Block

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HANDLING VIDEO CAMERA AND SHOT TYPES

UNIT 1 HANDLING VIDEO CAMERA

UNIT 2 SHOT TYPES

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ROLE OF SELF INSTRUCTIONAL MATERIAL IN DISTANCE LEARNING

The need to plan effective instruction is imperative for a successful distance teaching repertoire. This is due to the fact that the instructional designer, the tutor, the author (s) and the student are often separated by distance and may never meet in person. This is an increasingly common scenario in distance education instruction. As much as possible, teaching by distance should stimulate the student's intellectual involvement and contain all the necessary learning instructional activities that are capable of guiding the student through the course objectives. Therefore, the course / self-instructional material are completely equipped with everything that the syllabus prescribes.

To ensure effective instruction, a number of instructional design ideas are used and these help students to acquire knowledge, intellectual skills, motor skills and necessary attitudinal changes. In this respect, students' assessment and course evaluation are incorporated in the text.

The nature of instructional activities used in distance education self- instructional materials depends on the domain of learning that they reinforce in the text, that is, the cognitive, psychomotor and affective. These are further interpreted in the acquisition of knowledge, intellectual skills and motor skills. Students may be encouraged to gain, apply and communicate (orally or in writing) the knowledge acquired. Intellectual- skills objectives may be met by designing instructions that make use of students' prior knowledge and experiences in the discourse as the foundation on which newly acquired knowledge is built.

The provision of exercises in the form of assignments, projects and tutorial feedback is necessary. Instructional activities that teach motor skills need to be graphically demonstrated and the correct practices provided during tutorials. Instructional activities for inculcating change in attitude and behavior should create interest and demonstrate need and benefits gained by adopting the required change. Information on the adoption and procedures for practice of new attitudes may then be introduced.

Teaching and learning at a distance eliminates interactive communication cues, such as pauses, intonation and gestures, associated with the face-to-face method of teaching. This is particularly so with the exclusive use of print media. Instructional activities built into the instructional repertoire provide this missing interaction between the student and the teacher. Therefore, the use of instructional activities to affect better distance teaching is not optional, but mandatory.

Our team of successful writers and authors has tried to reduce this.

Divide and to bring this Self Instructional Material as the best teaching and communication tool. Instructional activities are varied in order to assess the different facets of the domains of learning.

Distance education teaching repertoire involves extensive use of self- instructional materials, be they print or otherwise. These materials are designed to achieve certain pre-determined learning outcomes, namely goals and objectives that are contained in an instructional plan. Since the teaching process is affected over a distance, there is need to ensure that students actively participate in their learning by performing specific tasks that help them to understand the relevant concepts. Therefore, a set of exercises is built into the teaching repertoire in order to link what students and tutors do in the framework of the course outline. These could be in the form of students' assignments, a research project or a science practical exercise. Examples of instructional activities in distance education are too numerous to list. Instructional activities, when used in this context, help to motivate students, guide and measure students' performance (continuous assessment)

<u>PREFACE</u>

We have put in lots of hard work to make this book as user-friendly as possible, but we have not sacrificed quality. Experts were involved in preparing the materials. However, concepts are explained in easy language for you. We have included many tables and examples for easy understanding.

We sincerely hope this book will help you in every way you expect.

All the best for your studies from our team!

VIDEO PRODUCTION BASICS

Block 1: CONCEPT OF GRAPHICS FORMATS AND COLOUR MODEL

Unit 1   HANDLING VIDEO CAMERA AND SHOT TYPES

Learning Objectives:

- To make the students aware about camera and its basic terminologies
- To help the students how to do planning for shooting
- To make the students aware of using camera functions
- To make them understand and work on shooting technique.'
- To make them understand the basic camera moves

UNIT 2   SHOOT TYPES

Learning Objectives:

- Here you will understand what are camera shots
- What are various types of camera shots
- What are these camera shots used for
- How and when you require to use a specific camera shot.
- You will learn important definitions

Block 2 VIDEO CAMERA OPTIONS AND OPERATIONS

UNIT 1   VIDEO CAMERA OPTIONS

Learning Objectives:

- You will understand the importance of Camera focus.
- How iris play an important role in camera.
- You will learn how to do color balance
- You will know what is viewfinder.
- How shutter plays an important role in video shoot.

UNIT 2   VIDEO CAMERA TRIPOIDS

Learning Objectives:

- Various types of Tripods
- How to use tripods
- How to work and choose tripods
- Techniques to set up and the how to use and what are monopods and bipods
- You will learn monopods and bipods

UNIT 3 CCU (CAMERA CONTROL UNIT) OPERATIONS

Learning Objectives:

- How to work with CCU operations
- You will lean the usage vision mixer/switcher
- Then you shall study Videotape operations
- You will learn how to prepare a tape for recording
- What are master tape
- Then finally you will understand slow-motion replays

Block 3 CROMA, SHOOTING AND STREAMING VIDEO TECHNIQUES

UNIT 1 VIDEO CHROMA GREEN SCREEN

Learning Objectives:

- You can plan your studio settings.
- What kind of green screen to be used.
- And then how to lighten the green screen.
- And finally incorporating green screen footage into your videos using software and the followed by tips
- You will learn definitions

UNIT 2 SHOOTING INTERVIEWS

Learning Objective

- Learn the interview structure.
- Know how to do framing.
- Develop compositions.
- Know different types of interviews
- You will learn various definitions

UNIT3 STREAMING VIDEOS

Learning Objective

- Understand what is streaming
- What are streaming servers
- To know what is HTTP streaming
- Understanding various streaming video files and formats
- You will learn certain important definitions

Block 4 VIDEO EDITING BASICSAND VIDEO FORMATS

UNIT 1 INTRODUCTION TO VIDEO EDITING

Learning Objective

- Know what is Video Editing
- Know Various editing methods
- Understand various terminologies
- Understand linear editing and non-linear editing
- Learn how to use editing software
- Work with capturing, editing and generating final output

UNIT 2 VIDEO FORMATS

Learning Objective

- 8mm Video8 Hi8
- Digital8 Beta
- Betamax Betacam Betacam SP Betamax SX
- Digital Betacam DV MiniDV
- DVCAM
- DVCPRO

UNIT 1

HANDLING VIDEO CAMERA

❖ **Learning Objectives:**

After reading this unit, you will learn:

• To make the students aware about camera and its basic terminologies

• To help the students how to do planning for shooting

• To make the students aware of using camera functions

• To make them understand and work on shooting technique.

• To make them understand the basic camera moves

: Structure :

1.1 **Introduction**

1.2 **Terminology**

1.3 **Planning**

1.4 **Camera Functions**

1.5 **Shutter**

1.6 **Framing**

1.7 **Basic Camera Moves**

1.8 **Shooting Technique**

1.9 **Definitions**

1.10 **Summary**

1.11 **Self Assessment Test**

1.12 **Further Reading**

1.1 Introduction

This unit is will give you knowledge and skills as how to improve every aspect of your camera work. It begins at the absolute novice level and work through to professional operations. It is also applicable to any type

of camera work.- Now whether you have an inclination to be an amateur movie maker or a career camera operator the same basic principles and techniques apply to all.

Access to a video camera

You definitely need to know how to turn it on, load a tape, press record, etc. Ofcourse if you are facing problems with these basic functions, you can definitely refer to your camera manual or supplier. Working with camera requires a lot of skill to learn and practice.

It doesn't really matter what sort of camera you use, but one with a good range of manual functions is preferable.

Although the only requirement is to get a really good camera, if you're serious you might want to consider buying a few extra toys.

1.2 Terminology

If you're serious, you need to know some jargon and its unavoidable. Fortunately, it's not too complicated. This section includes some essential terms to get you started.

Shot: All video is made up of shots. A shot is considered when you press record to whenyou stop recording, that duration is known as a shot. Just as an album is made up of individual photos , individual shots when put together they make a video.

Framing Composition: The frame is the picture you see in the viewfinder (or on amonitor). Composition refers to how the elements are spreaded in a picture or the division of space what you also call as the layout what the subject is, where it is in the frame, which way it's facing/looking, the background, the foreground, lighting, etc.

When you frame a shot, you adjust the camera position and zoom lens until your shot has the desired composition.

There is a general set of rules in the video industry which describe how to frame different types of camera shots

| VWS   (Very Wide Shot) | WS (Wide Shot) | CU (Close Up) |

Shows the subject's Shows the whole subject. Shows a feature of the subject environment.

TransitionShots are linked (edited) in a sequence to tell a larger story. The way in which any two shots are joined together is called the transition.

Usually this is a simple cut, in which one shot changes instantly to the next. You can have complex transitions that include mixing, wipes and digital effects. A moving shot (e.g. pan) can also be thought of as a transition from one shot to a new one.

before and after it as transition is very important in camera work. The key is not so much how technically the transition is achieved, but as to how the composition of each shot fits together.

Here are few more important terms. They will be explained in greater detail later:

Side-to-side camera movement.

Up-and-down camera movement.

In-and-out camera movement (i.e. closer and more distant).

The opening which lets light into the camera. A wider iris means more light and a brighter picture.

Adjusting the colours until they look natural and consistent.

Analogous to the shutter in a still camera.

Sound which is recorded to go with the pictures.

1.3 Planning

This is the most important step, and perhaps the most difficult to master. It should be where most of your energy is directed.

Camera work is only one skill in a larger process the goal of which is usually to produce a completed video, TV program, or presentation of some kind. To be good at camera work, you must have a clear picture of the whole process, and some idea of what the finished product should look sound like.

If there's one thing that separates the amateurs from the pros, it's that amateurs point and shoot, whereas pros plan and shoot. Obviously there are times when you don't have time to prepare before having to record sometimes the action begins unexpectedly, and you just have to go for it. In these cases, as far as possible, you plan as you go. It can't be stressed enough planning is everything.

For general camera work, you can divide your plan into two parts: The Shoot Plan and the Shot Plan.

Shoot Plan

In this case, the word shoot refers to a shooting session. If you think of everything you record as being part of a shoot, and have a plan for every shoot, then you're well on the way to having better organized footage.

First of all, be clear about the purpose of every shoot. Now whatever you are planning it should lead to a larger plan. Exactly what this is will depend on many factors.

If you're making a feature film, then the long-term plan is to gather all the shots required by the script/storyboard.

If you're making home videos, the long-term plan might be to create a historical archive for future generations

If you're making a one-off project, you still have to bear in mind the long-term implications for the shoot.

Planning means adopting an attitude in which you take control. When you get out your video camera, instead of thinking This will look good on videoand starting to shoot whatever happens. You shoot (and if necessary, direct) the action to achieve your goal.

Plan the approximate length of the shootHow much footage do you need to end up with, and how long will it take you to get it?

You need to have a checklist of equipment, which could includecamera; tripod; tapes; batteries/power supply; microphones and audio equipment; lights and stands; pens, log sheets and other paper work.

Planning to Edit

This is critical. If you think that this doesn't applies to you, then you're wrong. Everything you capture must be shot with editing in mind. There are two fundamental ways to editPost-production and in-camera.

Post-production (or just post) editing means taking the shots you've recorded and re-assembling them later using editing equipment. This is the method how professionals work it gives you much greater flexibility when you're shooting and much better finished results. To do simple post editing, all you need is your camera, a VCR, and a few connecting leads. What it means for your shooting plan is that you can collect your shots in any order, and you can get as many shots as you like. At the editing stage, you discard unwanted shots and assemble the good ones however you like. This can be a time-taking task, but it's usually worth the effort.

In-Camera editing simply means that what you shoot is what you get there is no post-production. The point here is that you're still editing. You still must decide which shot goes where, and which shots you don't

need at all. The only difference is that you are making these edit decisions as you shoot, rather than in post. This isn't easy, and it isn't possible to get it right all of the time. It requires planning, foresight, and experience.

Note: There is one other situation which should be mentionedthe live multi-camera shoot. This is where a number of cameras are linked to a central vision mixer, and a director cuts between cameras (for example, a live sports presentation). In this case, you can think of the editing as being done in real time as the shoot happens.

You might be using any of the methods of editing, there are fundamental rules to follow. In order to understand these rules you require some knowledge of shot types and framing, you'll leave them for now and come back to them later.

Shot Plan

Once you have a plan for your shooting session, you are then ready to begin planning individual shots.

