VIDEO EDITING

UNIT 1

TOPIC 1 :Video editing: Background, Concept, Objectives and Importance

Video Editing

- Shooting in many single-camera or multi-cam productions happens in a non-sequential manner. Scenes are often shot many times and from many angles. Video editing is about stringing them in such a manner so as to 'construct' a story for the viewers.
- Video editing is the process of manipulating and rearranging video shots to create a new work. Editing is usually considered to be one part of the post production process — other post-production tasks include titling, color correction, sound mixing, etc.

History of Video Editing

- 1895 – Lumiere Brothers invented Cinematographe. Cinematographe was a three-in-one device that recorded, captured and projected motion picture.
- 1898 - British film pioneer Robert W. Paul's Come Along, Do!, made in 1898 and one of the first films to feature more than one shot.
- 1903 – The Great Train Robbery, written, produced and directed by Edwin S. Porter, used a number of innovative techniques including cross cutting, double exposure composite editing and camera movement.
- 1915 - David Wark Griffith, considered to be the father of narrative cinema, invented some techniques like parallel editing, pushing them to higher levels of complexity and depth. His film 'The Birth of a Nation' had spatial continuity, 180 degree rule, establishing shot and reverse shot.

- 1920 - Russian director Lev Kuleshov from Russia Introduced cross cutting and theory of Montage in editing.
- 1987: Avid Technology created the Avid/1 Media Composer.
- 1991: Adobe released Premiere 1.0 for the Mac
- 1996: The English Patient was the first digitally edited film to win an Oscar for Best Editing (edited by Walter Murch on the Avid).
- 1999: Apple released Final Cut Pro, which soon became a chief competitor to Avid.

Importance

- A good video, whether it be a music video, marketing campaign video, corporate video, or anything else, must follow 3 important stages Pre-production Production Post-production
- Video editing is important because it is the key to blending images and sounds to make us feel emotionally connected and sometimes truly there in the film we're watching. It's a safe assumption to say that video editing is among the most important jobs in the film industry. With professional video editing you can create an emotion-evoking masterpiece, and it can make or break your film, which is why it's just as important to choose the right video editor as it is to choose the right camera equipment.
- Editing, at its most basic, can help you put all your shots into the proper sequence. You use editing tools to weed out or fix any mistakes made during the production process. It can be used to trim the video to the length you want and it can also be used communicate the right aesthetic to the audience.

Objective of VE

Video editing is essentially the process of editing segments of motion video production footage by cutting, trimming and overlaying them, and adding special effects and sound recordings.

Following are some objectives which can be achieved with editing process:

Remove unwanted footage

This is the simplest and most common task in editing. Many videos can be dramatically improved by simply getting rid of the flawed or unwanted bits.

Choose the best footage

It is common to shoot far more footage than you actually need and choose only the best material for the final edit. Often you will shoot several versions (takes) of a shot and choose the best one when editing.

Create a flow

Most videos serve a purpose such as telling a story or providing information. Editing is a crucial step in making sure the video flows in a way which achieves this goal.

Add effects, graphics, music, etc.

This is often the "wow" part of editing. You can improve most videos (and have a lot of fun) by adding extra elements.

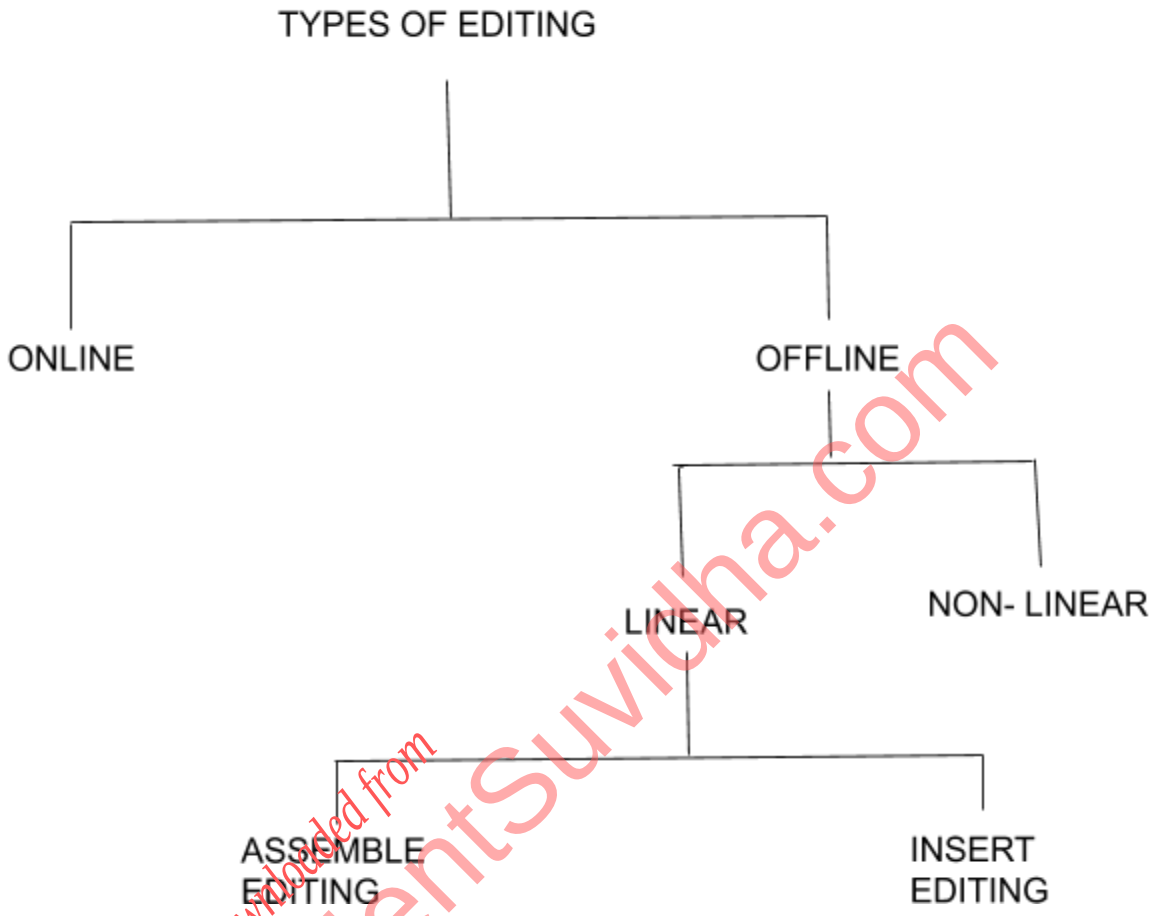
Alter the style, pace or mood of the video

A good editor will be able to create subtle mood prompts in a video. Techniques such as mood music and visual effects can influence how the audience will react.

Give the video a particular "angle"

Video can be tailored to support a particular viewpoint, impart a message or serve an agenda.

TOPIC 2: TYPES OF EDITING



Online Editing

- In some situations multiple cameras and other video sources are routed through a central mixing console and edited in real time. Live television coverage of Sports events and award functions are few common examples.
- The “live production edit” approach involves mixing all of the camera feeds together (using a video mixer/selector) and then having a director select shots/edit, in real time, to produce a complete sequence at the end of the show.

- A big advantage of the live event approach is that it produces an edited sequence of the show very quickly (it could technically be done at the end of the show). Some disadvantages with this approach are that it requires special equipment (video mixer/switchers) to connect and mix/select the video feeds and special skills to communicate (and direct) the different cameras to coordinate their shots and the ability to make split second decisions to select the right edits in real time as the show progresses.

Offline Editing

Video and audio data are first digitized to hard disks or other digital storage devices. The data is either recorded directly to the storage device or is imported from another source. It can be divided into two types: Linear and nonlinear.

Linear Editing

- Linear editing was the original method of editing electronic video tapes, before editing computers became available in the 1990s
- In linear editing, video is selectively copied from one tape to another.starting with the first shot and working through to the last shot.
- The basic process is to play the original tape in the source machine and record a new (edited) version on the record machine.
- Most professional VTRs (Video tape recorders) let editor switch between two major editing modes.

    1. Assemble Editing
    2. Insert Editing

- In the assemble mode, the record VTR erases everything on its tape (video, audio, control, and address tracks) just ahead of copying the material supplied by the source VTR. Every time a new scene is recorded, it will simply erase what was there before and replace it with a new audio and video. Very useful in news broadcast.
- A slight mismatch of sync pulses will cause some edits to “tear”, causing a sync roll, which means that the picture will break up or roll momentarily at the edit point during playback.

- In Insert Editing It is assumed that material already on the tape is to be retained. New material is inserted into old. Not all of the signals during the edit need to be replaced The operator sets the editing machine to change the picture or either of the sound channels or any combination of the three.
- It is faster way of editing. All edits are tear free. New video or audio can be inserted anywhere in the tape. A shot can be inserted without affecting audio or sound track.

