
 BHARATI VIDYAPEETH

Video Editing
BA(JMC) UNIT 4

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


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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.


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Control Room - Concept


- 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.

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 **Control Room - Concept**


- **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 eye line. 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.

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 **Facilities in a Production Control Room**


- 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.

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 **Facilities in a Production Control Room**


- 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.

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 **Video Switchers/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.
- In most of the world, both the equipment and its operator are called a vision mixer or video mixer; however, in the United States, the equipment is called a video production switcher, and its operator is known as a technical director (TD).

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 **Operation/Uses of Video Switchers**


- The most basic part of a vision mixer is a bus, which is a signal path consisting of multiple video inputs that feeds a single output.
- On the panel, a bus is represented by a row of buttons; pressing one of those buttons selects the video signal in that bus.
- Older video mixers had two equivalent buses (called the A and B bus; such a mixer is known as an A/B mixer), and one of these buses could be selected as the main out (or program) bus.
- Most modern mixers, however, have one bus that is always the program bus, the second main bus being the preview (sometimes called preset) bus. These mixers are called flip-flop mixers, since the selected source of the preview and program buses can be exchanged.
- Some switchers allow the operator to switch between these two modes. Both the preview and program bus usually have their own video monitors displaying the video selected in their respective buses.

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 **Operation/Uses of Video Switchers**


- Another main feature of a vision mixer is the transition lever, also called a T-bar or Fader Bar. This lever, similar to an audio fader, is used to transition between two buses.
- Note that in a flip-flop mixer, the position of the main transition lever does not indicate which bus is active, since the program bus is always the active or hot bus.
- Instead of moving the lever by hand, a button (commonly labeled "mix", "auto" or "auto trans") can be used, which performs the transition over a user-defined period of time.
- Another button, usually labeled "cut" or "take", swaps the preview signal to the program signal instantaneously.
- The type of transition used can be selected in the transition section. Common transitions include dissolves (similar to an audio cross fade) and pattern wipes.

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 **Operation/Uses of Video Switchers**


- A third bus used for compositing is the key bus. A mixer can have more than one key bus, but often they share only one set of buttons. Here, one signal can be selected for keying over the program (or background) bus.
- The digital on-screen graphic image that will be seen in the program is called the fill, while the mask used to cut the key's translucence is called the source.
- This source, e.g. chrominance, luminance, pattern (the internal pattern generator is used) or split (an additional video signal similar to an alpha channel is used) and can be selected in the keying section of the mixer.
- Note that instead of the key bus, other video sources can be selected for the fill signal, but the key bus is usually the most convenient method for selecting a key fill. Usually, a key is turned on and off the same way a transition is.

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 **Operation/Uses of Video Switchers**


- These three main buses together form the basic mixer section called Program/Preset or P/P. Bigger production mixers may have a number of additional sections of this type, which are called Mix/Effects (M/E for short) sections and numbered. Any M/E section can be selected as a source in the P/P stage, making the mixer operations much more versatile, since effects or keys can be composed "offline" in an M/E and then go "live" at the push of one button.
- 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.

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 **Operation/Uses of Video Switchers**


- These three main buses together form the basic mixer section called Program/Preset or P/P. Bigger production mixers may have a number of additional sections of this type, which are called Mix/Effects (M/E for short) sections and numbered. Any M/E section can be selected as a source in the P/P stage, making the mixer operations much more versatile, since effects or keys can be composed "offline" in an M/E and then go "live" at the push of one button.
- After the P/P section, there is another keying stage called the downstream keyer (DSK). It is mostly used for keying text or graphics, and has its own "Cut" and "Mix" buttons. The signal before the DSK keyer is called clean feed. After the DSK is one last stage that overrides any signal with black, usually called Fade To Black or FTB.

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 **Operation/Uses of Video Switchers**


- 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.

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 **What is Chroma Key**


- Chroma keying is a technique used for combining two frames or images by replacing a color or a color range in one frame with that from the another frame.
- It is often used in film industry to replace a scene's background by using a blue or green screen as the initial background and placing the actor in the foreground.
- The principle behind chroma keying is that the colour blue is the opposite colour of skin tone, so a distinction between the two is very clear, making it easier to select the colour without worrying about any part of the actor being included in the selection.
- The whole blue selection is then replaced with another frame as the background.
- Chroma key is also known as color keying and color separation overlay; it is also commonly called blue screen or green screen.

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 **What is Chroma Key**


- The selection of blue or green back ground mainly depends on the effect required and what colors the actors are wearing. This makes it easier to separate the actor from the background. The final result is that the film is made to look like the actor is somewhere other than a studio.
- The chroma key process is widely used because it is cheaper to do this than to shoot in expensive or inaccessible locations. It can also be done in real time, making it ideal for weather report or entertainment shows.

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 **Role of Lighting in Chroma Key**

- The art of achieving a perfect Chroma Key effect is lighting. Green or blue screens have required a great deal of it in order to be effective.
- Powerful lights are needed to increase the intensity of the backdrop to give a strong consistent colour to work with. Those lights however can make the subject look very dark in comparison to the background, so soft lighting aimed towards the subject is needed to overcome this.
- Further lights are then required to soften the hard edges created by the earlier lighting effects.

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 **Super Impositions**

- Superimposition is when two or more image are placed over each other in the frame. This effect can be accomplished by exposing the same piece of film more than once as we see with double exposure. In narrative film, superimposition is often used for dissolve shots.

There are three major uses for superimpositions:


- 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.

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 **Super Impositions**

- 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.
- Special 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.

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 **Topic 2:**
Multi-camera Online Editing: Concept and Process

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 **Introduction**


- 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.

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 **Introduction**


- 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, multi-camera 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.

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 **Introduction**


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

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 **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.

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 **Reasons for Multi-Camera**


- **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.

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 **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.

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 **Online Editing**


- 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.
- 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.

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 **Online Editing**


- 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.
- But the basic bare-bones crew is one cameraperson per camera, plus a technical director to operate the switcher

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 **Online Editing**

- 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.

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THANK YOU

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