First of all, have a reason for every shot. Ask yourselfWhat am I trying to achieve with this shot? Is this shot even necessary? Have I already got a shot that's essentially the same as this one? Is my audience going to care about this subject?

Once you're happy that you have a good reason to get the shot, think about the best way to get it. Consider different angles, framing, etc. You need to practice a lot if you want to have art of good composition.

Now you need to ask yourself precisely that what information you wish to convey to your audience through this shot, and make sure you capture it in a way that they will understand.

Take the time to get each shot right, especially if it's an important one. If necessary (and if you're editing in post), get a few different versions of the shot so you can choose the best one later.

Also, for post editing, leave at least 5 seconds of pictures at the beginning and end of each shot. This is required by editing equipment, and also acts as a safety buffer.

1.4 Camera Functions

Most domestic camcorders can do most of the operations automatically. All you have to do is turn them on, point, and press record. In most situations this is fine, but automatic functions have some serious limitations. If you want to improve your camera work, you must learn to take control of your camera. This means using manual functions. In reality professional cameras have very little automatic functions, and professional camera operators would never normally use auto-focus or auto-iris.

This is where most beginners ask Why not? My auto-focus works fine, and my pictures seem to look okay.

There are two answers

Though auto-functions normally perform quite well enough but there will be some situations they can't cope with (e.g. bad lighting conditions). In such situations you might be faced with unusable footage unless you can take manual control. More commonly, your shots will be useable but poor quality (e.g. going in and out of focus).

Your camera can't know what you want. To get the best results or obtain a particular effect it is often necessary to over-ride auto-functions and go manual.

As you learn more about camera work you will begin to appreciate the better results gained through manual functions.

The most common camera operations are briefly explained below. Starting at the beginning, learn and practice one at a time, leaving the others on auto-function.

Zoom

This is the function which moves your point of view closer to, or further away from, the subject. The effect is similar to moving the camera closer or further away.

Note that the further you zoom in, the more difficult it is to keep the picture steady. In some cases you can move the camera closer to the subject and then zoom out so you have basically the same framing. For long zooms you should use a tripod.

Zooming is the function everyone loves. It's easy and you can do lots with it, which is why it's so over-used. The most common advice we give on using the zoom is use it less. It works well in moderation but too much zooming is tiring for the audience.

Focus

Auto-focus is strictly for amateurs. Unlike still photography, there is no way auto-focus can meet the needs of a serious video camera operator. Many people find manual focus difficult, but if you want to be any good at all, good focus control is essential.

Focus Ring

Professional cameras usually have a manual focus ring at the front of the lens housing.

Turn the ring clockwise in order to have closer focus, anti-clockwise for large distant focus.

Consumer cameras have different types of focus mechanisms usually a small dial.

To obtain the best focus, zoom in as close as you can on the subject you wish to focus on, adjust the ring until the focus is sharp, then zoom out to the required framing.

Iris

This is an adjustable opening (aperture), which controls the amount of light coming through the lens (i.e. the exposure). As you open the iris, more light comes in and the picture appears brighter.

Iris Ring

Professional cameras have an iris ring on the lens housing, which you turn clockwise to close and anticlockwise to open. Consumer-level cameras usually use either a dial or a set of buttons.

The rule of thumb for iris control isSet your exposure for the subject. Other parts of the picture can be too bright or darks, as long as the subject is easy to see.

White Balance

White balance means colour balance. It's a function which tells the cam-

era what each colour should look like, by giving it a true white reference. If the camera knows what white looks like, then it will know what all other colours look like.

This function is normally an automatic operation by consumer-level cameras without the operator even being aware of it's existence. It actually works very well in most situations, but there will be some conditions that the auto-white won't like. In these situations the colours will seem wrong or unnatural.

To perform a white balance, point the camera at something matt (non-reflective) white in the same light as the subject, and frame it so that most or all of the picture is white. Set your focus and exposure, then press the white balancebutton (or throw the switch). There should be some indicator in the viewfinder which tells you when the white balance has completed. If it doesn't work, try adjusting the iris, changing filters, or finding something else white to balance on.

You should do white balances regularly, especially when lighting conditions change

(e.g. moving between indoors and outdoors).

Audio

Almost all consumer-level cameras come with built-in microphones, usually hi-fi stereo.

These work fine, and are all you need for most general work.

Getting better results with audio is actually quite difficult and is a whole subject in itself. We won't go into it much here you just need to be aware

that audio is very important and shouldn't be overlooked.

If you're keen, try plugging an external microphone into the mic inputsocket of your camera (if it has one). There are two reasons why you might want to do this

You may have a mic which is more suited to the type of work you are doing than the camera's built-in mic. Often, the better mic will simply be mounted on top of the camera.

You might need to have the mic in a different position to the camera. For example, when covering a speech, the camera could be at the back of the room with a long audio lead running to the stage, where you have a mic mounted on the pedestal.

The level at which your audio is recorded is important. Most cameras have an auto-gain control, which adjusts the audio level automatically. Consumer-level cameras are usually set up like this, and it works well in most situations. If you have a manual audio level control, it's a good idea to learn how to use it (more on this later).

If possible, try to keep the background (ambient) noise level more or less consistent. This adds smoothness to the flow of the production. Of course, some shots will require sudden changes in ambient audio for effect.

Listen to what people are saying and build it into the video. Try not to start and finish shots while someone is talking there's nothing worse than a video full of half-sentences.

Be very wary of background music while shooting this can result is music that jumps every time the shot changes, like listening to a badly scratched record. If you can, turn the music right down or off.

One more thing... be careful of wind noise. Even the slightest breeze can ruin your audio. Many cameras have a low-cut filter, sometimes referred to as a wind-noise filteror something similar. These do help, but a better solution is to block the wind. You can use a purpose-designed wind sock or make one on your own.

1.5 Shutter

When you are starting at the novice stage you really do not require to use shutter but it deserves a quick mention. It has may varied applications and most are for sports or fast-action footage. The best advantage is that the individual frames appear sharper (critical for slow-motion replays). The main disadvantage is that motion appears more jerky.

The shutter can also be used to help control exposure.

For this you really need to know the effective use of shutter.

Effects

Many consumer cameras you get come with a selection of built-in digital effects, such as digital still, mix, strobe, etc. These can be very cool, or they can be very clumsy and tacky. They require dedicated experimentation to get right. In a video moderation is the most important and use them if you have a good reason to, but don't overdo it.
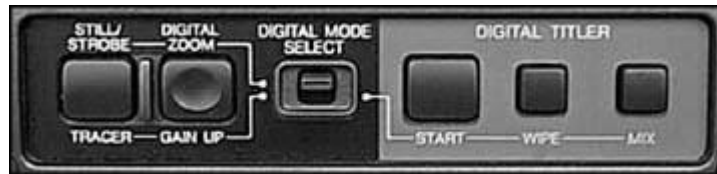
You need to be aware that almost every effect you can create with a camera can be done better with editing software. If at all possible, shoot your footage dry(without effects) and add effects later.

1.6 Framing

Shots are all about composition. You need to compose an image instead of pointing the camera at the subject. As said earlier framing is the process of creating composition.

Notes:

Framing technique is very subjective. What one person finds dramatic, another may find pointless. Now lets study some of the few accepted industry guidelines which you should use as rules of thumb.

The rules of framing video images is same as those for still photography.

Basic shot types

In the video industry there is a general convention as how to assigns names to the most common types of shots. The names and their exact meanings can vary but the following examples give a rough guide to the standard descriptions. The point is not about knowing the names of the shot types thought it is very useful as much as understanding their purposes.

Basic shots are addressed to in terms relative to the subject. For example, a close uphas to be a close up of something. A close up of a person can also be described as a wide shot of a face, or a very wide shot of a nose.

In the EWS the view is very far from the subject that the girl isn't even visible. The point of this shot is to show the surroundings of the subject the girl. The EWS is normally used as an establishing shot the first shot of a new scene, designed to show the audience where the action is taking place.

The VWS is much closer to the subject. The girl is just visible here but the stress is still on placing her in her environment. This also works as an establishing shot.

In the WS, the subject takes up the full frame. In this specific example the girl's feet are

almost at the bottom of frame, and her head is almost at the top. Of course the subject the girl doesn't take up the whole width and height of the frame, since this is as close as we can get without losing any part of her. The small bit ofroom above and below the subject can be thought of as safety room you don't want to be cutting the top of the head off. Also the shot would look uncomfortable if her feet and head were exactly at the top and bottom of frame.

The MS in the above picture shows some part of the subject in more detail while still showing enough for the audience to feel as if they were looking at the whole subject. Actually this is what you would do if you were having a casual conversation. You would not be paying any attention to their lower body so that part of the picture is unnecessary.

Half way between a Mid Shot and a Close Up. This shot shows the face more clearly and without getting uncomfortably close.

In the CU a certain expression or part of the subject takes up the whole frame. A close up of a person usually is the close up of their face. This shows emotions and adds sensitivity and a personal feeling.

The ECU ge ts right in and shows e xtreme detail. For people, the ECU is used to c onvey emotion as the clos e CU.


A cutaway is a shot that is normally other than the current action. It could be a different subject (e.g. this cat), a CU of a different pa rt of the sub ject (e.g. a CU of the s ubject's hand s), or just about anything else. The CA is used as a buffer between shots (to help the editing process), or to add interest/in formation.

Some R ules of Framing

Look for horizontal and vertical lin es in the frame (e.g. th e horizon, poles, etc). Make sure the horizontals are level, a nd the vertic als are straight up and down (unless of course you're purposely going for a tilted effect).

The rule of thirds. This rule divide s the frame into nine sections, as in the first frame below. Points (or lines) of int erest should occur at 1/3 or 2/3 o f the way up (or across) the frame, rather than in the centre.
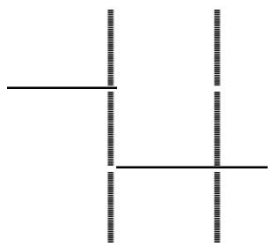
Headroom, looking roo m, and leading room. Th ese terms re fer to the a mount of ro om in the fram e which is strategically left empt y. The shot of the baby crawling h as some leading

room for him to crawl into, and the shot of his mother has some looking room for her to look into. Without this empty space, the framing will look uncomfortable. Headroom is the amount of space between the top of the subject's head and the top of the frame. A common mistake in amateur video is to have far too much headroom, which doesn't look good and wastes frame space. In any person shot tighter than a MS, there should be very little headroom.

Everything in your frame is important, not just the subject. What does the background look like? What's the lighting like? Is there anything in the frame which is going to be distracting, or disrupt the continuity of the video?Pay attention to the edges of your frame. Avoid having half objects in frame, especially people (showing half of someone's face is very unflattering). Also try not to cut people of at the joints the bottom of the frame can cut across a person's stomach, but not their knees. It just doesn't look right.

Once you're comfortable with the do's and don'ts, you can become more creative. Think about the best way to convey the meaning of the shot. If it's a baby crawling, get down on the floor and see it from a baby's point-of-view (POV). If it's a football game, maybe you need to get up high to see all the action.

Look for interesting and unusual shots. Most of your shots will probably be quite straight; that is, normal shots from approximate adult eye-level. Try mixing in a few variations. Different angles and different camera positions can make all the difference. For example; a shot can become much more dramatic if shot from a low point. On the other hand, a new and interesting perspective can be obtained by looking straight down on the scene. Be aware that looking up at a person can make them appear

more imposing, whereas looking down at a person can diminish them.

Watch TV and movies, and notice the shots which stand out. There's a reason why they stand out it's all about camera positioning and frame composition. Experiment all the time.

1.7 Basic Camera Moves

As far as camera framing is taken in account there are standard descriptions for the fundamental or basic camera moves. These are the main ones:

Pan: The framing moves left right and there are no vertical movement.

Tilt: The framing moves up down and there are no horizontal movement.

Zoom: In zoom in and zoom out you will see camera moving closer to or further away from the subject.

When a shot zooms in closer to the subject, it is said to be getting tighter. As the shot zooms out, it is getting looser.

Follow: This is any type of shot when you are holding the camera (or have it mounted on your shoulder), and you follow the action whilst walking. Hard to keep steady, but very effective when done well.