Non-Linear Editing

- A non-linear editing system (NLE) is a video (or audio editing) digital audio workstation system that performs non-destructive editing on source material. The name is in contrast to 20th century methods of linear video editing and film editing.
- Video footage is recorded (captured) onto a computer hard drive and then edited using specialized software. Once the editing is complete, the finished product is recorded back to tape or optical disk
- Non-linear editing is the most natural approach when all assets are available as files on video servers or hard disks, rather than recordings on reels or tapes—while linear editing is tied to the need to sequentially video and audio. Non-linear editing enables direct access to any video frame in a digital video clip, without needing to play or scrub/shuttle through adjacent footage to reach it, as is necessary with video tape linear editing systems. It is now possible to access any frame by entering directly the timecode or the descriptive metadata.
- An editor can, for example at the end of the day in the Olympic Games, easily retrieve all the clips related to the players who received a gold medal. So instead of going in a set order, you are able to work on any segment of the project at any time, in any order you want. In nonlinear video editing, the original source files are not lost or modified during editing.

TOPIC 4: Roles of a Video Editor

- A film and video editor is a highly skilled film industry employee who edits movies or videos. The success or ultimate failure of the production lies in their hands. The final production must be a coherent project that incorporates the storyline and personality of the starring actors.

- The film and video editors job has changed over the years. When movies were black and white, editing was simple. With computer and advanced technology, a film and video editor's job became increasingly more complex using computer graphics to aid in editing films and supplying the necessary elements to create the finished product.

- The job duties of film and video editors are numerous. An employee might find himself studying scripts to understand the storyline and collaborating with directors, producers, and film staff regarding the script and director's goals. Throughout the filming, the film editor will examine tapes for editing purposes, looking for errors, segments that run long or parts that do not match the story or go with the storyline. He / she will work with others adding sounds, voices and music that match the script and place them in the appropriate place.

- Creating a video project of any kind is a long process with many important phases, and one of the most important steps in creating the final cut of your project is the video editing process. The editing phase of your video is a crucial step in video production. Once you have all your footage and all your audio recorded it is time to edit it down into something manageable. Here are three reasons why video editing is so important.

  1.) Reviewing all Footage and Audio

  The video editing process allows you to look over everything you shot during the shoot. During filming it is easy to overlook certain shots you are creating because of how fast paced a film set is. The editing process lets you slow down and carefully review all the content that you have to work with so that you can formulate a way to put it all together.

  2) Organize

Keeping your edits tidy and organized is one of the best ways to save incremental amounts of time. I try to have my bins, sequences, and folders laid out in such a way that if another editor had to sit down at my edit with no outside input, it would be obvious what the latest sequence is, where the title graphics are, how the project is structured, and so on.

2.) Improve or degrade the quality of the product

The editing stage is the stage where you can make or break your video. This is where all the content you have comes together in a meaningful way. This is where you bring together disparate clips into a cohesive story. There sometimes are shots you never really thought would work, but in the editing room, they come alive. This is also where you make big decisions about coloring, visual effects, transitions, and more.

3.) Creative Decisions

A well-edited project will be crisp and flow with great precision. All the creative decisions you have made from pre-production through post-production shine through after it has all been edited down to its final form. This is the process where you decide the pacing of the film, and how all the shots work together to create a unified whole. Video editing is a lengthy process on its own and requires a great attention to detail.

The artistry of editing depends not only on a knack for creativity, but also an in-depth knowledge of the capabilities not just of their own non-linear editing software, but also of graphics and animation software, camera operation, and all the techniques available to expert users of those tools. Editing is often a matter of problem-solving, and knowing what CAN be done is a prerequisite for deciding what SHOULD be done. If an editor says 'I don't know how to do that' the next sentence out of his/her mouth should be 'but I know someone who does' or you're not working with a good editor.

Challenges of a Video Editor

- Editors need to understand and articulate the inner workings of their specialty-equipment, job pressures, working methods, theories, and instincts.

- Editors tend to work beyond the cutting- through previews, premieres, re-releases; sometimes they are even reengaged for television adaptations and reconstruction years later. Unfortunately, film editors (like sound editors, who are even more constrained by last-minute demands) face short budgets, short schedules, and short tempers. Despite these limitations, editors are uniformly devoted to their primary responsibility: to make real the director's vision.
- A film editor is looking at the picture with complete objectivity... they should try very hard to pretend they're the audience.
- Watch More Work - Awareness of emerging creative trends is just as important as knowing the latest tech developments.
- Make Time to Learn - The most obvious way to improve is to make the time to actively learn new things. Watch some tutorials or learn a new piece of software. It's also important to try to learn about fields similar to your own, but different enough to bring a fresh perspective. As an editor learning about typography, graphic design, photography, scriptwriting, storytelling, music composition, or painting could all help me become a more creative, more inspired, film editor — a worthwhile investment

UNIT 2

TOPIC 2 :Linear and Non-linear Video Editing: Equipment and its functions

Linear Editing

- Linear editing was the original method of editing electronic video tapes, before editing computers became available in the 1990s
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Equipments of Linear Editing

1. VISION MIXER: A vision mixer (also called video switcher, video mixer or production switcher) is a device used to select between several different video sources and in some cases compositing (mix) video sources together to create special effects. This is similar to what a mixing console does for audio.

2. VIDEO TAPE RECORDER (VTR): A video tape recorder (VTR) is a tape recorder designed to record and playback video and audio material on magnetic tape. The early VTRs are open-reel devices which record on individual reels of 2-inch-wide (5.08 cm) tape.

3. EDIT CONTROLLERS: The controls on the left (above and including the jog/shuttle ring) control the source machine. The corresponding controls on the right are for the record machine (notice the addition of a red record button).

4. CHARACTER GENERATOR: A character generator, often abbreviated as CG, is a device or software that produces static or animated text (such as news crawls and credits rolls) for keying into a video stream.

5. FILM SPLICER: A film splicer (also called a film joiner, usually in Europe) is a device which can be used to physically join together lengths of photographic film. It is mostly used in film motion pictures.

6. VIDEO TAPE: 2-inch quadruplex video tape (also called 2" quad, or just quad, for short) was the first practical and commercially successful analog recording video tape format. It was developed and released for the broadcast television industry in 1956 by Ampex , an American company based in Redwood City, California.

7. FILM CEMENT: Film cement is a special glue designed to join motion picture film. It is made of film base dissolved in a solvent. Two cut sections of film are spliced together in a film splicer using film cement

Non - Linear Editing

Contrary to linear editing, where you copy a selected clip from one tape to another, the basic principle of nonlinear editing is digital file management. You probably now see why this system is called “nonlinear”: you can access any one of the files (frames or clips) instantly in any order regardless of where the information is located on the hard drive. The computer then flags the selected clips so that they play back in the sequence you specify.

Nonlinear Editing System If you were to equip your editing suite, opt for a high-end desktop computer with a high-capacity hard drive and a high-speed processor. The typical nonlinear editing (NLE) system must also include

A **computer** is a device that can be instructed to carry out sequences of arithmetic or logical operations automatically via computer programming. Modern computers have the ability to follow generalized sets of operations, called programs. These programs enable computers to perform an extremely wide range of tasks

Video editing software is an application program which handles the post-production video editing of digital video sequences on a computer non-linear editing system (NLE). It has replaced traditional flatbed celluloid film editing tools and analogue video tape-to-tape online editing machines.

Examples,

- ★ Pinnacle Studio 16 Ultimate
- ★ AVS Video Editor.
- ★ Adobe Premiere Elements 11.
- ★ Final Cut Pro X

A **FireWire card** is an add-in card that allows a FireWire device or peripheral to be connected to a computer. While some computers have built-in FireWire capability (including almost all Macintosh computers, but only a small percentage of Windows PCs), being able to add this functionality is of great benefit: FireWire is a faster method of data transfer than USB, Ethernet or wireless networks.

two fairly large external monitors—one for the computer output and the other to show your edited sequences—and It somehow seems easier to work with two separate screens than with a divided one.

two small loudspeakers.

If you intend to control the volume of additional sound sources, or premix several of them before importing them to the NLE, you will also need a small audio mixer.

A computer used for editing must have the necessary software to accomplish the three phases of nonlinear editing—capture, the actual editing, and export—as well as additional special-effects software for creating transitions, graphics, and titles. Most editing software allows you to import the video and audio data directly from the video recorder inside the camcorder to the NLE computer. This represents the capture phase. Once the information is on the hard drive, you can select clips and specify their order of play. You can also add new information, such as clips or audio segments from another shoot or source, to heighten the impact of your creation. Special effects software enables myriad transitions and title possibilities. This is the actual editing phase.

Topic 3: Steps for Linear and Non-linear Video Editing

STEPS FOR LINEAR EDITING

- Linear editing was the original method of editing electronic video tapes, before editing computers became available in the 1990s
- In linear editing, video is selectively copied from one tape to another.starting with the first shot and working through to the last shot.

