more options in the other image.
- * The images are displayed rapidly in Succession to receive a continuous motion.
- * Animation can also be involved in models.
- * The traditional Animations are created by two types -

(i) Key frame.

(ii) Tweening.

Uses of Animation :-

- * The Animation will increase the interest of the user.
- * The Animation is widely used in entertainment industry.
- * Animation is heart of computer games.
- * Animation is regularly used in educational sector.
- * The Animation can create everlasting impression in the minds of the user.
- * The major use of Animation is used in Scientific Applications.

~~important~~

Types of Animation :-

~~with diagram~~

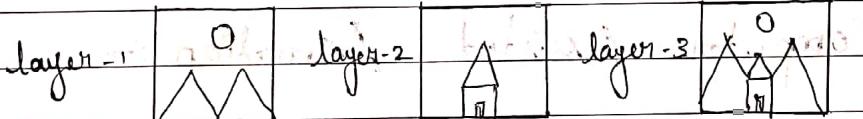
1 → Cell Animation.

2 → Path Animation.

3 → 2D vs 3D Animation.

Cell Animation :-

- * It is a traditional form of Animation.
- * the Animation cells are generally in the form of layers.
- * the layers will come one on the top of another.
- * The layers will combine to produce single Animation image.



Path Animation :-

- * It consists of mathematical entities called vector.

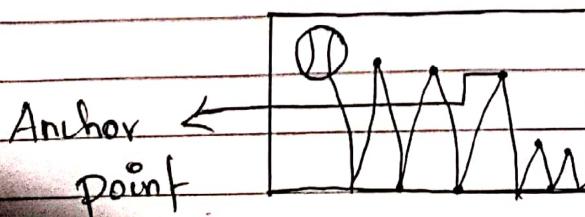
* It involves collection of image called Sprite.

* It moves along the motion path called SPLines.

* The image will be independent of the object.

* The independent object may be flying bird, rotating planet & bouncing ball.

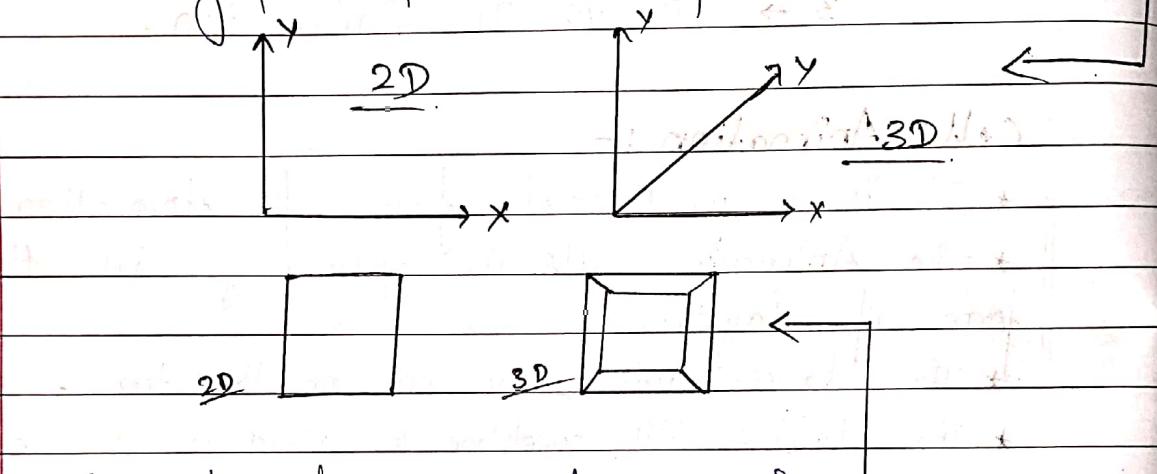
* The path has a set of Anchor point.



Bouncing Ball

2D vs 3D Animation :-

- * The 2D Animation means 2 dimensional view.
- * 2D Animation has 2 Axis (x, y).
- * The 3D Animation means 3 dimensional view.
- * 3D Animation has 3 Axis (x, y, z).
- * The graph representation for 2D and 3D is



Example for 2D and 3D is

Computer Assisted Animation :-

- * It is based on key frame Concept.
- * The Advantage of this Animation is → it will create inbtw frames by itself.
- * The Software is based on the process of cell Animation.
- * It has a Animated object placed on the time line.
- * A playback head moves across the time line to display each frame one after another.

Principles of Animation :-

The Animation has a set of principle

1. Stretch and Squash.
2. Staggering.
3. Follow through and Overlap.
4. Slow in and Slow out.
5. Arc.
6. Timing.
7. Secondary Action.
8. Appeal.
9. Anticipation.
10. Exaggeration.

1. How long does it flexible and squash is (bouncing long). i.e height.
 2. combine or merging an image in the natural path.
- 
3. PPT (Speed of the text)
 4. Slide turning.
 5. Bouncing of ball at the second time is called Secondary Action.
 6. Guess what happens Next. (Ex. Movie)

Techniques of Animation :-

Diagram.

- 1. Cell Animation 1. Onion Skinning, layer-to-layer of Animation.
- 2. Motion cycling.
- 3. Masking.
- 4. Adding Sound
- 5. Flip book Animation.
- 6. Color cycling.
- 7. Morphing.

*

1. It is a technique borrowed from cell Onion Animation. The Animation layer makes the Skinning transparent cell one over the another. It is easy to complete a sequence of frame at a glance.



2. It includes walking, running & flying.

Motion * It is a repetitive action represented by cycling. the cycle.

* A walk cycle requires minimum of 8-12 frames.



3. A Mask is a computer program which is used for frame editing.

Masking * It can be used to make Animated object move behind the frame.

* Masking is normally used to hide something.

4. Sound is an important attaching to the moving images in the Animation.

Adding * The background music is added Sound advantages to the moving image.

* When the sound matches the moving image then it is considered to be real.

5. It is a group of pictures changing from flip book one page to another gradually.

Animation * It is mostly used by children.

* It is the basic form of Animation.

* The flip book image will appear only on the one side of the book.

6. It is used to change the color of the image.

* The software provides a color transition color from one to another.

Cycling * The color changing can happen from clockwise wise and as well as Anti-clockwise.

* The total color changing duration will be measured by cycle.

7. It is the process of changing between Morphing the two different images.

In older stages the Gross Trading techniques has been used instead of Morphing.

Gross Trading
Techniques

Animation on the web.

Animation is widely used in web.

There are 3 main concepts :-

(i) Shock wave format. Automatically plays the video in flash format.

(ii) Client pull Animation. Shows the notification of the video but not play.

(iii) Server push Animation. It is used to open on a new page automatically.

3D Animation :-

The creation of 3D Animation includes number of steps.

* Modeling. 2D into 3D

* Surface texture shows the images in realistic format

* lightning. (change of color)

* Camera. Zoom in, Zoom out.

* Animating.

* Rendering. viewing the complete video after the editing process.

Animation Software :-

Different types of software are available to create different types of Animation.

The most popular 2D Animation Software is Macro video flash.

The Most popular 3D Animation Software is Maya.

The Diff softwares tools are

- i. Creating content (Drawing & painting tool)
- ii. creating objects (Multiple copies)
- iii. Inter activity (Buttons)
- iv. Aligning & Grouping (Objects)
- v. changing content (key frames)
- vi. Transforming objects (Rotation)
- vii. Path Animation
- viii. Masking
- ix. Skript language (coding)

Animation file formats :-

- * gif format.
- * flash format.
- * Max format.
- * Auto desk format.