Note: Most of the camera moves are a combination of the above basic moves. E.g. when you're zooming in, unless your subject is in the exact centre of frame, you'll have to pan and/or tilt at the same time to end up where you want to be.

1.8 Shooting Techniques

Position yourself and your camera.

If you're using a tripod, make sure it's stable and level (unless you have a reason for it to be tilted). If the tripod has a spirit level, check it. If you're going to be panning and/or tilting, make sure that you'll be comfortably positioned throughout the whole move. You don't want to start a pan, then realise you can't reach around far enough to get the end of it. If it's going to be difficult, you're better off finding the position which is

most comfortable at the end of the move, so that you start in the more awkward position and become more comfortable as you complete the move.

If the tripod head doesn't have a bowl (this includes most cheaper tripods), it's very important to check that the framing still looks level as you pan - it may be okay in one direction but become horribly slanted as you pan left and right.-

If you're not using a tripod, stabilize yourself and your camera as best you can. Keep your arms and elbows close to your body (you can use your arms as bracesagainst your torso).

Breathe steadily. For static shots, place your feet at shoulder width (if you're standing), or try bracing yourself against some solid object (furniture, walls, or anything).

Frame your shot.

Then do a quick mental check white balance; focus; iris; framing (vertical and horizontal lines, background, etc.).

Think about your audio.

Audio is just as important as vision, so don't forget about it.

Press record. Once you are recording you need to be sure that recording has started. There's no worst a situation than realizing that you were accidentally recording all the time you were setting the shot up, then stopped recording when you thought you were starting.

Many cameras have a tape roll-in time, which means that there is a delay between the time you press record and when the camera begins recording. Do some tests and find out what your camera's roll-in time is, so you can then compensate for it.

Keep checking the status displays in the viewfinder. Learn what all the indicators mean they can give you valuable information.

Use both eyes. A valuable skill is the ability to use one eye to look through

the viewfinder, and the other eye to watch your surroundings. It takes a while to get used to it, but it means that you can walk around while shooting without tripping over, as well as keeping an eye out for where the action is happening. It's also easier on your eyes during long shoots.

Learn to walk backwards. Have someone place their hand in the middle of your back and guide you. These shots can look great.

You will see quite a lot of television presenters walking and talking, as the camera operator walks backwards shooting them.

Keep thinking Framing...Audio...As long as you are recording pay attention to about how the frame composition is changing, and what's happening to the sound.

Press record stop before moving. Just as in still photography, you should wait until one second after you've finished recording (or taken the photo) before you move. Too many home videos end every shot with a jerky movement as the operator hits the stop button.

Be diplomatic while shooting. Think about the people you're shooting. You should also remember that people are most of the times uncomfortable about being filmed, so you need to be discreet and unobtrusive (for example, you might want to position yourself some distance from the subjects and zoom in on them, rather than being in their faces).

Many people see the red recording light on the camera keeping then intimated and freeze whenever they see it. Try covering the light with a piece of tape to alleviate this problem.

Learn to judge when it's worth making a nuisance of yourself for the sake of the shot, and when it's not.

Use the date/time stamp feature sparingly. It is important to have to have the time and date displayed throughout your video, and it looks cheap. If you must have it there, bring it up for a few seconds, then get rid of it.

Modern digital cameras have the ability to show or hide this display at any time after recording.

Be prepared to experiment. Think about some of the things you'd like to try doing, then try them at a time that doesn't matter (i.e. don't experiment while shooting a wedding). Most new techniques need practice and experimenting to achieve success and good camera work requires experience.

1.9 Definitions

CG — Character Generator operator, person who locates titles and text and has it ready to keyinto the program along with any transitions or movement.

Composer — 2-D paint feature allowing you to create multiple layers of work and maketransitions including fancy effects from one layer or scene to another. **Event** — A single title or transition from one title to another.

Marker — A pointer on the timeline to show what part of it is playing. As the show plays, themarker moves. It can be quickly positioned to play a short segment of a show, perhaps previewing a simple transition

Timeline — Like a ruler stretched across the computer screen, the non-linear editor's timeline

lists every moment in the TV program; indicating which scenes go where, what graphics and titles appear, what audio will be heard, and what transitions occur between scenes. **Transitions** — Ways of changing from one title or graphic to another.

A/B/C roll — An edit employing 3 video players where the image comes from player A, thenthrough some special effect transitions to B, and then to C.

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Director — Person in charge of shooting and editing a show, the actual builderof the show. **Remote survey** — Visit to a distant shooting location to determine production needs, strategy,and resources.

Rocker switch — A two-way switch that if pressed one way zooms a lens in, and if pressed theother way zooms it out.

Standard lens — Inexpensive, nonzooming lens which gives a normal(not close-up, not wideangle) field of view.

Zoom lens — A lens which can zoom inor zoom outto give a closer-looking picture or a widerangle of view.

Automatic focus — Electronic system in some cameras that senses whether the picture is sharpand electrically focuses the lens to correct blurry pictures.

Back focus — The distance between the lens and the pickup chip; To remain in focus whilezooming, the lens' back focus must be adjusted precisely. Also, the act of adjusting a lens' back focus.

Burn in — A spot, streak, or blemish on the TV screen which remains even when the camera isfocused on a new scene. TV screen burn-ins are usually caused by displaying a contrasty object for too long. Aiming the camera at a very bright object like the sun can burn-in the CCD chip.

Cable drive — Cranks or knobs, mounted on or near the tripod handles, are connected to thelens via cables and remotely control the lens's zoom and focus.

Center focus — Mood-creating lens effect where the outside edges of a picture are blurry andthe center is sharp.

Close-up lens attachment — A lens element that screws onto your existing lens, allowing it tofocus closer than normal.

Convergence — On a three-tube video projector, focusing and aiming the three coloredpictures so that they overlap, producing all colors accurately, without ridges along edges of objects.

Copy stand — A device for holding a camera so it can easily be focused on a graphic. **Depth-of-field** — The span of distance from a lens which appears in focus at one time. Widedepth-of-field means far and near objects in the picture appear sharp.

Electronic autofocus — Circuit that looksat a camera's picture to determine if it is sharp andfocuses the lens appropriately

Fixed focus — Lens which cannot change focus from near to far.

Flood — Broadly focused light that covers a large area evenly.

Focal length — The distance between the optical center of a lens and the surface where theimage is focused when the lens is focused on infinity. The apparent magnification or angle of view of a lens.

Focus shift — Also called pull focus; the act of changing focus to sharpen objects at differentdistances from the camera to center attention on them.

Follow focus — Continually adjusting a lens's focus to maintain a sharp picture of the subjectmoving closer to or away from the camera.

Lens format — Describes the size of the lens's focused image. It should match the size of thecamera's pickup chip.

Macro lens — A lens that can be focused on a very close (sometimes touching) object **Parabolic** — Shape of a reflector dish that focuses incoming signals on a tiny point (making thesignals stronger there).

White balance — The mix of primary colors which results in pure white light. On colorcameras, the controls which strengthen the blue or red colors so that none overpowers the other, allowing white objects to appear pure white, not tinted. By pressing one button and holding a white card in front of the camera, this will automatically adjust the camera's circuits to make pure white.

Focal plane shutter — A pair of curtains inside a photographic camera. One opens to let lightreach the film, followed by the other one closing to complete the exposure.

Leaf shutter — A flap inside a photographic camera that moves aside for a moment to let lightenter and then snaps closed.

Shutter bar — Occurs when a TV camera records a movie from a projector-a soft dark bandruns through the TV picture when the projector doesn't synchronize its shutter with the TV camera's picture-making frequency.

Rule of thirds — The center of attention should not be dead center on the screen but one thirdof the way down from the top, or up from the bottom, or in from the edge of the screen. **Megapixel** —When we use the term megapixel, we are referring to the maximum resolution atwhich a digital camera can take photos in millions of pixels. This means that a camera with a range of 4 megapixels can take photos which each contain a maximum of 4 million pixels.

But what does this mean to the consumer? One wordquality. A higher megapixel count means better quality photos, and considering the price of digital camera getting lower all the time; you should try to stick with a digital camera that has a 3 megapixel range or above, especially if you intend of making prints of your photos.

Focal Length —Focal length is a term overlooked far too often in amateur photography, andrefers to how much the lens of a camera can magnify a shot. Focal lengths are generally split into two categories, these being wide-angle and telephoto, which are better for spacious and narrow fields of view respectively.

Due to the ease of manufacturing telephoto lenses, digital camera manufacturers seem to provide wide-angle lenses in a lot less cameras, even though these lenses are better suited towards the type of photos that most people commonly take, including groups of friends and wide landscapes. To sum up, a wide-angle focal length is the better choice in most cases, with the 20mm and 35mm varieties catering to most people's needs.

Digital Zoom —Unlike the focal length, digital zoom is a term that seems to be given a lotmore attention than it deserves. Unlike optical zoom, which uses the physical lenses inside the camera to enlarge a scene, digital zoom electronically enlarges the pixels in the center area of a photo, meaning that any time you use the digital zoom function on your camera you are actually sacrificing the quality of your photos. It is a good idea to disable the digital zoom function all together to stop this from happening.

ISO —The term ISO stands for the International Standards Organization, but what does thishave to do with your digital camera? The organization sets standards for photography, and the **ISO** range of a camera refers to how sensitive the camera is to light.

For instance, a low ISO number (10or under) is not very sensitive to light, and is best for shots in good lighting conditions. A higher ISO range means that the camera will be suitable for photography in darker conditions, so it is best to look for a camera that has an adjustable range; **ISO** 10to 40should be adequate for most people's needs.

Shutter Lag —Shutter lag refers to the time between pressing the button to take a photograph and the time when the picture actually gets taken. This may not seem a very important factor when buying a camera, but think of it this wayif you have to wait a second or longer for a photo to be taken, like with many older and inexpensive digital cameras, then chances are that you won't end up with the photo you desired. Many camera manufacturers do not list the shutter lag time for their cameras, so the best way to find this out is by testing a camera before you buy.

1.10 Summary

Basic Terminologies will give you can exposure of how to operate a camera. Planning involves 2 major perspective, the shoot plan and the shot plan.

Shoot

Plan involves attitude, camera; tripod; tapes; batteries/power supply; microphones and audio equipment; lights and stands; pens, log sheets and other paper work.

Planning to Edit involves everything you capture must be shot with editing in mind. There are two basic ways to editPost-production and in-camera. Shot Plan starts once you have a plan for your shooting session, you're ready to begin planning individual shots.

Camera Functions are a must if you want to improve your camera work, you must learn to take control of your camera. Zoom is the function which moves your point of view closer to, or further away from, the subject. Focus can best be achieved, if you zoom in as close as you can on the subject you wish to focus on and adjust the ring until the focus is sharp and then again zoom out to the required framing

Iris is an adjustable opening (aperture), which controls the amount of light coming through the lens (i.e. the exposure). White Balance is the color balance.

Audio is very important and shouldn't be overlooked. You may have a mic which is more suited to the type of work you are doing than the camera's built-in mic. Often, the better mic will simply be mounted on top of the camera. You might need to have the mic in a different position to the camera. For example, when covering a speech, the camera could be at the back of the room with a long audio lead running to the stage, where you have a mic mounted on the pedestal.

Shutter can also be used to help control exposure. When you are starting at the novice stage you really do not require to use shutter but it deserves a quick mention. It has may varied applications and most are for sports or fast-action footage. The best advantage is that the individual frames appear sharper (critical for slow-motion replays). The main disadvantage is that motion appears more jerky.

Effects can be very cool in adding a streak to your video. Many consumer cameras you get come with a selection of built-in digital effects, such as digital still, mix, strobe, etc. These can be very cool, or they can be very clumsy and tacky. They require dedicated experimentation to get right. In a video moderation is the most important and use them if you have a good reason to, but don't overdo it. You need to be aware that almost every effect you can create with a camera can be done better with editing software. If at all possible, shoot your footage dry(without effects) and add effects later.

Framing is the process of creating composition. Framing technique is very subjective. What one person finds dramatic, another may find pointless. The rules of framing video images is same as those for still photography. You need to understand the basic shot types.