STEPS:

1. **Setting up equipments:**

1. Two VCRs (video tape machines), preferably with AV (audio and video) outputs. If you don't have AV outputs, you can use the RF (aerial) outputs instead.

2. At least one video monitor, but preferably two. Professional monitors are best but you can use televisions if necessary. Connecting cables.

3. Edit Controller.

4. CG- Character Generator- Graphics generator-Adding titles and other effects in linear editing normally require specialized equipment.

5. Video tape recorder: A video tape recorder (VTR), is a tape recorder that can record video material. The video cassette recorder (VCR), where the videotape is enclosed in a user-friendly videocassette shell, is the most familiar type of VTR known to consumers. Professionals may use other types of video tapes and recorders.

6. Recording device: USB drive, hard disc or a chip.

2. Process

1. Insert a VHS tape of a film into the source VTR
2. Insert an empty tape into to the recorder VTR.
3. Press REC. The picture from the play VCR appears on the screen.
4. Search for the edit start point on the play tape using the jog dial/shuttle ring on the record VCR edit controller.
5. Press JOG/SHUTTLE button on record VCR edit controller—editing begins.
6. Press STOP on controller to stop editing.
7. The film on the VHS tape, will be transferred into the recording tape.
8. Now move to another place in source tape and record that part

The different tape-based systems fall into three categories:

Single-source

The basic system that has only one VTR supplying the material to be dited is called a single-source or cuts-only editing system. The machine that plays back the tape with the origial footage is called the source VTR or the play VTR and other one is called record VTR. The tapes are called source video tape and edit mater tape. For this two

monitors are required. You use the source VTR to find the exact in-and-out points of the footage you want to copy to the edit master tape. Record VTR also has to be told when to start recording (copying) the source material and when to stop. An 'in' and 'out' cue tell that which is done by an edit controller machine.

Expanded Single-Source System

In a documentary on rush hour traffic, you may want to add more traffic sounds to intensify the shots of a downtown gridlock or put some music on a wedding scene. Such effect can be achieved with the help of audio mixer. If titles need to be added, a character generator is required and a Switcher that can mix the titles with the scene from the source tape, without the edit master tape undergoing another generation. Switcher and audio mixer can offer variety of effects. It can facilitate a great variety of transitions, such as cuts, dissolves and wipes.

Multiple Source-System

The tape based multiple-source editing system consists of two or more source VTRs, a single record VTR, and a computer assisted edit controller. The computerised edit controller directs the functions of the source A and B VTR's, the C.G. or effects generator, the audio mixer, and finally the edit and record functions of the record VTR.

STEPS FOR NON-LINEAR EDITING

Contrary to linear editing, where you copy a selected clip from one tape to another, the basic principle of nonlinear editing is digital file management. You probably now see why this system is called "nonlinear": you can access any one of the files (frames or clips) instantly in any order regardless of where the information is located on the hard drive. The computer then flags the selected clips so that they play back in the sequence you specify. Note that the video files themselves are not moved from where they are stored on the hard drive; your editing simply tells the computer the order in which to play back the clips.

Nonlinear Editing System If you were to equip your editing suite, opt for a high-end desktop computer with a high-capacity hard drive and a high-speed processor. The typical nonlinear editing (NLE) system must also include two fairly large external

monitors—one for the computer output and the other to show your edited sequences—and two small loudspeakers. It somehow seems easier to work with two separate screens than with a divided one. If you intend to control the volume of additional sound sources, or premix several of them before importing them to the NLE, you will also need a small audio mixer. A computer used for editing must have the necessary software to accomplish the three phases of nonlinear editing—capture, the actual editing, and export—as well as additional special-effects software for creating transitions, graphics, and titles. Most editing software allows you to import the video and audio data directly from the video recorder inside the camcorder to the NLE computer. This represents the capture phase. Once the information is on the hard drive, you can select clips and specify their order of play. You can also add new information, such as clips or audio segments from another shoot or source, to heighten the impact of your creation. Special effects software enables myriad transitions and title possibilities. This is the actual editing phase.

The following is a low-level listing of the major steps involved in a post-production workflow that stresses the editing process for the visual elements of a project.

1. Acquire
2. Organize
3. Review and select
4. Assemble
5. Rough cut
6. Fine cut
7. Picture lock
8. Master and deliver

Acquisition: Simply put, you must acquire the footage shot by the production team. Motion picture and sound elements, whether on emulsion film, analog tape, digital tape, or digital files, must be gathered together for the duration of the post-production editing process. If you are using a computer-aided digital non-linear editing system to perform the edit, then you will have to import, capture, or " digitize " all materials as media on your storage drives.

Organization: All of the minutes, hours, feet, reels, or gigabytes of picture and sound elements should be organized in some way. If you do not have a clear system of

labeling, grouping, or sorting all of the material needed for your project, you will eventually have a difficult time finding that good shot or that good sound effect, etc. Organization of source materials is not the most glamorous part of the edit process, but it can certainly make the difference between a smooth post-production workflow and a slower and more frustrating one.

Review and selection: Once you have acquired and organized all of your elements, it will be necessary to review all of this material and pick out the best pieces that will work for your project. You will " pull the selects " and set aside the good stuff while weeding out the junk.

Assembly: This process calls for assembling all of the major pieces of the project into a logical sequence of picture and sound elements. If you are editing a scripted story, you would follow that script as a blueprint for assembling the best selections of the various shots of the scenes that make up the motion picture. No matter what genre the project, the story, in its longest and most rough-hewn form, takes shape now.

Rough cut: This is a stage of the project's development where the majority of the " fat " has been trimmed and you are left with a presentation that is complete in its narrative flow but has many rough edges. Perhaps not every cut is perfectly timed yet, there are no finalized titles or graphics, simple or more elaborate effects have not been created, and the audio mix certainly has not been completed. You do have the timing of the main elements down to a good pace, however, and you, and others to whom you show the developing work, like how the story unfolds, although restructuring of scenes may still occur.

Fine cut: You have worked and re-worked and massaged the material of your project into a tight and finely tuned presentation. There will be no majör renovations from this point forward. You, and the majority of the people to whom you show the piece, all agree that no further tweaks are required. This cut is fine.

Picture lock: You have reached picture lock when you are absolutely certain that you will not make any more changes to the picture track(s) of your edited piece. The timing of all picture elements (shots, titles, black pauses, etc.) is set. Once you have locked the picture tracks (sometimes literally but mostly figuratively), you are then free to address your audio mixing needs. Once the audio tweaks are finalized and your music is in place, then you are ready for the last stage.

Mastering and delivery: All of your efforts in creating a well-edited piece will mean very little if you cannot deliver the show to the audience that needs to see it. These days this process may mean recording your final cut onto videotape, creating an optical film print for projection in a movie theatre, converting your story into a computer video file, or authoring the piece onto a DVD. Each medium would require a unique process, but the end result is that you have a fully mastered version of your show and an audience gets to view all of your hard editing work.

TOPIC 4: Editing Techniques: Types of Cuts and Transitions

Basic Transition devices

Whenever we put two shots together, we need a transition between them, a device that implies that the two shots are related. There are four basic transition devices: (1) the cut, (2) the dissolve, (3) the wipe and (4) the fade. Although all the four have same basic purpose – to provide an acceptable link from shot to shot – they differ somewhat in function, that is, how we are to perceive the transition in a shot sequence.

The Cut

The cut is an instantaneous change from one image (shot) to another. It is the most common and least obtrusive transition device, assuming that the preceding and following shots show some continuity. The cut itself is not visible; all you see are the preceding and following shots. It resembles most closely the changing field of the human eye. The cut, like all other transition devices, is basically used for the clarification and intensification of an event.

Clarification means that you show the viewer the event as clearly as possible. For example, in an interview show the guest holds up the book she has written. To help the viewer identify the book, you cut to a close-up of it.

Intensification means that you sharpen the impact of the screen event. In an extreme long shot, for example, a football tackle might look quite tame; when seen as a tight close-up, however, the action reveals its brute force. By cutting to the close-up, the action has been intensified.

The Dissolve

The dissolve, or lap dissolve, is a gradual transition from shot to shot, the two images temporarily overlapping. Whereas the cut itself cannot be seen on-screen, the dissolve is a clearly visible transition. Dissolves are often used to provide a smooth bridge for action Tor to indicate the passage of time. Depending on the overall rhythm of an event, you can use slow or fast dissolves. A very fast one functions almost like a cut and is therefore called a softcut. For an interesting and smooth transition from a wide shot of a dancer to a close-up, for instance, simply dissolve from one camera to the other. When you hold the dissolve in the middle, you will create a superimposition, or super. A slow dissolve will indicate a relatively long passage of time; a fast dissolve, a short one. Because dissolves are so readily available in NLE software, you may be tempted to use them more often than necessary or even desirable. A dissolve will inevitably slow down the transition and, with it, t h e scene. If dissolves are overused, the presentation will lack precision and accent and will bore the viewer.

The Wipe

- There is a great variety of wipes available, the simplest of which is when the base picture is replaced by another one that moves from one screen edge to the other.
- Other wipe effects look as though the top picture is peeled off a stack of others, or a diamond expanding from the centre of the top picture gradually shows the one underneath.
- The wipe is such an unabashed transition device that it is normally classified as a special effect. The wipe tells the viewers that they are definitely going to see something else, or it injects some interest or fun into the shot sequence.
- It is used when there is no strong relation between two shots.
- Wipes and other such effects are especially magnified on the large 1 6 x 9 HDTV screen.
- Like with any other special effect, you should use discretion; overused or inappropriate wipes easily upstage the shots they are connecting.

The Fade

- In a fade the picture either goes gradually to black (fadeout) or appears gradually on the screen from black (fade-in). You use the fade to signal a definite beginning (fade-in) or end (fade-out) of a scene, sequence, film or act.
- As such, the fade is technically not a true transition. Some directors and editors use the term cross-fade for a quick fade to black followed immediately by a fade-in

to the next image. Here the fade acts as a transition device, decisively separating the preceding and following images from each other. The cross-fade is also called a dip to black.

- A brief dip to black could reduce, or even eliminate, this potentially funny or inappropriate montage effect. That said; do not go to black too often—the program continuity will be interrupted too many times by fades that all suggest final endings. The other extreme is the never go- to-black craze: some directors do not dare go to black for fear of giving the viewer a chance to switch to another channel.

TYPES OF CUTS

1. **The Standard**

The hard cut is the basic type of cut in editing. This type of cut is utilized when you want to cut from clip to clip without any type of transition, or where you cut from the end of one clip to the beginning of another. The only down side of the hard cut is that this one gives the least amount of visual meaning.

2. **JUMP CUT**

This is a cut that pushes forward in time. It's normally done within the same frame or composition, and many times it's used within montages. It helps to show the main info in limited time. It is used to interrupt a continuous shot.

3. **J or L Cut**

J and L cuts are incredibly common. They get their names for how the clips line up in the editing software. An L cut is used when you want to have audio from clip A continue when clip B comes in. The J cut is the opposite, where the audio from clip B comes in when we're still seeing clip A. Pretty much every documentary interview you've ever seen uses J and L cuts throughout.

4. **Cross Cut, aka Parallel Editing**

A cross-cut smashes two perspectives into one sequence. This cut takes two different perspectives from your narrative world (such as one character chasing another) and melds them by cutting between each. The audience will automatically connect the two perspectives as one whole since they are watching them play out in "real time." It can be

great for adding tension (heist movies use a lot of parallel editing, like showing someone breaking into a safe while a security guard walks toward their location).

5. **Match Cut**

A match cut is an edit that gives a context and continuity to the scene and pushes it in a certain direction, without disorienting the viewer. You use it to either move between scenes or move around a space, while keeping everything coherent. A very basic version is shooting someone opening a door from behind, and then cutting to the opposite side as they walk through it.

A graphic match (as opposed to a graphic contrast or collision) occurs when the shapes, colors and/or overall movement of two shots match in composition, either within a scene or, especially, across a transition between two scenes.

6. **Smash Cut**

If you've got a loud scene that immediately goes to a quiet scene or vice versa, this is where you'd use the smash cut. You want to use it when you're transitioning between two completely different scenes, emotions, or narratives and you need to make an abrupt transition. This is used a ton when people wake up from dreams, and it's also used quite often in comedy — it's also referred to as a "Gilligan Cut," because the television show Gilligan's Island often employed this edit.

7. **Cutting on Action**

When editing an action sequence, it's always a good idea to blend the cuts together as seamlessly as possible. To cut on action, you merge two clips by cutting between them during a moment of action. This ties the two clips together and tricks the audience into ignoring the cut. It's a perfect choice for a fight scene or a chase sequence. Cutting on the action is the best way to hide a cut.

8. **Cutaways:**

These kinds of cuts are helpful if you want to add shots that give more information and context to a scene, like shots of the location to establish the setting or shots of props and other objects that a character is referring to. Because many editors use them to incorporate supplementary footage, it might be helpful to think of cutaways as "b-roll cuts."

OTHER TECHNIQUES:

Montage

A montage is an editing technique that, again, signifies the passage of time or helps to give an overall context to the story with quick cuts.

1. Metric - Where the editing follows a specific number of frames, this is based purely on the physical nature of time, cutting to the next shot no matter what is happening within the image. The reason for this is to get an emotional reaction from the audience.
2. Rhythmic - The cutting happens for the sake of continuity. This creates visual continuity but it may also be used in order to keep with the pace of the film. A good example of this is the the legendary car/train chase scene in The French Connection.
3. Tonal - A tonal montage uses the emotional meaning of the shots. Not just manipulating the temporal length of the cuts or its rhythmical characteristics. The point of this is to elicit a reaction that is more complex than Rhythmic and Metric. An example of this is in one of Eisenstein's fllms called Battleship Potemkin where the character 'Vakulinchuk' dies.
4. Overtonal/Associational - An accumulation of metric, rhythmic, and tonal montage to synthesise its effect on the audience for an even more abstract and complicated effect.
5. Intellectual - Uses a combination of shots from outside the film in order to create a meaning. A good example of this would be the scene from apocalypse now where Klutz is being executed. They mix in shots of a water buffalo being slaughtered.

UNIT 3

TOPIC 1 : Sound Design and Editing: Concept and Troubleshooting

Most people think of film making or video production as a visual medium. For many years it was, during the silent era of film. When talkies first came about in the 1920's it was both the greatest and worst thing that happened to the art. Films became more immersive and more subtle. Dialogue added layered depth to the story. Sound FX fleshed out the world, making it more real for audiences. Sound Design became essential to storytelling and the silent film era all but died out. Nowadays, Sound Design might be half of your story, but it takes a special attention to detail to get it right. The biggest difference between a professional and an amateur is in the sound design of their video, not the visuals.

Sound design is the process of obtaining, manipulating, controlling or creating audio elements. Or it is the process of specifying, acquiring, manipulating or generating audio elements. It is employed in a variety of disciplines including filmmaking, television video production, theatre, sound recording and reproduction, live performance, sound art, post-production, and video game software development.

ELEMENTS OF SOUND:

1. MUSIC: Music can be used for a number of effects. The most obvious way music scores are used is to guide the emotional response of the audience.

    A. AMBIENCE: Ambience is referred to as the atmosphere associated with a particular environment. From music to film ambient sound is something that creates an atmospheric setting and engages the viewer/listener into the surroundings of said environment. Ambient sound is used not only to correlate a particular setting to the story, but to also transition into other parts of a specific setting in film, maintaining

the current flow the film proceeds to take when moving from one scene or cut to another.

B. ACTUAL In other productions, music may be the only audio track. Music montages without nat sound can be particularly moving if you make wedding or event videos. You'll find that it helps to lay the song on your timeline, then edit your footage to the music.

C. BACKGROUND: Simply adding a track of background music can greatly improve your videos.Music often creeps in quietly-unnoticed by the viewer-then builds as emotions heighten.Background music is an easy way to add professionalism to a video with dialogue or narration. Background music should be mixed low, so as not to interfere with the words that are spoken.

2. SOUND EFFECTS:

A. DIGETIC: Sound whose source is visible on the screen or whose source is implied to be present by the action of the film:

- voices of characters
- sounds made by objects in the story
- music represented as coming from instruments in the story space (= source music)
- Diegetic sound is any sound presented as originated from source within the film's world

B. NON-DIEGETIC: Sound whose source is neither visible on the screen nor has been implied to be present in the action:

- narrator's commentary
- sound effects which is added for the dramatic effect
- mood music
- Non-diegetic sound is represented as coming from the a source outside story space.

3. LIP SYCHRONISED SOUND:

A. DIALOGUE : The dialogue is the foremost of the three “ingredients” of a soundtrack. The dialogue brings forth the story by showing the communication and interaction of two or more characters in the film. The dialogue is derived from the film script, but there goes more than just recording a character speaking in designing the film’s sound track.
B. BYTE A sound bite is a short clip of speech or music extracted from a longer piece of audio, often used to promote or exemplify the full length piece.
C. OSS :
D. OFS: Offscreen sound describes sound assumed to be in the space of a scene yet remains offscreen while the action takes place simultaneously.

4. VOICE OVER: (also known as off-camera or off-stage commentary) is a production technique where a voice—that is not part of the narrative (non-diegetic)—is used in a radio, television production, filmmaking, theatre, or other presentations.[1] The voiceover is read from a script and may be spoken by someone who appears elsewhere in the production or by a specialist voice talent. Synchronous dialogue, where the voiceover is narrating the action that is taking place at the same time, remains the most common technique in voiceovers. Asynchronous, however, is also used in cinema. It is usually prerecorded and placed over the top of a film or video and commonly used in documentaries or news reports to explain information.