Basic shot types are referred to in terms relative to the subject, they are EWS, VWS, WS, MS, MCU, CU, ECU, CA. MCU (Medium Close Up) shows some part of the subject in more detail. CU (Close Up) shows a certain feature or part of the subject takes up the whole frame. ECU (Extreme Close Up) is Half way between a MS and a CU. CA (Cutaway) is a shot that's usually of something other than the current action. Some Rules of Framing have to be followed to get best results, i.e. look for H and V lines in the frame, use rule of thirds, headroom, looking room and leading room provide space in the frame. Pay focus to background, continuity, edges of the frame, avoid half objects, dont cut people,

1.11 Self Assessment Test

1   Write a detailed note on framing

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2   Write a detailed note on Composition.

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3   Write a short note on Rule of Thirds

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4   Write a short note on various types of shots and explain them with examples?

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5   Write a short note on Iris, shutter, focus

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6   Write a short note on Shooting techniques

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7   Write a short note on what all you have to keep in mind for the
     audio in the shoots.

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1.12 Further Reading

- Video Production Handbook, Second Edition, Gerald Millerson C.Eng MIEE MSMPTEMay 2001

- The Film Editing Room Handbook How to Tame the Chaos of the Editing Room, 4th Edition, Norman Hollyn

- Video Production Handbook, 4THEdition, Gerald Millerson C.Eng MIEE MSMPTE, Nov 2007

- The Videomaker Guide to Video Production, Fourth Edition, Videomaker and John Burkhart, Nov 2007

- The Shut Up and Shoot Documentary Guide A Down Dirty DV Production, Anthony Q. Artis, Sep 2007

- Film and Video Budgets, 4th Edition, Kindle Edition, Jan 2006

Assignment

o Do Research and find out all the various kinds of cameras and bifurcate them as per their usage. Make a presentation on which camera is used for which kind of application

❖ **Learning Objectives:**

After reading this unit, you will learn:

- Here you will understand what are camera shots

- What are various types of camera shots

- What are these camera shots used for

- How and when you require to use a specific camera shot.

- You will learn important definitions

: Structure :

2.1 Introduction

In Video, Film television industry there is a specific convention that assigns names and guidelines to common types of shots, framing and

picture composition. The list that you now see below briefly describes you the most common shot types. You need to see that the exact terminology might vary between production environments but the basic principles are the same.

Various shots types are as follows:

EWS (Extreme Wide Shot)

VWS (Very Wide Shot)

Wide Shot (WS)

MS (Mid Shot)

MCU (Medium Close Up)

CU (Close Up)

ECU (Extreme Close Up)

CA (Cutaway)

Cut-In

Two-Shot

(OSS) Over-the-Shoulder Shot

Noddy Shot

Point-of-View Shot (POV)

Weather Shot

Lets study all the above shots and see then visually too.

2.2 Extreme Video Shot

When you want to show the surrounding or the environment of the subject or when you are starting your scene as an introduction or setting the scene you take the extreme wide shot, here the shot is very far from the subject that it isn't even visible.

The EWS is also known as an establishing shot- the first shot of a new scene and it is designed to show the audience where the action is taking place.

The EWS is also known as an extra long shot or extreme long show (XLS).

2.3 Very Wide Shot

When your shot is much closer to the subject even as compared to the extreme wide shot you call that shot the very wide shot. In this shot you will see that the subject will be just visible and yes the emphasis will be very much on placing the subject in the environment.

This is also used for or as an establishing shot such that the audience gets the entire setting and they can themselves orient.

The VWS give lot of space for action to take place and also used for multiple subjects to appear on screen.

2.4 Wide Shot

When the subject takes up the full frame its know as the wide shot. In the image below you will see that the girl's feet are almost at the bottom of frame and her head is almost at the top. Yes of course the subject will not take the entire size of the frame as then it would look clumsy and there would be no breathing space, so you need to leave a little space around the subject without losing emphasis on the wide shot of the subject. The small space of room above and below the subject can be taken as safety room and you need not cut the top of the head off as then it would look uncomfortable in the frame.

For most of the people wide shot have different interpretations and meanings or different things. So people will have varied interpretations than others. For majority of people the WS mean something much wider what you can call a wide shot

2.5 Mid Shot

In mid shot some parts of the subject are shown in more detail and still it gives an impression of the whole subject

2.6 Medium Close Up

Medium close up shot is half way between a Medium Shotand a Close Up

2.7 Close Up

Close up shot normally is used when you want to focus more on the subject like the face in order to show expressions or feeling.

2.8   Extreme Close Up

The ECU usually shows the extreme detail, and they are used to express emotions and facial expression quite powerfully and with lot of emphasis.

2.9   Cutaway

This cut away shot carries something that is other than the current action

Cut-In

Shows some part of the subject in detail

Two-Shot

Below as a comfortable shot of two people and it is framed in a similar manner as the mid shot.

(OSS) Over-the-Shoulder Shot

2.10 Over The Soulder Shot

In over the shoulder shot the shot looks from behind a person at the subject

Noddy Shot

This refers to a shot where an interviewer is listening and reacting to the subject. You can also use Noddies in drama and other situations.

2.11 Point Of View Shot

This shot will show you a view from the subject's perspective

Point-of-View Shot (POV)

Weather Shot

Here the subject is the weather sky, environment, clouds, etc and this you can use for other purposes

2.12 Definitions

High speed shutter — An electronic circuit in a video camera that allows the CCD chip toseefor a very brief amount of time during each 1/6second. Like in a film camera, the fast shutter speed reduces motion blur

Slow speed shutter — An electronic circuit in a video camera that allows the CCD chip toseefor a period longer than the usual 1/6second, making the camera more sensitive in low light **Vector line** — Imaginary line dividing the set (action area) in two; all camera angles must betaken from one side of this line to maintain unambiguous transitions from shot to shot.

Clip — A video and/or audio scene or shot, usually of raw footage. Non-linear editors willdigitize the clip so it may be trimmed and added to the timeline.

ClipLink — Sony DVCAM mechanism for marking in/out points of raw footage while it's inthe camera. Thumbnail images and time code numbers may then be quickly downloaded to the non-linear editor, possibly guiding the editor in digitizing only the goodshots.

Cutaway — The act of cutting away(taking a shot of something else) from the main scene for a moment to hide jump cuts. Also the name given to this backup shot, which is generally a long shot of a performer, a host, news reporters, or some other related scene.

Cutting on the action — Changing shots at the moment some action is taking place. **Defocus-focus** — A transition from one shot to another by defocusing the first shot, editing (orswitching cameras), and following with another defocused shot which then comes into focus. **Edit decision list or EDL** — A refined editing sheet listing each shot to be recorded, the exacttime code of edit-in and -out prints for each shot, any effects to be included, their duration, and other details. Often the EDL resides on a computer disk and is the script to drive the editing VCRs during the final edit.

Editing sheet — A plan showing which shots will be used to create the edited master. Usuallytime code numbers and edit-in and out points are included.

Establishing shot — An introductory shot showing viewers where the scene takes place.

Full page or feature film format — Script format with dialogue in the center of the page anddetailed description of action and shots also in the center.

In-camera editing — Recording scenes chronologically, one after another in the camcorderwith the intention that all the shots will be used; a final tape emerges from the camcorder. **Matched shots** — Similar-looking views of a subject from two cameras at the same time. **Oblique angle** — Camera angle that shows the front and a side, or maybe two sides of anobject. Oblique angle shots convey more dimensionality than face-on shots.

Outtake — A shot which for some reason (i.e., a flubbed line) you don't plan to use in the finalproduction.

Relection map — Flat surface with clouds, stripes, or a snapshotof the area, used to make fakereflections off silvery objects.

Return — Switch on some studio TV cameras that displays the final program image or someother video image (as opposed to the camera's own image) on the camera's viewfinder to help the camera operator position objects in the viewfinder. Useful for coordinating with other camera shots

Shot sheet — An index of all shots recorded on a tape. Includes time code numbers for eachshot plus a commentary on the quality of each take.

Storyboard — A script done in pictures, showing the sequence of shots that will make theshow. NLEs allow you to make a storyboard from the picons captured from tape.

Automatic iris — Camera circuit which senses the amount of light in a scene and opens orcloses the lens iris to adapt to it.

Filter factor — A number describing how much light a filter absorbs. A filter factor of 2requires you to open your iris 2 stops to compensate for it.

2.13 Summary

Extreme Wide Shot When you want to show the surrounding or the environment of the subject or when you are starting your scene as an introduction or setting the scene you take the extreme wide shot, here the shot is very far from the subject that it isn't even visible.

Very Wide Shot When your shot is much closer to the subject even as compared to the extreme wide shot you call that shot the very wide shot. In this shot you will see that the subject will be just visible and yes the emphasis will be very much on placing the subject in the environment.

Wide Shot When the subject takes up the full frame its know as the wide shot. In the image below you will see that the girl's feet are almost at the bottom of frame and her head is almost at the top. Yes of course the subject will not take the entire size of the frame as then it would look clumsy and there would be no breathing space, so you need to leave a little space around the subject without losing emphasis on the wide shot of the subject. The small space of room above and below the subject can be taken as safety room and you need not cut the top of the head off as then it would look uncomfortable in the frame.

Mid Shot In mid shot some parts of the subject are shown in more detail and still it gives an impression of the whole subject

Medium Close Up Medium close up shot is half way between a Medium Shotand a Close Up

Close Up Close up shot normally is used when you want to focus more on the subject like the face in order to show expressions or feeling.

Cutaway Cut away shot carries something that is other than the current action

Over-the-Shoulder Shot In over the shoulder shot the shot looks from behind a person at the subject. This refers to a shot where an interviewer is listening and reacting to the subject. You can also use Noddies in drama and other situations. Point-of-View Shot This shot will show you a view from the subject's perspective

Self Assessment Test

1   Write a detailed note on camera shots

2   Write a detailed note on examples of each of the camera shots

3   Write a short note on How will you use the studied camera shot in your shoot?

4   Write a short note on which camera shot is used for emotional scenes and bring out sentiments.

5   Write a short note on How can you used point of view shot in your shoot

6   Write a short note on Cut away shot

Further Reading

•   Video Production Handbook, Second Edition, Gerald Millerson C.Eng MIEE MSMPTEMay 2001

•   The Film Editing Room Handbook How to Tame the Chaos of the Editing Room, 4th Edition, Norman Hollyn

•   Video Production Handbook, 4THEdition, Gerald Millerson C.Eng MIEE MSMPTE, Nov 2007

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•   The Shut Up and Shoot Documentary Guide A Down Dirty DV Production, Anthony Q. Artis, Sep 2007

•   Film and Video Budgets, 4th Edition, Kindle Edition, Jan 2006

Assignment

o   Do Research and discuss that if you have to make a documentary or a short film, the as per the concept what are the various kinds of shots that you have to take, make a list and write down the summary in the form of story board.

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Dr. Babasaheb Ambedkar Open University

Block

2

VIDEO CAMERA OPTIONS AND OPERATIONS

UNIT 1 VIDEO CAMERA OPTIONS

UNIT 2 VIDEO CAMERA TRIPOIDS

UNIT 3 CCU (CAMERA CONTROL UNIT) OPERATIONS

Acknowledgment

Every attempt has been made to trace the copyright holders of material reproduced in this book. Should an infringement have occurred, we apologize for the same and will be pleased to make necessary correction/ amendment in future edition of this book.

The content is developed by taking reference of online and print publications that are mentioned in Bibliography. The content developed represents the breadth of research excellence in this multidisciplinary academic field. Some of the information, illustrations and examples are taken "as is" and as available in the references mentioned in Bibliography for academic purpose and better understanding by learner.'

ROLE OF SELF INSTRUCTIONAL MATERIAL IN DISTANCE LEARNING

The need to plan effective instruction is imperative for a successful distance teaching repertoire. This is due to the fact that the instructional designer, the tutor, the author (s) and the student are often separated by distance and may never meet in person. This is an increasingly common scenario in distance education instruction. As much as possible, teaching by distance should stimulate the student's intellectual involvement and contain all the necessary learning instructional activities that are capable of guiding the student through the course objectives. Therefore, the course / self-instructional material are completely equipped with everything that the syllabus prescribes.

To ensure effective instruction, a number of instructional design ideas are used and these help students to acquire knowledge, intellectual skills, motor skills and necessary attitudinal changes. In this respect, students' assessment and course evaluation are incorporated in the text.

The nature of instructional activities used in distance education self- instructional materials depends on the domain of learning that they reinforce in the text, that is, the cognitive, psychomotor and affective. These are further interpreted in the acquisition of knowledge, intellectual skills and motor skills. Students may be encouraged to gain, apply and communicate (orally or in writing) the knowledge acquired. Intellectual- skills objectives may be met by designing instructions that make use of students' prior knowledge and experiences in the discourse as the foundation on which newly acquired knowledge is built.

The provision of exercises in the form of assignments, projects and tutorial feedback is necessary. Instructional activities that teach motor skills need to be graphically demonstrated and the correct practices provided during tutorials. Instructional activities for inculcating change in attitude and behavior should create interest and demonstrate need and benefits gained by adopting the required change. Information on the adoption and procedures for practice of new attitudes may then be introduced.

Teaching and learning at a distance eliminates interactive communication cues, such as pauses, intonation and gestures, associated with the face-to-face method of teaching. This is particularly so with the exclusive use of print media. Instructional activities built into the instructional repertoire provide this missing interaction between the student and the teacher. Therefore, the use of instructional activities to affect better distance teaching is not optional, but mandatory.

Our team of successful writers and authors has tried to reduce this.

Divide and to bring this Self Instructional Material as the best teaching and communication tool. Instructional activities are varied in order to assess the different facets of the domains of learning.

Distance education teaching repertoire involves extensive use of self- instructional materials, be they print or otherwise. These materials are designed to achieve certain pre-determined learning outcomes, namely goals and objectives that are contained in an instructional plan. Since the teaching process is affected over a distance, there is need to ensure that students actively participate in their learning by performing specific tasks that help them to understand the relevant concepts. Therefore, a set of exercises is built into the teaching repertoire in order to link what students and tutors do in the framework of the course outline. These could be in the form of students' assignments, a research project or a science practical exercise. Examples of instructional activities in distance education are too numerous to list. Instructional activities, when used in this context, help to motivate students, guide and measure students' performance (continuous assessment)

PREFACE

We have put in lots of hard work to make this book as user-friendly as possible, but we have not sacrificed quality. Experts were involved in preparing the materials. However, concepts are explained in easy language for you. We have included many tables and examples for easy understanding.

We sincerely hope this book will help you in every way you expect.

All the best for your studies from our team!

VIDEO PRODUCTION BASICS

Block 1: CONCEPT OF GRAPHICS FORMATS AND COLOUR MODEL

Unit 1 HANDLING VIDEO CAMERA AND SHOT TYPES

Learning Objectives:

- To make the students aware about camera and its basic terminologies
- To help the students how to do planning for shooting
- To make the students aware of using camera functions
- To make them understand and work on shooting technique.'
- To make them understand the basic camera moves

UNIT2 SHOOT TYPES

Learning Objectives:

- Here you will understand what are camera shots
- What are various types of camera shots
- What are these camera shots used for
- How and when you require to use a specific camera shot.
- You will learn important definitions

Block 2 VIDEO CAMERA OPTIONS AND OPERATIONS

UNIT 1 VIDEO CAMERA OPTIONS

Learning Objectives:

- You will understand the importance of Camera focus.
- How iris play an important role in camera.
- You will learn how to do color balance
- You will know what is viewfinder.
- How shutter plays an important role in video shoot.

UNIT 2 VIDEO CAMERA TRIPOIDS

Learning Objectives:

- Various types of Tripods
- How to use tripods
- How to work and choose tripods
- Techniques to set up and the how to use and what are monopods and bipods
- You will learn monopods and bipods

UNIT 3 CCU (CAMERA CONTROL UNIT) OPERATIONS

Learning Objectives:

- How to work with CCU operations
- You will lean the usage vision mixer/switcher
- Then you shall study Videotape operations
- You will learn how to prepare a tape for recording
- What are master tape
- Then finally you will understand slow-motion replays

Block 3 CROMA, SHOOTING AND STREAMING VIDEO TECHNIQUES

UNIT 1 VIDEO CHROMA GREEN SCREEN

Learning Objectives:

- You can plan your studio settings.
- What kind of green screen to be used.
- And then how to lighten the green screen.
- And finally incorporating green screen footage into your videos using software and the followed by tips
- You will learn definitions

UNIT 2 SHOOTING INTERVIEWS

Learning Objective

- Learn the interview structure.
- Know how to do framing.
- Develop compositions.
- Know different types of interviews
- You will learn various definitions

UNIT 3 STREAMING VIDEOS

Learning Objective

- Understand what is streaming
- What are streaming servers
- To know what is HTTP streaming
- Understanding various streaming video files and formats
- You will learn certain important definitions

Block 4 VIDEO EDITING BASICS AND VIDEO FORMATS

UNIT 1 INTRODUCTION TO VIDEO EDITING

Learning Objective

- Know what is Video Editing
- Know Various editing methods
- Understand various terminologies
- Understand linear editing and non-linear editing
- Learn how to use editing software
- Work with capturing, editing and generating final output

UNIT 2 VIDEO FORMATS

Learning Objective

- 8mm Video8 Hi8
- Digital8 Beta
- Betamax Betacam Betacam SP Betamax SX
- Digital Betacam DV MiniDV
- DVCAM
- DVCPRO

<table>
<tr><td>UNIT
1</td><td>VIDEO CAMERA OPTIONS</td></tr>
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❖ **Learning Objectives:**

After reading this unit, you will learn:

• You will understand the importance of Camera focus.

• How iris play an important role in camera.

• You will learn how to do color balance

• You will know what is viewfinder.

• How shutter plays an important role in video shoot.

: Structure :

1.1 Introduction

1.2 Video Camera Focus

1.3 Video Camera Iris

1.4 Video Camera White Balance

1.5 Video Camera Viewfinder

1.6 Video Camera Shutter

1.7 Definitions

1.8 Summary

1.9 Self Assessment Test

1.10 Further Reading

1.1 Introduction

In this unit you shall learn important and fundamental video camera options that are very important at the time of video shoot. You shall learn the camera focus where you have back focus, depth of field and focus pulls. You will study some jargons used. You will learn how camera iris is used to correct exposure and how to solve backlight problems. You will learn what is color balance and how will you manually do white balance. Electronic viewfinders is one of the features in camera and you will learn how to set the brightness or what you call contrast, focus and sharpness. Then the most important feature in a camera is the shutter

speed that lets you shoot fast and motion photography. In short you will learn most of the fundamental and crucial points that you need to know in your camera in order to do wonders in video shoot or simply just a simple photograph.

1.2 Video Camera Focus

Focus

Back Focus

Depth of Field

Some Focus Jargon

Soft: Out of focus

Sharp: In focus

Depth of Field: The range of distances from the lens at which an acceptably sharp focuscan be obtained

Pull focus: Adjust the focus to a different point during a shot

How to Use the Manual Focus

First of all, locate the focus control. Professional cameras normally have a manual focus ring that is near the front of the lens housing. Consumer-level cameras normally have a small dial. You need to make sure that the camera is set to manual focus.

Zoom in as tight as you can on the subject you wish to focus on.

Adjust the focus ring until the picture is sharp. You need to turn the ring in clockwise direction if you want closer focus and turn it anti-clockwise if you are looking in for more distant focus.

Zoom out to the required framing the picture should stay nice and sharp.

If the picture loses focus when it is zoomed out you need to check the HYPERLINK http://www.mediacollege.com/video/camera/focus/back-focus.htmlback-focus and make sure the macro focus is not engaged.

If you need to adjust your focus on the fly (for example, you're in the middle of shooting the Prime Minister's speech when you realise her face is soft), it helps to know which way to turn the focus ring. If you go the wrong way and defocus more, even if you correct yourself quickly you've drawn attention to your camera work. Try comparing the back-

ground and foreground focus. If you find that the background is more sharp than the subject then you need to pull focus to a closer point (and vice versa).

You will usually find the sharpest focus occurs at about the middle iris position.

Difficult Focus Conditions

Sometimes in certain conditions focusing is more difficult. Basically, the more light coming through the lens, the easier it is to focus. Obviously it will be more difficult to focus in very low light. If you are having tough time with low-light focus and you find that you you can't add more lighting, then do the following things:

Make sure your shutter is turned off.

If your camera has a filter wheel, make sure you're using the correct low-light filter. Remove any add-on filters.

If your camera has a digital gain function, try adding a little gain (notethis compromises picture quality).

Stay zoomed as wide as possible. If your lens has a 2X extender, make sure it's on 1X.

Back Focus

If you find that your focus is sharp when you are zoomed in but soft when zoomed out, your back focus needs adjusting. This usually will occur only to cameras that come with detachable lenses consumer-level camera users shouldn't have to worry about it.

Technical NoteBack focus refers to the focal flange length. This is the distance between the rear lens element and the CCD.

You will need

A camera with a back focus ring. It will be located toward the rear of the lens housing.

A back focus chart like the one pictured is helpful, but any object with sharp contrast will do.

How to Adjust the Camera Back Focus

Set your camera on a tripod or stable mount, with your subject (back focus chart or other contrasting object) at least 2metres/7feet away (or as far as possible).

Your iris should be wide open, so it's better to perform this operation in low light.

Alternatively, add some shutter speed or a ND filter.

If your lens has a 2X extender, switch it to 1X.

Zoom in on your subject.

Adjust the focus normally until the picture is sharp. If you're using a back focus chart, the centre of the chart will appear blurry - your focus is sharpest when the blurred circle is smallest. (You can simulate this effect by looking at the chart above and defocusing your eyes.)

Zoom out.

Now you need to loosen the locking screw of the back-focus and adjust the ring till the picture is sharp.

Repeat steps 3-6 until the focus is consistently sharp.

Tighten the back-focus locking screw.

Depth of Field

Depth of field (DOF)refers to the range of distances from the camera at which acceptably sharp focus can be obtained. This is a very important concept in video work, for two reasons:

In order to have full control over your focus you really need to understand DOF. If you don't know how DOF works, then sooner or later you'll end up with HYPERLINK http://www.mediacollege.com/video/camera/focus/depth-of-field.htmll #soft footage that could otherwise have been saved.

If you know how to manipulate DOF it will open up a massive range of creative possibilities for you.

The figure below shows how the zone of sharp focus works. Technically

there is only one point in this zone which is perfectly focused, and all other points are gradually less focused the further they are form this point. However, for practical purposes, we say that any image which isn't noticeably soft counts as being in focus.
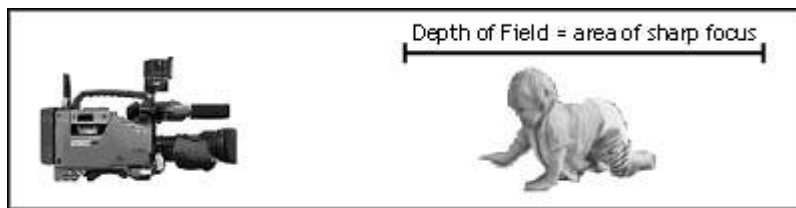
Notice that the DOF will tend to extend 1/3 in front of the focus point, and 2/3 behind it.

Controlling DOF

Now there is one important point for you to remember that the Depth of field is not constant. It can be varied, using a number of tricks.

DOF is basically determined by the iris setting. If the iris aperture is smaller then the depth of field of field is greater and visa versa. This means that the more light you have on your subject, the easier it is to focus.

In very low-light situations where the iris is open wide you will find the depth of field is significantly reduced and focus becomes quite a challenge. Factors which influence depth of field, Lighting conditions, Camera filter, Shutter, Gain, Lens angle (zoom)

There are many reasons for wanting to alter the DOF. Perhaps the simplest is to help with focus the more DOF you have, the easier it is to maintain focus. If you need more DOF, you can

Add more lighting.

Change or remove filters, to allow more light in.

Add some digital gain (digital gain will surely add to the picture quality or reduce it).

Reduce shutter speed, or turn it off.

On the other hand, there are times when you may wish to reduce the DOF. This is frequent because you want the subject to be focused sharply but the background to be soft. This makes the subject stand out much more.

Many consumer camcorders have a feature known as portrait effect. When you activate

this feature it reduces DOF by adding a little shutter, forcing the auto-iris to open wider. As you can expect now you can have more control if you select shutter speed and iris setting yourself.