5. SILENCE :

Fundamental techniques of sound design T

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he process of sound designing for film or television purposes usually consists of the four phases:

1. - recording,
2. - mixing
3. - synchronisation, and
4. - editing.

All these phases are very complex and deal with huge range of problems. That's why a whole team of sound professionals should be involved in sound design. \

Recording. The general aim of the recording phase is to record every sound potencially useful in sound design processing and with the best possible quality. The quality of recordings depend in most part of the microphone type. Directivity of the microphone is also a particular problem to be solved. Using a more directional microphone generally leads to recording with a higher ratio of direct- to diffuse-sound field. The position of the microphones during the shooting of some scene is also a very important thing to be defined. The temptation in sound recording is to match the camera perspective for each new shot. In early sound recording there was an attempt to fit camera perspective, shot -by-shot to what was seen. A wide master shot was thus more reverberant than the associated coles-ups. Then, when the scene was cut together, there was a very noticeable change in the amount of reverberation. Modern practice thus most often uses relatively small changes in the microphone perspective to correspond to large picture changes and the reverberation changes are consequently kept fairly subtle.

Mixing.

Production sound mixing involves microphone technique, recording, synchronisation, and has an impact of editing. Strictly technicaly speaking mixing is dynamically manipulating the level controls of the various microphones during the recording, taking for the purpose of emphasizing the desired sound, and the converse. In the modern practice, mixing phase is not strictly connected to the recording phase. Nevertheless, it became the basic part of the sound editing. The term mixed sound (or final mix) relates today on the completed soundtrack of the movie.

Synchronisation.

Synchronisation today reffers to the two basic terms. At the first place it reffers on the technique which enables the picture and sound to be in the same phase and to "move" synhroniously. The second meaning relates on the process of later recording of the dialogues and sound effects (Foley) in studios, which couldn't be recorded on the set with the apropriate quality. Even in the situations when the later recording of dialogues and sound effects were not needed, the synchronisation was necessary to avoid the problem which turned out during the process of making the film copies, which often

caused the asynchronity between picture and sound. In todays practice these problems are overpassed with the new digital technology.

Editing is the final step of sound design, and results in getting the final mix (or the soundtrack) of the movie. During this phase all recorded sounds (speech, sound effects and music) are combined together to achieve the final "sound vision".

Digital/Non- linear Sound Editing

Now almost all sound editors use computerized editing systems called digital audio workstations (DAW). Digital audio workstations are multi-track systems that greatly simplify and enhance the sound editing process for all types of professional audio production (film audio, studio recording, DJs, et cetera).

Digital audio workstations vary greatly in size, price and complexity. The most basic systems are simply software applications that can be loaded onto a standard personal computer.

More professional systems, like Digi Design's Pro Tools, require a special sound card and are typically used in conjunction with large digital mixing boards and are compatible with hundreds of effects and virtual instrument plug-ins.

★ The advantage of all of these systems is that an editor can work with all kinds of audio files -- voices, Foley clips, analog and MIDI music -- from the same interface.

★ the total amount of tracks is limitless.

★ Besides multiple dialogue tracks, an editor can add dozens of background effects and layers and layers of Foley and music.

★ Multiple tracks can be cut, copied, pasted, trimmed and faded at once.

★ And each track comes with dozens of controls for volume, stereo panning and effects, which greatly simplifies the mixing process.

★ One of the big advantages of digital audio workstations is that they allow sound editors to work with graphical representations of sound. With magnetic tape, everything was done by ear. Now editors can look at the sound waves on the screen. They can see extraneous background noise and remove it with a click of the mouse. Some DAWs can automatically clean up audio, removing clicks, hisses and

low-level background noise that would have ruined a take in the old days. With graphical interfaces, sound effects designers can study the waveform of a sound and easily bend and distort it to create something completely new.

Trouble Shooting

We've all experienced it: there were problems with load in or set-up, time is short, the system is set-up with only a few minutes to spare and of course, something works improperly or not at all. Although the first instinct might be to start checking plugs, connections, cables, etc. in a random fashion (i.e. “panic”), a tried-and-true troubleshooting method will almost always find the problem with less effort and in a shorter amount of time.

The most basic troubleshooting technique is the “Divide and Conquer” method. This involves identifying the good parts of the system as well as figuring out which parts have failed. Not only can these working sections be eliminated as the cause of the problem, but they can also be used to test other parts of the system. For example, a mic channel at a mixer is dead while others are operating properly. The good news here is that you can use one of the working channels to isolate the problem.

Shooting and editing video productions that have a beautiful aesthetic is a wonderful thing, but even the most visually appealing productions can come across as amateurish attempts if they are accompanied by a sub-par soundtrack. In reality, audio quality is every bit as important as video image quality. In fact, we might instead consider the postulation that as video image quality increases, audio quality should increase proportionately, because the expectation of quality has been raised within the viewer. Furthermore, in the mind of the viewing audience, a video production will typically be remembered, and therefore judged, based on its weakest component. So, no matter how good a video production looks, a poor soundtrack will taint the entire production in the mind of the audience. There are two approaches to audio editing: eliminating problems with source sound that would create distractions, and adding audio effects and elements, like sound effects, to build a soundscape. Here are five strategies that might help you make the most of a bad sound situation.

Mute It The first step is to determine whether the offending audio track is critical to the success of the video or not. If, for instance, a news production about the county fair that

is driven by voiceover narration, or an on-camera host includes a problematic soundtrack that is associated with ambient audio that accompanies B-roll video, eliminating the problem may be as easy as muting the audio that coincides with the B-roll. While the editor may have preferred to include the sound of the carnival midway, the integrity of the story would not be compromised by omitting the track.

Likewise, if the audio problem occurs in a short section of non-crucial audio delivered by an on-camera host, but the rest of the delivery is fine, a decision can be made as to the importance of including that specific line of dialogue. Cutting out problematic sound altogether may be an acceptable option.

Add Music In the case where audio delivered by an on-camera host or in a voiceover narration includes a small, but noticeable hiss, a fast and easy solution may be to simply add a music bed. When the offending audio track is exposed and alone it welcomes a greater degree of scrutiny. The viewer's ear may be drawn to the hollow quality of the track. Adding a music bed gives the ear something else to hear and draws attention away from minor audio imperfections. Use care to not make the mix too hot, however. The goal is to blend the music track in such a way that it supports and lifts the primary sound source, not in a way that competes with it.

Add Ambiance One very common audio problem is introduced in editing when an audio track is chopped up and the dialogue is spread out on the timeline. When recording voice overs or on-camera talent, ambient environmental background sound is captured along with voice track recordings. This contrasts heavily with the ultra silent gaps between sound bites, resulting in increased awareness of the noisy background sound during the voice segments. The solution here is to cycle through the source footage to find sections of ambient "room noise" that may have been captured between takes without the voice. This room ambience can then be edited into the gaps on the timeline to smooth out the silences between audio edits. This is such a common occurrence that video professionals make a regular practice of recording several seconds to a minute of ambient sound on their sets as a part of their shot lists so that they have all the ambient room sound needed to fill these aural interludes.

Apply Noise Reduction Another common cause of audio interference is 60 cycle hum that may be introduced by power cords that cross over microphone cables or by

bad cables that are poorly grounded. This sounds like a low hum or buzz. Most of today's video editing applications include built-in filters that are designed to reduce or eliminate noise within an audio clip at a specific frequency. There is typically a drag-and-drop preset option, or a manual slide control that allows the selection of a targeted range; In this case, 60Hz. Manual controls also allow the manipulation of resonance around the selected range that let the user limit the frequencies that the filter affects. This lets the editor achieve a narrower, but cleaner frequency range and can effectively reduce unwanted audio buzz.

Software Solutions Some audio problems cannot be fixed so easily and require the use of highly specialized audio editing software with a much greater degree of control. Some examples are Sony SpectraLayers, Adobe Audition and Avid Pro Tools. While audio controls within video editing applications are limited to frame-level accuracy, these professional audio tools allow manipulation at the sample level. These programs will allow you to carve out unwanted sounds, and sample objectionable background noise to remove it for impressive results. While there may be a learning curve to operate them proficiently, these professional audio editing software solutions can salvage sound that video editing applications could not save.