1.3 Video Camera Iris

The iris is an adjustable opening (aperture), which controls the amount of light coming through the lens (ie. the exposure). The video camera iris works in basically the same way as a still camera iris — as you open the iris, more light comes in and the picture appears brighter. The difference is that with video cameras, the picture in the viewfinder changes brightness as the iris is adjusted. For the following study you will be setting exposure by eye i.e. adjusting the iris until the exposure looks right in the viewfinder (as opposed to using a light meter).

Professional cameras are with an iris ring on the lens housing that cab be turned clockwise to close and anticlockwise to open.

Consumer-level cameras normally use either a dial or a set of buttons. You will probably need to select manual iris from the menu (see your manual for details).

The Correct Exposure

Before using your manual iris, you need to know what the correct exposure looks like in your viewfinder. A good start is to set your camera on auto-iris and frame a shot with nice, even lighting. Notice how bright the picture is, then set the iris to manual. Most cameras will retain the same exposure as set by the auto-function, which you can adjust from there as you go. Open and close the iris, then try to set the exposure where it was before.

In order to have your subject appear correctly exposed you should al-

ways set your iris. This may mean that other parts of the picture are too bright or too dark, but the subject is usually more important.

Zebra stripes an additional feature which helps in judging exposure is there in Professional cameras.

Practice is the only way to get exposure right. Record a number of shots in different light conditions, then play them back and see how good your exposure was. Remember, if you're not sure about your exposure, try flicking the iris to auto and see what the camera thinks, then go back to manual.

Backlight

One common problem or difficulty you might have with exposure is the uneven lighting situations. The strong backlightscenario is a headache — this is where your subject is set against a much brighter background, as in the pictures below...

A shot is backlit

In the first example, the camera is set to auto-iris. If the camera is set to auto iris it adjusts the exposure for the strong backlight that leaves the subject as a silhouette. Some cameras have a backlightfeature which helps with this problem, but it won't work as well as manual iris control.

Now keeping in mind that you cannot much change your framing or add more lighting to the subject you are left with only one option and that is to open the iris until the subject is exposed correctly. This means that the background is quite rather much bright but it is better than the subject being too dark.

A shot with manual iris open

In the next example the manual iris is opened till the subject is correctly exposed. Of course this is still far from ideal exposure and it is an improvement on the silhouette effect.

You will find this situation to be very common on television when you often see an outside window which looks too bright, but you don't usually notice because you're watching the subject inside.

Now you need to remember the rule of thumb for iris control and that is to Set your exposure for the subject. Everything else is secondary.

1.4 Video Camera White Balance

White balance basically means colour balance. It is a function which gives the camera a reference to true white it tells the camera what the colour white looks like, so the camera will record it correctly. Since white light is made up of all other colours, the camera will then display all colours correctly.

Incorrect white balance will show pictures with orange or blue tints. Most consumer-level camcorders have an auto-white balancefeature, and this is how most amateurs operate. The camera performs it's own white balance without any input from the operator. Rather very few home-video users are aware of it's existence. But its a hard luck as the auto-white balance is not in particular reliable and it is usually preferable to perform this function manually.

| Correct colour balance | Colour balance too blue | Colour balance too yellow |

Terminology

To confuse the issue, the term automatic white balancehas two different interpretations. On consumer-level cameras, it means completely auto-matic. Professional-level cameras can mean the white balance opera-tion as described below (which is actually quite manual). This is because in professional situations, a manual white balancecan mean altering colours using specialised vision processing equipment.

The terminology we use at mediacollege.com is as follows:Auto-whitemeans the completely automatic function (no user input at all).Manual-whitemeans the operation described below. Colour correctionmeans any other method of adjusting colours.

How to Perform a Manual White Balance

You should perform this procedure at the beginning of every shoot, and every time the lighting conditions change. When you are switching or moving between indoor and outdoor then you have to really to re-white balance and also between rooms lit by different kinds of lights. During early morning and late evening, the daylight colour changes quickly and significantly (although your eyes don't notice, your camera will). Do regular white balances during these periods.

You will need:

A camera with a manual white-balance function. There should be a white balancebutton or switch on your camera.

If your camera has a filter wheel (or if you use add-on filters), make sure you are using the correct filter for the lighting conditions.

Point your camera to a pure white subject, so that most of what you're seeing in the viewfinder is white. Opinions vary on just how much white needs to be in the frame - but we've found that about 50-80% of the

frame should be fine (Sony recommends 80% of frame width). Here the subject should be little matte i.e. non-reflective.

Set your exposure and focus.

Activate the white balance by pressing the button or throwing the switch. The camera may take a few seconds to complete the operation, after which you should get a message (or icon) in the viewfinder.Hopefully this will be telling you that the white balance has succeeded - in this case, the camera will retain it's current colour balance until another white balance is performed.

If the viewfinder message shows that the white balance has failed then you need to find out why. A good camera will give you a clue such as colour temperature too high(in which case change filters). Also try opening or closing a little.

Advanced camera operators sometimes trick the camera into reading an inaccurate white balance, in order to make the pictures appear warmer (more orange) or cooler (more blue).

1.5 Video Camera Viewfinder

Now you will study black and white electronic viewfinders (EVFs), although colour viewfinders work in basically the same way.

Different cameras have varied options for adjusting the EVF. In consumer camcorders you have limitations of making focus/sharpness adjustments, whereas professional cameras have numerous options.

Some notes on electronic viewfinders

Professional cameras generally use black and white EVFs. Colour EVFs are gradually becoming popular with consumer camcorders.

The EVF is more-or-less WYSIWYG (What You See Is What You Get). This means that if the viewfinder image changes brightness, then the recorded signal changes brightness as well. Once your viewfinder is set up correctly, you can judge your picture quality by what you see (ie. it's not necessary to use the f-stop indicator to see if your exposure is correct).

You can get valuable information from the viewfinder messages. Learn what they all mean.

If your viewfinder is fogging up, hold your eye slightly away from the eyepiece. Also, limit your intake of fluids - this reduces perspiration, which is what causes the fogging.

You can flip open many viewfinder eyepieces that allowing you to stand back from the camera. This can be useful if you have the camera mounted on a tripod, or if more than one person wants to look at the viewfinder. It can also help reduce eye fatigue.

To set the brightness and contrast

Switch the camera to colour bars.

Adjust the viewfinder brightness and contrast till you see a smooth greyscale from peak white to black. You should be able to see a dividing line between each bar.

Switch the camera to picture.

You need to check the exposure on a reliable monitor either by connecting a cable from the camera output or by doing a test record.

To set the focus/sharpness (diopter adjustment):

The diopteris the EVF's eyepiece lens. Adjust this to make the viewfinder image as sharp as possible. This adjustment is usually made either with a ring on the EVF or a sliding button.

Choose a subject with plenty of contrast - this makes focus easier.

Zoom out wide and focus the camera lens normally.

Adjust the diopter until you see the clearest image. If necessary, secure the diopter.

1.6   Video Camera Shutter

The term shutter comes from still photography and it describes a mechanical doorbetween the camera lens and the film. When a photo is taken, the door opens for an instant and the film is exposed to the incoming light. The speed at which the shutter opens and closes can be varied the faster the speed, the shorter the period of time the shutter is open, and the less light falls on the film.

Shutter speed is measured in fractions of a second. A speed of 1/6second means that the shutter is open for one sixtieth of a second. A speed of 1/50is faster, and 1/1000is very fast indeed.

Video camera shutters work in a different manner from still camera shutters but the result is basically the same. The technical difference is that rather than using a mechanical device the shutter speed is adjusted by electronically varying the amount of time the is allowed to build a charge. If this means nothing to you, don't worry. It really doesn't matter how the shutter works, it's the effect it has that counts.)

The shutter opensand closesonce for each frame of video; that is, 25 times per second for PAL and 3times per second for NTSC. Thus, if a camera has it's shutter set to 1/60, each frame will be exposed for 1/6second. If the speed is increased to 1/120, each frame will be exposed for 1/12of a second.

With higher shutter speed you will get individual frames sharper, due to the minimisation of motion blur. Motion blur occurs when the subject moves within the frame while the shutter is open. The less time the shutter is open the less the movement will take place.

There is one side-effect of higher shutter speeds that movement appears more jerky. This is as the motion blur tends to smooth consecutive frames together.

The below 3 shots were each taken as the car travelled past a stationary camera at 10km/hr. With the shutter off, motion blur is most pronounced. As the shutter speed is increased, the image becomes sharper.

| **Shutter Off** | **1/120 second** | **1/500 second** |

Higher shutter speeds are common in sports coverage. You need to watch any fast action sports to see the effect of flickeringshutter. And see how the slow-motion replays look and especially when they freeze the last frame.

NoteBecause of reduced exposure time with high shutter speeds, the image may appear darker unless the iris is opened to compensate.

1.7 Definitions

Piezo autofocus — Electronic autofocus method that focuses by maximizing contrast in thepicture.

Pull focus — Adjusting the focus of a lens, often to keep a moving subject sharp, while yourcamera is on.

Selective focus — Adjusting the focus of a lens so that one part of the picture is sharp and otherparts fuzzy, useful for directing attention.

Spot — Narrowly focused light that concentrates its intensity over a limited area.

Variable focus light — A lighting fixture that can be adjusted from spot to flood or vice versato direct the light's intensity

Continuous white balance — Camera mode which makes moment-by-moment adjustments tothe white balance, using what the camera sees in its picture as a guide.

Viewfinder — The part of a TV camera you look through to see where the camera is aimed.

1.8 Summary

Video Camera Focus is one of the crucial skill that is require in video production. The ability to manually focus your camera is a critical skill at any level of video production. This page shows you the basics at the end of the page you can choose to continue and learn more advanced focus techniques.

Depth of Field Depth of field (DOF)refers to the range of distances from the camera at which acceptably sharp focus can be obtained. This is a very important concept in video work, for two reasons. In order to have full control over your focus you really need to understand DOF. If you don't know how DOF works, then sooner or later you'll end up with footage that could otherwise have been saved. If you know how to manipulate DOF it will open up a massive range of creative possibilities for you.

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Video Camera View finder Different cameras have varied options for adjusting the EVF. In consumer camcorders you have limitations of making focus/sharpness adjustments, whereas professional cameras have numerous options. Professional cameras generally use black and white EVFs. Colour EVFs are gradually becoming popular with consumer camcorders. The EVF is more-or-less WYSIWYG (What You See Is What You Get). This means that if the viewfinder image changes brightness, then the recorded signal changes brightness as well. Once your viewfinder is set up correctly, you can judge your picture quality by what you see (ie. it's not necessary to use the f-stop indicator to see if your exposure is correct). You can get valuable information from the viewfinder messages. Learn what they all mean. If your viewfinder is fogging up, hold your eye slightly away from the eyepiece. Also, limit your intake of fluids - this reduces perspiration, which is what causes the fogging. You can flip open many viewfinder eyepieces that allowing you to stand back

from the camera. This can be useful if you have the camera mounted on a tripod, or if more than one person wants to look at the viewfinder. It can also help reduce eye fatigue.

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1.9 Self Assessment Test

1   Write a detailed note on video camera focus?

2   Write a short note on Iris?

3   Write a detailed note on How do you perform a manual white balance?

4   Write a short note on the method of setting the focus and sharpness

5   Write a short note on shutter speed?

6   Write a short note Video Camera View Finder

7   Write a short note on Video Camera White Balance

1.10 Further Reading

- Video Production Handbook, Second Edition, Gerald Millerson C.Eng MIEE MSMPTEMay 2001

- The Film Editing Room Handbook How to Tame the Chaos of the Editing Room, 4th Edition, Norman Hollyn

- Video Production Handbook, 4THEdition, Gerald Millerson C.Eng MIEE MSMPTE, Nov 2007

- The Videomaker Guide to Video Production, Fourth Edition, Videomaker and John Burkhart, Nov 2007

- The Shut Up and Shoot Documentary Guide A Down Dirty DV Production, Anthony Q. Artis, Sep 2007

- Film and Video Budgets, 4th Edition, Kindle Edition, Jan 2006

Assignment

o   Make a presentation on various operations of the video camera and accompany that with diagrams and illustrations

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UNIT 2

VIDEO CAMERA TRIPODS

❖ **Learning Objectives:**

After reading this unit, you will learn

- Various types of Tripods

- How to use tripods

- How to work and choose tripods

- Techniques to set up and the how to use and what are monopods and bipods

- You will learn monopods and bipods

: Structure :

2.1 Introduction

Whenever you are eager and keen upon good quality camera work you cannot ignore a tripod, tripod is a must for good and accurate photography and for appropriate usage of camera. You need to know how to use a tripod as a tripod will be required in almost all types of video works. It's important to choose the right tripod for your needs. You may find that your choice of tripod is equally important as your choice of camera in determining the quality of your video.