TOPIC 3: Styles of Packaging: News and Non-news

Reporters tend to classify themselves as either news reporters or feature (non-news) writers. There is of course no rule stating that a reporter cannot be a feature writer, or vice-versa, but over time, reporters tend to slot themselves into particular categories depending on their beats and the strengths they identify in themselves

3.2 Packaging in news

A news package is a creative, visual and long form of storytelling found on television newscasts. News is conveyed to an audience by packaging together a story that includes characters, facts, plot twists and a climax. A package is a self-contained taped news report. Many networks use news packages to provide innovative newscasts to broad audiences.

that's because, if they are done well, packages have all the elements that bring a story alive: good pictures, interesting sound bytes, and a well-written script. If any of these

elements is weak, the story may be downgraded (to a VOSOT or even a VO) or kept short. In other words, the quality of the video and the sound bytes often determines the length of a package. But even great video and excellent sound bytes do not always guarantee a long package; it depends on what else is going on in the news that day. Even on slow days, packages rarely run longer than 90 seconds.

Structure and Script

Reporters will often spend large amounts of their time researching stories and interviewing characters to eventually write the scripts for these packages. A common part of a news package is the appearance of a reporter talking into the camera. This is called a "standup" because the reporter is often seen standing in front of the camera on the scene of the story. Usually, the news anchor will read an introduction live, then the pre-recorded story will be shown. Most viewers have never seen a script for a news package, as what the audience sees is the video form of the script. When a script is created, it often involves many different elements in addition to the exact wordage of the story that the reporter is going to present, such as:

- Storyline
- Visuals
- Audio Timing and Cues
- Tone Voiceovers.

The writer has to consider both what the viewer sees (visuals) and also what they are going to hear (audio). There is the visual aspect of video production, where images and videos of the subject matter are presented, while the audio specifies sound bites, voiceovers and music that may accompany the visuals to help the story along.

The post production team will then use the script to bring together the whole news package, to create a newscast that is entertaining, compelling and informative, while keeping in line with the reporter's overall vision and storyline. Import your narration voice track into the video editing software along with all video clips. Edit story and export video. Exported video file should not be not too big. Editing video is really about structuring stories. It's about establishing a beginning, middle and end, deciding how scenes will transition into each other, establishing a rhythm, and building momentum.

Knowing how to trim a clip or sequence a series of shots is important in all forms of video storytelling. In video journalism, these techniques can help us advance stories and enhance their journalistic purpose.

3.3 Stages of video edit and package a News story

(a) Log sheet The first thing to do is view your tape and the time code. Make a list, or log, of the different shots you see, the times they start and finish (called in and out points) and what people say (script). If someone can log, while you are filming, even better. It will save you valuable editing time, particularly if you are on a deadline.

(b) Assembly edit Now you are ready to do an assembly edit. That is where you look at your storyboard and cut out the film to match the shots you planned. The paper edit will help you find these sections easily. Lay them down in order. In most computer editing packages, this means laying them on a line from left to right, called a timeline.

(c) Sound edit Listen to the script and cut the film so that it all makes sense when you listen to it. Your edited report on the timeline should now look almost finished.

(d) Final Edit This is where you put the finishing touches to your report. For example, you can add different bits of video, to make your report visually interesting, and graphics. The final edit usually involves shortening the report or making it more concise. Make sure your overall editor is happy you haven't cut out any vital bits such as the other side of the argument.

(e) Adding visual interest If you want to, you can put different video over the sound. For example, if the reporter is speaking to the camera and you want to keep his voice, but show the location, you can cut and paste pictures from the original film and overlay them onto the timeline. As a general rule, these pictures should be two seconds or longer - otherwise, it is too quick for the audience. Make sure you reduce any background noise attached to the location shots, so you can hear the reporter's words clearly. Don't remove the background noise though, at a low level, it makes the report sound natural.

(f) Editing interviews You can cut out the reporter's questions, as long as the interviewee answers in full sentences. This will make your report more concise. You only need to include one or two good answers in your report. Listen to all the answers first and select the best ones. It will save you valuable editing time, particularly if you are on a deadline. Interviews often involve filming the interviewee's head and shoulders. Keep the sound track you laid down in the sound edit and overlay the pictures.

(g) Transitions There's no need to go overboard with these. If you've filmed your report well, you won't need to add any. Some very common transitions are: Blurring the edges between one shot and the next, called a cross-dissolve. This is often used to show that time has passed. Fading from or to black at the beginning and end of your report, to mark the beginning and end.

(h) Adding graphics To make your report look really professional, add name and job titles. Have a look for the "type tool" or something that does the same job. Using titles means that the reporter and interviewees don't need to spend time introducing themselves. When adding titles, keep the font plain and make the words big enough to read on screen. Make sure you spell names correctly.

Non-news programmes

News Features

A feature is a typically longer than a standard news story. It's written and edited in a different style, typically with more detail and background based on more extensive research than would be required to simply report a news event. Features can vary widely -- you might write a news feature, an arts feature or a human interest feature. Although the term implies softer news, a feature is often defined by its length and style, not necessarily its subject matter. The style component is important. Features humanize events and issues rather than make a recitation of facts.

The major steps of video editing are same as editing a news-story. But using same tools a bit different make story much more appealing and of human interest. After

pre-production and production stage, the news feature actually gets made on editing table that is post-production. It is like now we have data to process, and by using the video editing software at its best use, we can make the data presentable and watchable keeping in mind the target audience.

(i) First Assembly The first assembly is when the action starts to pick up for the video editor. Using the storyboard as a foundation, you start making selections. Usable footage is trimmed and marked, while the bad takes are cast aside. Many directors like to make a paper edit. They take notes while screening the selects of the first assembly and then write out what clips they like and don't like, sometimes rearranging them into a new order.

B-roll (secondary shots) is also separated at this time. Its content is logged and it is sorted into a hierarchy according to the editor's needs. This is all contingent on the project as the organizational needs of the footage are dependent on what's most needed for the video.

(ii) Sound edit Sound edit is very differently done when a news story is packaged compared to a non-news one. A non-news story is mainly thematic and according to the topic. For example if we make a news feature on a famous photographer who passed away, the music on voice over, anchor links and titles will be low volume, subtle and soothing. Here we can't use dramatic or high volume music. This is called aesthetics in use of music. It should support or compliment the visuals rather to distract or disturb the viewers.

(iv) Editing Interviews A news feature can have interviews longer in duration as compared to news stories. Because news features are made to give details of the topic and sometimes interviews are enough to do this. Also, there could be background music also for interviews which give a nice environment to the context or topic. It also sets the mood.

(v) Transitions and Graphics We can use these heavily in the non-news stories package. As it is clear that video editor working on non-news stories has more freedom to experiment with various transitions and graphics. Also he or she has more time than news video editor to do a hit and trial method. As there is no concept of

breaking news. There are plenty of options available in a non-linear editing software to do this.

(vi) The Rough Cut The rough cut is the first true edit and is the stage in which you start to display your craft as more than a technical exercise. At this stage, it is no longer about solely discovering and organizing footage, it's about storytelling and crafting a message, using the footage from production as a foundation to achieve the director's vision. Timing is vital to the rough cut. It is during the rough cut that you start to play with the timing. Whether making fast cuts or extending pauses. The rough cut is meant to be shared. The video editor works with the director, producer and a client, if it's their project. Communication is kept open between all parties and much dialog takes place, helping to shape the overall edit. The parties agree on what changes need to take place before the edit moves on to the final cut.

(vii) The Final Cut The final cut of an edit is when the cutting and timing of the footage is finalized. It's not the final version of the video, ready for release, but it's awfully close. The edit at this stage is the one that will be used for several finishing steps, all of which need to synchronize perfectly with each other. For this reason, the final cut is often known as picture lock or frame lock, meaning that the frames in the edit will not change in time from this point moving forward. The final cut is not just about locking things down however, it's also about elimination. A scene might be finalized, but that doesn't ensure that it stays in the production. Once all the scenes are cut and precisely timed, you review them with the director and producer. If there's a scene that doesn't work or doesn't contribute to the overall narrative of the video, it's eliminated.

First, visual effects and graphics are added to the video. Most visual effects are planned out during preproduction but aren't generated until post-production because the visual effects artist needs know what footage they're specifically working with to make the effects seamless. Graphics are also planned in advance and are fine tuned to coincide with the final edit. What the audience will see on screen is only part of their experience. After visual effects and graphics are added, audio sweetening is performed.

The final cut is round tripped to an audio editing suite, sometimes on the workstation, for the placement and editing of sound effects and musical underscores. Dialog is mixed down with these elements to create an audio track that supports and carries the accompanying video.

(viii) Color Grading The final step before deliverables are rendered and shipped is color grading. Color grading is the stage in which you, or a colorist, manipulates color and tonal qualities of the video image to craft a unique look that helps set the mood for the video and visually tell the story. The advent of digital cinema cameras, greater computing power and more advanced codecs has increased the implementation of color grading.

TOPIC 4: Archiving and File Formats

4.2 Archiving "Archiving means collecting, organising, describing, preserving, and providing access to materials of evidential, historical, cultural, or other value". Archiving is really important as you can be sure that at some point either a customer will come back and ask for some footage from an old project or you will find you need to get a hold of some footage and you don't know where it is! However, good archiving of old material will help make this a far less painful experience. The process of storing project data so you can get access to it later is called archiving. When you're finished editing your videos, you'll typically export the final file. If you upload it to Facebook, YouTube, or some other site, that copy can be considered one of your backups, which is good. You always want a backup of your files. But if you're posting some videos to YouTube and saving others to a private Dropbox account, your video files are going to be all over the place.

UNIT 4

TOPIC 1 : Control Room and Panel: Use of Switcher, Chroma, Super - Impositions

Control Room - Concept

This area is the heart of any television complex. It is here that the production is controlled, and the operations directed. In this room programme and technical staff watch a series of preview monitors and the output of the vision mixing desk, which appears on the 'transmission' monitor. This is the studio output, which now passes to

the distribution system for recording or transmission. The programme sound is heard over a nearby loudspeaker. Desk 'talkback microphones' pass instruction and guidance to the studio crew.

Also called PCR, is a separate room adjacent to the studio floor, where all the production activities are coordinated. Here, the producer/director, production assistant, vision mixer operator, audio technician, and other production persons sit and take decisions for broadcast live. Today's live TV shows and reality programming requires the real-time interactivity and ultra-fast turnaround first pioneered by live sports and news.

The production control room or studio control room (SCR) is the place in a television studio in which the composition of the outgoing program takes place. Master control is the technical hub of a broadcast operation common among most over-the-air television stations and television networks. Master control is distinct from a PCR in television studios where the activities such as switching from camera to camera are coordinated. A transmission control room (TCR) is usually smaller in size and is a scaled-down version of central casting.

Picture monitors

The main features of the production control room is its bank of picture monitors previewing all picture sources contributing to the programme. Most show continuously the output of their channel (e.g. Camera 1), certain others are switched as required. The transmission monitor is centrally mounted above the preview monitors. Picture monitor layout should be just below the horizontal eyeline. The viewing distance is ideally six to eight times the viewing diagonal of the monitor screen. Nearer than that, it is tiring to continually scan around; more distant and we lose detail.

Environment

Two levels of room lighting should be available: normal overall illumination, and localised operational lighting. The operational lighting must be arranged so that sufficient light is available to read programme scripts, floor plans, etc., with ease, and to quickly locate and operate technical equipment; extraneous light should not spill on to preview monitors. The control room should be carpeted to improve acoustics, and have effective ventilation.

Facilities in a production control room include:

- A video monitor wall, with monitors for program, preview, VTRs, cameras, graphics and other video sources. In some facilities, the monitor wall is a series of racks containing physical television and computer monitors; in others, the monitor wall has been replaced with a virtual monitor wall (sometimes called a "glass cockpit"), one or more large video screens, each capable of displaying multiple sources in a simulation of a monitor wall.
- A vision mixer, a large control panel used to select the multiple-camera setup and other various sources to be recorded or seen on air and, in many cases, in any video monitors on the set. The term "vision mixer" is primarily used in Europe, while the term "video switcher" is usually used in North America. A professional audio mixing console and other audio equipment such as effects devices.
- A character generator (CG), which creates the majority of the names and full digital on screen graphics that are inserted into the program lower third portion of the television screen.
- Digital video effects, or DVE, for manipulation of video sources. In newer vision mixers, the DVE is integrated into the vision mixer;
- A still store, or still frame, device for storage of graphics or other images. While the name suggests that the device is only capable of storing still images, newer still stores can store moving video clips and motion graphics.
- The technical director's station, with waveform monitors, vectorscopes and the camera control units (CCU) or remote control panels for the CCUs. In some facilities, VTRs may also be located in the PCR, but are also often found in the central apparatus room. Intercom and IFB equipment for communication with talent and television crew.

Switcher

Also called vision mixer. With a series of inputs to be combined, manipulated, and set out on the programme line, a vision mixer is used for selection and proper sequencing of images supplied by cameras and other inputs sources like titling, graphic machines and VTRs.

Vision mixers are conceptually similar to audio mixers. They take multiple input sources, apply any desired effects or processing, and provide one or more outputs.

The main concept of vision mixer is the bus – a row of buttons, with each button representing a video source. Pressing such a button will release the video signal out of that bus. Older video mixers has two equivalent buses called A and B bus, such a mixer is known as an A/B mixer. Most modern mixers, however, have one bus that is always the programme bus, the second main bus being the preview bus. Both preview and programme buses usually have their own video monitor. A professional video switcher can handle up to 20-30 inputs.

Most vision mixers are based around the preview bus and the program bus, each of which has it's own monitor.

- The program bus is the main output feed, i.e. the vision which is being recorded or broadcast. Whichever source is on the program bus is said to be online.
- The preview bus is used to select and preview the source which is about to be put online.

Another main feature of a vision mixer is the transition lever. This lever, simply creates transition between two buses. Instead of moving lever by hand, a button (commonly labelled as Mix) can be used, which performs the transition over a user-defined period of time.

Another button Cut, directly swaps the buses without any transition. Common transitions include dissolves and wipes.

The third bus on the vision mixer is the key bus. A mixer can actually have more than one of these, but they usually share only one set of buttons. Here a signal can be selected for keying into the programme. The image that will be seen in the programme is called the fill, while the mask used to create the translucence of the keys is called the source.

These three main buses together form the basic mixer section called programme/Preset or P/P. Bigger production mixers may have a number of additional sections of this type, which are called Mix/Effects amd are numbered.

The switcher can do a host of other functions besides cuts and dissolves. It can be used for text keying, chroma keying, etc. The main functionality of a video switcher is for creating a master output for real-time video broadcast or recording. They can create different visual effects, ranging from simple mixes and wipes to elaborate effects. They can also perform keying operations and help in producing color signals. Video switchers work similarly to audio mixers. They make use of multiple input sources, then apply the desired effects and produce one or more outputs. The use of video switchers is now minimal due to the advent of computer-based non-linear editing systems.

Chroma

Chroma keying is a special effect that uses a specific color (chroma), usually blue or green, as the backdrop for the person or object that is to appear in front of the background scene. During the key the blue or green backdrop will be replaced by the background video source without affecting the foreground object. Green or blue colour provide good contrast to the human skin tones, and can make the talent stand out better than any other colour can.

Note that anything in the shot which falls within the specified colour range will be made transparent, so if a person wears a green shirt they may become semi-invisible!

Because the chroma key responds to the hue of the backdrop rather than to the brightness (luminance) contrast as in a regular key, be sure that the chroma-key area is painted uniformly (even blue or green with a fairly high saturation throughout the area) and especially evenly lighted.

The subject must be kept at a minimum distance of 4 feet from the screen to avoid shadows from falling on the screen.

The vision mixer has a chroma keying slicer. The slicer must be switched on and the talent superimposed on the green screen. Superimposition stacks images on top of one another, while matting completely replaces parts of one image with parts imported from another.

The use of chroma keying has become quite popular in recent years, with many applications of this video effect used for live streaming. The most obvious use of this technique is for weather broadcasts, where the presenter is composited over the top of a weather radar image. In more recent times we're seeing video game streamers chroma keying themselves into their live streams.

The foreground and background pictures may be live camcorder feed, videotape, computer output, or any combination to create a chromakey effect: Place a foreground subject in front of a designated chromakey color (usually bright blue or green) and feed the picture through one channel of a digital switching system. Feed a background picture through another. Command the system to replace the designated color in the foreground picture with the same areas of the background.

Some inexpensive A/B-roll video mixers have chromakey capability, and better quality prosumer products offer considerable sophistication. The MX-Pro from Videonics succeeds the MX1, Panasonic offers the WJ-AVE55 and stand-alone switchers are available from SIMA and Edirol. For nonlinear editors, programs like Adobe Premiere offer a wide range of chromakey and other superimposition methods.

Studio use of chroma key

- ★ Despite the availability of highly sophisticated digital video effects (DVE), the chroma-key process is used extensively in various studio production situations. The previous discussion focuses on some of the most popular uses of chroma-key effects in weathercasts, but there are other situations in which chroma keying is equally applicable and effective.
- ★ you can also use chroma keying to create a variety of scenic backgrounds or environments. Assume, for example, that you would like to show a tourist shooting some footage of a museum.

Ultimatte

The Ultimate is a specific type of blue-screen (chroma) keying. This system produces a crisp and highly stable key that is hard to distinguish from an actual foreground/background scene. It allows you to mix foreground and background cameras so precisely so that the lighting and movement of foreground are transferred to the background. For example, if the figure were to move in front of the blue screen during the key, the shadow would also become part of the background and move across the background scene. Some complex multicamera productions, such as soap operas, use Ultimatte to key in ceilings of the realistic sets of living rooms or hallways.