2.2 Tripods

Tripod Parts

A tripod consists of a head and a set of legs. The head and set of legas are normally separate components but at consumer-level tripods are normally shipped with the head and legs already attached together.

There are varieties available in legs and the difference comes in height, weight and general sturdiness.

2.3 Choosing A Tripod

Never compromise the quality of tripod due to money. In many cases a good tripod will outlive your camera and will be an important long-term investment. This page explains the main things to look for.

Separate Head and Legs

Normally good tripods have legs that are with a detachable head. Most consumer tripods come already paired up as a single unit but manufacturers of professional tripods usually sell the items separately. This is partly so you can mix and match the exact systems you want and partly because legs often need replacing before the heads.

The Head

Most heads are fluid heads which use an internal fluid to create a dampening effect known as drag, resistance or tension (more on that later). Cheap heads may have limited or no control over the amount of drag. Good heads have finer control and allow you to set the drag for tilting and panning separately. The more control you have the better.

Check for any playin the head. When you begin a movement the head should start moving smoothly, with no jerkiness or inconsistencies in the drag.

Also good tripods come with counterbalance systems that help keepingthe camera balanced. If you have a large or unevenly balanced camera you will always appreciate the option to position the camera further forwards or backwards on the head. Another counterbalancing feature also includes a system of springs which provide increasing vertical resistance as you tilt up and down this gently pushes the camera back towards a horizontal position. It's hard to describe why this is useful but it's certainly a nice feature to have.

One more thing unless your camera and tripod is a permanent installation, a quick-release mechanism is essential. This allows you to quickly remove the camera from the tripod and begin shooting hand-held. It normally means that a small attachment is permanently screwed to the camera and clicks into the tripod head (in the illustration above it's the small black plate in the middle of the head). When choosing a tripod you need to make sure that this attachment does not get in the way if it's always attached to your camera.

The Legs

Obviously the legs must be sturdy enough to hold the weight of the camera. If there is a possibility that you will add any peripherals at a later date (e.g. audio equipment, bigger lens, etc) the tripod should be able to accommodate them as well.

Check the height range the lowest and highest points the tripod can be set to. It's good to have a tripod which can go at least a little bit higher than your normal eye level.

The weight is important if you plan to move around. Of course good-quality legs are heavier but modern tripods mostly use composite materials such as carbon fiber to reduce weight significantly.

Finally, check how easy the tripod is to set up. You want to be able to set up and pack down quickly.

Travel Case

Tripods can take a battering in transit. It is always better and advisable to carry a carry-case to protect your investment, preferably a hard case.

2.4 Setting Up

The example below shows a Miller tripod with 2-stage legs and fluid head. This is a mid-range professional tripod. Most consumer tripods have lesser or simpler features but the principles still remain the same.

Spread the tripod's legs, and adjust the spreaders (if you have them). Release the tensioners on the legs, and extend the legs to the desired height.

If you are working in high winds, you can anchor the tripod by placing sandbags etc against the legs or on the spreaders.

Many tripods have mid-level spreaders that are positioned halfway up the tripod legs.

These can be easier to work with on uneven surfaces.

If the spreaders are hindering your set-up, you may be able to remove them.

Adjust the pan/tilt handle to the preferred angle. The handle is typically operated with the right hand, while the left hand operates the camera functions (focus, iris, etc). You need to experiment with different angles in order to find which is the most suited to you.

You may wish to attach accessories to the handle such as a remote zoom or focus control. If so, you'll need to think about where they will be positioned. Remember that these will tie you to the tripod so you won't be able to quick-release the camera.

Below the head there is a screw which loosens the head so you can adjust the level. If the head has a spirit level, you can use it as a guide.

Remember, it's what's in the viewfinder that counts. Some shots may need to be shot an a slight angle in order to appear level. On the other hand, some shots can be made more appealing by purposely adding a tilt.

Plates

Professional cameras and tripod heads come with a plate. The camera plate (baseplate) attaches to the bottom of the camera, the head plate attaches to the top of the head. The two plates are screwed together and thus by doing this it connects the camera to the tripod.

The idea is that any two plates (from any tripod and any camera) can be screwed together.

It does not always work so easily but mostly professional cameras and tripods are compatible.

Position and screw the plates together at a point which will provide the best balance for the camera. This will usually be near the middle of the baseplate, unless your camera is very front or back-heavy.

Fit the plates to the head. There will always be some way of quick-release mechanism into which the tripod plate locks into. You should feel a reassuring click.

Fit the camera to the baseplate. This happens in much the same way as the tripod plate fits to the head, with a quick-release mechanism. Again, make it click, and give the camera a bit of a shake to make sure it's secure.

Adjust the pan and tilt tensions. This head has four graduated tension settings, from no tension to heavy tension. Other heads may come with different options including continuously variable adjustments.

Experiment with different settings. In general you need to use lighter tension for close or fast-moving subjects. Use heavier tension for slow moves, longer zooms, or if you're having difficulty keeping the shot steady.

There should also be pan and tilt locks, to prevent the camera from moving at all. Use these whenever you're not operating the camera.

Once you've turned the camera on, check your framing and make further height/balance adjustments as needed.

Make sure the tripod legs are positioned so that you'll be able to stand comfortably, and move around as much as you need to. Remember that if you're going to be panning or tilting, you should end the move in the most comfortable position.

It takes practice to be able to set up a camera quickly. Once you've done it the first time, and you're happy with your setup, take note of the tripod height and other settings. Next time, remember these things before you begin, and it will happen faster.

2.5 Technique

How to Use a Tripod

Once your tripod is correctly set up you are ready to begin shooting.

In the case of a professional camera that stand close to the tripod between two of the legs. Most operators use the technique where the left hand controls the focus, exposure and zoom while the right hand controls camera movement with the tripod handle. There are many variations like some operators prefer not to use the handle and instead place their right hand on the camera.

You need to experiment and check which technique suits you the best but in any case it's probably a good idea to practice using a number of different techniques you never know when you might encounter some problem which forces you to shoot differently (e.g. a broken pan handle).

Plan the Move

Before you begin a move such as a pan or tilt, plan it first. You need to figure out the best standing position that allows you to complete the whole move comfortably. It is normally much better to finish the shot in a comfortable position than to start comfortably and finish awkwardly. Frame up the end of the shot first and get yourself comfortable, then stretch yourself to get the starting point of the move.

If the tripod head doesn't have a bowl such tripods are cheaper, it's very important to check that the framing still looks level as you pan - it may be okay in one direction but become horribly slanted as you pan left and right.

The Right Drag for the Job

The drag setting or what you say resistance or tension decides how much force you need to excerpt to pan and tilt. The setting you choose depends upon several things along with the camera weight, the type of shot you are attempting and your personal preferences.

Use a lighter setting for close or fast-moving subjects. You should use more drag for slow moves, longer zooms, or if you are facing difficulty keeping the shot steady. Don't just set the drag and forget about it, think about how different settings might help different shots.

2.6 Monopods Bipods

Monopods

A monopod stand is a single legged camera support basically a tripod with only one leg. Obviously a monopod is not as stable as a tripod and it

would not be the best choice for most situations. However monopods do have some advantages: Lighter and easier to carry than tripods.

Can be set up much faster than a tripod.

Can be set up in places that are difficult or not possible for a tripod (e.g. rough terrain or in the middle of a crowd).

Gives you some add on flexibility for different types of camera movement.

You can make a monopod from an old tripod, in fact this can be a good way to get more life out of a tripod which has a broken leg. You can also use a tripod as a monopod simply by just extending one leg (it's not quite the same but close enough).

How to Use a Monopod

The key to using a monopod is to use your own two legs together with the monopod to create a tripod. Instead of holding the monopod perfectly vertical, place your legs slightly apart and lean the monopod towards you. Adjust the monopod head to give you the correct angle.

Bipods

A bipod is a two-legged camera support, it is a compromise between a monopod and a tripod. Bipods are not in general used in video production and commercial models are rare. You can create a bipod effect with a tripod by just extending two legs.

2.7 Summary

A tripod consists of a head and a set of legs. A tripod consists of a head and a set of legs. Usually these are separate components although consumer-level tripods are normally shipped with the head and legs already attached together. Legs come in many varieties, the main differences being in their height, weight and general sturdiness. The head is the part which supports the camera and provides the movement. The quality of the head determines how smoothly you will be able to perform camera movements and makes a huge difference to your video. Choosing the correct head and understanding how it works is very important. Most consumer tripods have fewer or simpler features but the principles are the same

A monopod is a single-legged camera support basically a tripod with only one leg. A monopod stand is a single legged camera support basically a tripod with only one leg. Obviously a monopod is not as stable as a tripod and it would not be the best choice for most situations. However monopods do have some advantagesLighter and easier to carry than tripods. Can be set up much faster than a tripod. Can be set up in places that are difficult or not possible for a tripod (e.g. rough terrain or in the middle of a crowd). Gives you some add on flexibility for different types of camera movement. You can make a monopod from an old tripod, in fact this can be a good way to get more life out of a tripod which has a broken leg. You can also use a tripod as a monopod simply by just extending one leg (it's not quite the same but close enough).

A bipod is a two-legged camera support a compromise between a monopod and a tripod. A bipod is a two-legged camera support, it is a compromise between a monopod and a tripod. Bipods are not in general used in video production and commercial models are rare. You can create a bipod effect with a tripod by just extending two legs.

2.8 Self Assessment Test

1   Write a detailed note on benefits of Tripod.

2   Write a detailed note on the techniques to use a tripod

3   Write a short note on setting of a tripod?

4   Write a short note on bipods?

5   Write a short note on monopods?

6   Write a short note on uses of tripod

7   Write short note on plates

2.9 Further Reading

•   Video Production Handbook, Second Edition, Gerald Millerson C.Eng MIEE MSMPTEMay 2001

•   The Film Editing Room Handbook How to Tame the Chaos of the Editing Room, 4th Edition, Norman Hollyn

•   Video Production Handbook, 4THEdition, Gerald Millerson C.Eng MIEE MSMPTE, Nov 2007

•   The Videomaker Guide to Video Production, Fourth Edition, Videomaker and John Burkhart, Nov 2007

Assignment

o   Make a presentation on various types of video camera tripods and accompany that with images and an explanation on each one of them

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UNIT 3

CCU (CAMERA CONTROL UNIT) OPERATIONS

❖ **Learning Objectives:**

After reading this unit, you will learn:

- How to work with CCU operations

- You will lean the usage vision mixer/switcher

- Then you shall study Videotape operations

- You will learn how to prepare a tape for recording

- What are master tape

- Then finally you will understand slow-motion replays

: Structure :

3.1 Introduction

3.2 CCU (Camera Control) Operations

3.3 Vision Mixer / Switcher

3.4 VT (Videotape) Operations

3.5 Prepare a tape for recording

3.6 Master Tape

3.7 Slow-Motion Replays

3.8 Definitions

3.9 Summary

3.10 Self Assessment Test

3.11 Further Reading

3.1 Introduction

CCU (Camera Control Unit) is the range of equipment and operations that are connected to remote control of video or television camera functions. This can have either partial or complete camera control. CCU operations play an important role in many types of television production and in particular multi-camera productions. The person who operates the CCU units is known as a CCU Operator, Vision Controller or a Technical Director - TD.

3.2 CCU (Camera Control) Operations

Partial CCU Control

Partial CCU control is a common method to control camera functions in television production. This is a professional approach that allows for maximum control and quality.

Most of the camera functions like framing, focus, etc are all controlled normally by a camera operator, whilst certain functions like colour balance, shutter speed, etc) are controlled remotely by the CCU operator. This makes the camera operator to concentrate on framing and composition without being distracted by technical issues. Along with this the CCU operator who is a specialist in the more technical issues is also concentrating on the quality and consistency of the pictures.

In a multi-camera production the CCU operator is generally responsible for more than one camera (2-3 cameras is common, but up to 1is possible). Of course a large production may require a number of CCU operators. For example, a 20-camera broadcast could have 5 CCU operators, each controlling 4 cameras.