Super Impositions

A superimposition, or super for short, is a form of double exposure. The picture from one video source is electronically superimposed over the picture from another. the super is easily achieved by activating both mix buses with the fader bar. A distinct characteristic of a super is that you can see through the superimposed image to the one that lies beneath it. You can then vary the strength of either picture (signal) by moving the fader bar toward one mix bus or the other.

There are three major uses for superimpositions:

1. **transitions**, The most common use of superimposition is to create a transition by fading the first image down from 100 percent to 0 percent and the overlapping part of the second image up from 0 percent to 100 percent. Once called a cross fade for obvious

reasons, this is now known as a dissolve or mix. A dissolve signals a change of time, place, or frequently both

2. **multiple images** The second use of superimposition is to enrich the delivery of information by displaying more than one image at a time. If you run the first half of a dissolve–until each image is at 50% strength–and then leave both visuals on screen, you double the amount of information you present to the audience. Each image is communicating its message separately.

   Example, Combine a shot of a woman's longing expression with a closeup of a baby, and you tell the audience that she is expressing maternal affection. Combine that same shot with a shot of a man in a sailor's uniform, and she is thinking of her lover instead.

3. S**pecial effects** Superimposition is also the key to special effects using double exposure by means of A/B-roll editing. A/B-roll editing consists of using two separate video tapes, A and B, to edit together a single video. To tape a double exposure, lock the camera very firmly on a tripod and record the shot that will form the A roll of the action. Replace the tape with the B roll cassette being exquisitely careful not to bump the camera. Record the B roll shot. In editing, you align the A and B rolls and then transfer both at once with a video mixer, creating a superimposition.

   Here are just a few of the many special effects you can create with double exposure:

   - **Teleportation:** By dissolving from an empty scene on roll A to the same scene with an actor on roll B, you "beam down" the character into the scene. ("Beaming up," of course, uses exactly the opposite technique).
   - **Ghosting:** If you leave the teleportation dissolve at 50/50, the background will seem solid while the actor appears transparent. If the actor lies quite still in shot A, then gets up and moves in shot B, the "ghost" will appear to leave the "body" behind. In this case, it would look more convincing to make shot A, with the body, 75 percent and the ghost in shot B 25 percent. With the 75/25 mix the ghost will be very transparent while the body will appear more solid.
   - **Cannon shots and earthquakes:** You can make the scene shake, rattle, and roll by recording shot A with the camera still and then re-recording it on the B roll while vibrating the camera with one hand. Together, the A and B shots will simulate violent shaking. Rattle the B roll at rhythmic intervals to simulate heavy gunfire or continuously to mimic an earthquake.

In case you cannot key a title over a background image, you can still use a super for the title effect.

TOPIC 2: Multi-camera Online Editing: Concept and Process

Use of more than one camera to shoot a production is called Multi-cam production. Multi-cam helps you record different angles simultaneously and shoot scenes much faster than with a single camera.

Multi-camera production, also called online production. The video is completed at the time of production. Production and post-production phases merge into one. TV shows like KBC, Indian Idol or live newscasts from the studios are multi camera productions. Cameras placed at various points cover and capture action from different angles and distances, providing perspective and ambience. In contrast, in single-camera production only one camera is used for shooting a subject or an event.

The use of multiple video cameras to cover a scene goes back to the earliest days of television, three cameras were used to broadcast The Queen's Messenger in 1928, the first drama performed for television. The BBC routinely used multiple cameras for their live television shows from 1936 onward.

It requires great planning and lighting to make sure the footage from each camera matches, but what you can't control on location you can usually correct in post. From a two-camera interview to a 26-camera concert special, multicamera production is being used more now than ever before. And with so many camera types, codecs and editing workflows for filmmakers to chose from, it's important to learn about Multi-cam Production.

The multiple-camera method gives the director less control over each shot but is faster and less expensive than a single-camera setup. In television, multiple-camera is commonly used for sports programs, news programs, soap

operas, talk shows, game shows, and some sitcoms. Before the pre-filmed continuing series became the dominant dramatic form on American television, the earliest anthology programs (see the Golden Age of Television) utilized multiple camera methods. Multiple cameras can take different shots of a live situation as the action unfolds chronologically and is suitable for shows which require a live audience. For this reason, multiple camera productions can be filmed or taped much faster than single camera. Single camera productions are shot in takes and various setups with components of the action repeated several times and out of sequence; the action is not enacted chronologically so is unsuitable for viewing by a live audience.

Types of Production

1) Studio: Examples of studio productions are game shows , chat shows , news and magazines and studio-based drama.
2) Outside broadcasting: Examples of types of live events or outside broadcasting are sports, concerts , stage productions and public events.

Reasons for Multi-Camera

Coverage of Action

Coverage of action is the extent to which something is observed and analysed. The audience can therefore convey the whole shot which is usually done using the middle camera. This technique tends to be used in multi-camera production such as the Brit awards performances as the coverage of action is used a great deal as it focuses on the audience reaction , the artist/band , the dancers and the venue and they use various camera angles to show this.

Communicating Meaning to the Viewer

Communicating meaning to the viewer mainly focuses on the reaction of the audience and how they are feeling while watching the show. A variety of camera shots and angles are used in multi-camera productions to give the viewer a better understanding of the show. The communication with the viewer and the show shows how the viewer has understood the show. For example this is shown in various soap operas such as Eastenders , Coronation Street and Hollyoaks etc.

Visual Style

Visual style is how the viewing audience see the program they are watching. It is how the shots have been edited and blended together. It can also be when a program has a particular visual style and how the camera's have captured it.

Maintaining Viewer Interest

Maintaining viewer interest is when there are a variety of different shots used so that the audience is interested throughout the program. Maintaining the viewers interest strongly relies on the camera operators to work together to get a strong variety of shots to achieve interest and ensure that the viewer is entertained.

Constraints of Studio or Location Environment

This is when there is a limited amount of space that you are able to film in. It is also when there is not enough space for the camera to capture everything that needs to be recorded. For example most game shows. In some game shows there is sometimes many cameras around the studio so that the director can change between an option of cameras to achieve a smoother transition and to make the most of the space.

Multi-Camera Simultaneous Recording

This is when there are multiple cameras and the transitions between all different cameras are smooth and make sense in the program. This is shown through various multi-camera productions.

Follow the 180-degree rule Knowing where to put your cameras is one of the biggest challenges for most production teams moving from a single-camera to a multi-camera setup. Here's why: In a basketball game, for example, Team A is going right to left; Team B is going left to right. If you place two cameras on opposite sides of the court, the teams will be running in the opposite direction every time you switch cameras—and your viewers will be left dazed and confused.

All of your shots need to make sense as a whole. The 180-degree rule ensures that all of your cameras are filming from a singular direction. Think of an imaginary line across the center of the court. You can place your cameras anywhere behind that line on one side, choosing a variety of angles to mix up the shots—but not on the other side. That way, all of your cameras are strategically placed to ensure that directions remain consistent.

2.3 Online Editing

Switching angles is no less significant in our own professional production work, especially when we're shooting live events for online delivery. And whether we're streaming video live, or producing it for on-demand online viewing, live switching is either the only way to get the job done, or—in many instances—simply the most efficient. Basic Set up Two (or more) cameras. It's important that the cameras be matched at least in overall quality and format. Why? Because if you conduct a multi-camera shoot with a fancy 3-chip DV camera and a single-chip Hi8, your viewers will be able to see a noticeable difference in the picture quality when you switch from one camera to another.

1. A switcher/SEG. This is the heart of the multi-camera shoot, the device that switches the video signal from one camera to another. SEGs (Special Effects Generator) also perform other duties like transition effects, chromakey/lumakey, and triggering other devices like titlers, but their main function is to switch between two or more video signals. Popular low-cost models include the Focus Enhancements MX-4 and the Edirol V-4, but a search on eBay might turn up some inexpensive older models by Panasonic and other manufacturers.
2. A video monitor. At least one; two, if possible--the primary one to view the switcher's Monitor output, and another to view the signal as it appears when it goes to tape, for quality control.
3. A VCR or Direct to Edit or other recording device. This will be where the final signal gets recorded, the output of the switcher/SEG. Optimally, it should be a high-quality device, but this isn't necessary. A spare camcorder will do nicely; a VCR works well, too. Crew. At least one camera operator per camera, plus a technical director to operate the switcher. If enough crew is available, you might consider an overall director to lord it over the entire process. You may also want to round up some lighting crew, an audio technician, grips...there's always plenty to be done on a multi-camera shoot.
4. But the basic bare-bones crew is one cameraperson per camera, plus a technical director to operate the switcher.
5. Wireless microphone headsets. These will make it easier for the director to communicate with the camera operators quietly while the shoot is in progress. Fade in/fade out. Most switchers have a way to set up black or another color on one of the channels. As you start your shoot, begin with black as your main output instead of one of the cameras, then use a dissolve effect to fade in to your first shot. At the end of the performance, do the same thing, only in reverse, fading out the last shot to a black screen.