The figure next shows a bank of four CCU controllers that are embedded into the desk workspace in front of the CCU operator. In front of the operator there are four monitors showing the pictures from each camera. These controls are little advanced and they allow the CCU operator to:

Control the iris, shutter speed, black level, gain, etc.

Adjust colour balances

Monitor and adjust a wide range of technical parameters

Send signals to the camera operator

INCLUDEPICTURE http://www.mediacollege.com/video/production/camera-control/sony-ccu.jpg* MERGEFORMATINET Sony CCU Controllers

Complete Remote Camera Control

Since the prevalence of high-performance remote-controlled cameras, CCU can also refer to cameras which are completely controlled by the CCU operator (the camera itself is unmanned).

Such controllers can include any of the features as stated above, with the addition of pan/tilt, zoom and focus controls.

The Technical Director

The Technical Director is the person who is responsible for setting up and maintaining the technical parameters of the production's video images. In many situations technical director is the same person as the CCU operator, but in any case the two jobs are closely linked.

The Technical Directors responsibility is to make sure that all vision sources (cameras, tape machines, graphic generators, etc) meet the technical requirements for broadcast, and that their outputs are consistent and stable. In older equipment lot of this is done manually as you monitor video signals with a waveform monitor and vectorscope. In todays digital era most of these functions are done automatically.

A good CCU operator needs to have a solid technical understanding of how video and television works.

3.3 Vision Mixer / Switcher

A vision mixer also known as video switcher or production switcher refers to either:

A device to mix multiple video sources into one or more master outputs.

A person who operates a vision mixing device.

You need to note down that the term mixer is a European term while switcher is an American term. For simplicity we will call the mixing device as a vision mixer, and the operator a switcher. Examples

Figure 5.1Panasonic AW-SW350 The Panasonic AW-SW35 is a compact half-rack vision mixer with five Y/C and composite video inputs. This would be suitable for a small production studio or field production unit.

Figure 5.2 Sony BVS-3200CP The Sony BVS-3200CP is a relatively small desk console suitable for a moderately-sized production unit.

The Snell Wilcox Kahuna HD/SD console is a monster-sized mixer and is suitable for large production environments.
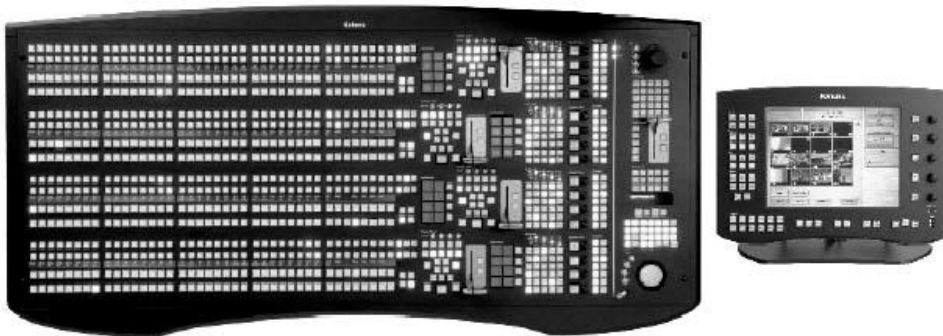
Figure 5.3 Snell Wilcox Kahuna HD/SD

What Does a Vision Mixer Do?

The main purpose of a vision mixer is to create a master output for a real-time video recording or broadcast. Typically vision mixers are used for events that are or any event where multiple sources need to be mixed in real-time (as opposed to post-production editing).

Vision mixers can also be used to create various visual effects, from simple mixes and wipes between sources to advanced composite effects.

How Does Vision Mixing Work?

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

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 then said to be online.

The preview bus is used to select and preview the source which is about to be put online. NoteThe preview bus does not have to be used sources can be cut online without being previewing if desired. However you need to preview as it is necessary for any visual effects such as transitions, as the effect is constructed from the preview and program sources.

The Role of Vision Switcher

The role of a vision switcher is to take instruction from the director. Fundamentally the director decides what is going to happen and tells the switcher to do it. A typical set of instructions might go like this:

Director's Instruction Meaning:

1 next Preview camera 1 and prepare to put it online.

Take Cut camera 1 online.

2 next Preview camera 2 and prepare to put it online.

Mix Mix camera 2 online.

etc etc -

In some studios the director will say cutinstead of take. This is a potential source of confusion though, as cutis also used to mean everyone stop.

3.4 VT (Videotape) Operations

VT operations are to operate one or more video tape machines, or any similar digital recording devices.

VT operators are found in many video and television production environments. The duties of this position can include:

Recording a master tape of the production Recording specific events, shots, camera angles, etc.

Editing video footage

Cueing and playing video items at specific set times, or at the director's instruction Slow Motion Replays

3.5 Prepare a tape for recording

Circumstances decide how will you prepare your tapes. The following

procedure will outline how professional editing is done. Now you need not complete all of these steps but use your discretion to decide which steps are appropriate for your situation.

Check that the tape is clean and free of dust.

Fast-forward the tape to the end, then rewind. This ensures that the tape has the correct tension.

Now record blackfrom a stable source throughout the entire tape and then rewind. This is important if you're planning on using insert editing, but is not compulsory for assemble editing.

Now record 30-6seconds of correctly configured colour bars and audio tone at the beginning of the tape. This provides a technical reference for use later.

3.6 Master Tape

Creating a master tape is one of the most important roles of a VT operator. This is the recording that is done that is of the entire program for mastering, editing, reproduction, distribution, archiving, etc.

Recording a master tape is normally very simple. The master VT machine or just your computer is to be set up to take a feed of the program vision and audio, then all the operator needs to do is prepare a tape, hit record at the beginning and stop at the end.

Now it is possible that more than one version of the program is required; e.g. you may need to record a second tape on another machine with visible timecode or a different audio track.

Despite being simple, a good VT operator has to recognize the importance of doing this job properly. The entire production depends on it. You need to do a test record, the double-check video and finally audio levels and the quality. Also make sure that you are using the correct tape and that you have enough tape stock.

3.7 Slow-Motion Replays

Slo-moreplays are an integral part of television genres such as sports and other action programming. There are two main ways to create the slow motion effect:

Record the action on a tape or disk, then re-cue the shot (i.e. rewind to the start point) and play it back at less than full speed. This is the desired method for live broadcasts especially when the replay immediately follows the live action and is the method covered on this page.

Reduce the speed of a shot in post-production (editing). Although the exact procedure will vary depending on the hardware and software you use, it's relatively straightforward process and once you've done it a few times you'll be able to easily adapt to other systems. Modern replay systems use computers instead of tape-based recording systems.

Slo-Mo Replays in Live Broadcasts

One of the many jobs in a live broadcast environment is the VT (Video Tape) operator. There may be more than one VT operator, in fact larger productions have entire rooms dedicated to VT stations, often with their own VT director.

Note that the term VTis becoming something of a legacy title, since much of this work now uses computer systems rather than tapes. However the basic functions are still the same. Examples of VT operations include:

Recording shots from various cameras and other sources, either for immediate replay or later editing.

Assembling and editing shots, interviews, etc.

Playing pre-recorded or the edited material at the right desired time.

In theory, playing a replay is a simple thing to do. We'll use the example of a simple football game broadcast In which there is one VT operator and two VT machines (called VT-A and VT-B).

The VT operator uses two monitors to view the output of her machines. Below the monitors, selectors allow the operator to choose which camera (or other source) to record.

Each VT machine is capable of recording any of the cameras covering the game. The VT operator selects a particular camera to record on each machine - this is independent of what is happening on the main programme. Each machine may record one camera exclusively, or may chop and change cameras depending on where the action is happening. In our example, VT-A records a single camera on a wide shot for the entire game, VT-B alternates between two cameras at each end of the field.

Let's say one team scores a touchdown. This is the sequence of events:

The operator sees that the team is heading toward the opposition score line, so she selects the camera at that end of the field on VT-B (remember that VT-A is always recording the wide shot).

After the touchdown is scored, the operator keeps recording long enough to capture some reaction from the scoring player.

The operator re-cues both VT machines to the start of the last phase of play leading up to the touchdown, and then waits for instructions from the director.

The director instructs the operator to play the replay on VT-A (he will say something like Roll A).

The VT operator plays the replay on VT-A in slow motion (eg. half speed). As the replay progresses the operator might slow the speed further and finally freeze the tape at an appropriate point.

The director instructs the operator to play the replay on VT-B.

The VT operator repeats the process with VT-B.

This way, the touchdown is instantly has to be followed by two action i.e. replays; the first from the wide shot and the second from the end-on camera. Things for the VT operator to consider:

Your job will be a lot easier if you have a good understanding of the subject you're covering. For example, you need to know which parts of the football game are interesting to the audience. Often your director will ask you to re-cue at a certain point in the play and you'll need to know what he means. You may also be asked to look for interesting things to replay and offer suggestions to the director.

Most slo-mos look better if the camera has some shutter, usually betwwen 1/6and 1/50sec. This makes individual frames sharper, the action easier to see and the final freeze nice and clear.

Watch the action closely at all times and be aware of what you're recording. When you are preparing a replay you need to know exactly how it unfolds - if the camera loses focus halfway through the replay you need to know (and tell the director) before you play it.

If you're going to freeze the replay at the end, try to plan a good frame. For example, a shot of the football player's hand going up in a victory salute.

The methods that are used for slow-motion replays in the television production will vary between production companies. Although the example above is fairly standard, you need to familiarise yourself with the way things are done in each situation you encounter. For example, exactly what commands does the director use? What settings and speeds are you expected to use? How much autonomy do you have to make replay decisions?

VT and replay operators are expected to think and act quickly and decisively. If you're working in live television there is little time to ponder. Make sure you are confident about what you're doing and what is expected of you.

Shooting a Fireworks Video

Fireworks is a definitely a challenging subject for the video shooter when all the more when you are used to using automatic functions. The best thing you can do to create a better fireworks video is to use manual functions. Of course this applies to all video, but in the case of fireworks it's not just a recommendation it's essential. Here are a few specific tips... Focus

Auto-focus will hunt(go in and out of focus) constantly during fireworks. You will need to use manual focus instead (as you should anyway). Obviously you won't be able to keep adjusting the focus for each set of fireworks but you won't need to. In most cases you can just set the focus to infinity and leave it there.

Exposure

In some cases automatic iris can produce quite good results with fire-works but it's not generally a good idea. You are better off setting the iris to a level which captures the exploding fireworks well and leave it on that setting.

Over-exposure that is quite common with fireworks, results in white, and ill-defined pictures. So you need to be conservative and its better to slightly under-expose than over-expose.

White Balance

A standard outside white balance setting should be fine.

Position, Framing, Movement, etc.

Find a good position where people won't get in the way.

A tripod is a good idea if you are planning on shooting for more than 5 or 1minutes. You will also be able to enjoy the display yourself more if you have a tripod.

Wide-angle shots usually work best.

If there is a lot of fireworks happening, don't try to chase them all. Concentrate on the main area of action.

Don't worry too much about normal framing rules (such as the rule of thirds) unless you are framing the fireworks with something else, such as a stadium or staging area. Mostly the display will look fine if it just fills up the frame.

3.8 Definitions

Blue pedestal — Control on a color camera CCU which adjusts the amount of blue signal thecamera makes when it seesno blue. Similar controls for red and green may exist. Used in balancing black levels.

Burst phase — Control on a color camera CCU (or other video gear) that adjusts the timing ofthe burst signal and thus varies the color hues in the picture.

Cable length — CCU control which adjusts the sharpness and strength of signals coming froma camera, matching them to the strengths of other cameras with longer or shorter cables.

CCU or camera control unit — Box of electronic circuits which can remotely adjust theoperation of a camera as well as provide power and signals to it.

A/B roll — Technique of placing one scene on one video tape (and VTP) and another scene onanother and then rolling (playing) both VTPs together, along with the editing VTR, in order to fade, dissolve or do a special effect using both scenes at once.

Backspace — Act of moving a video tape backward slightly. Helpful in producing glitchless(clean, smooth) edits.

Bulk tape eraser — Large electromagnet used for erasing (demagnetizing) an entire reel orcassette of audio or video tape at once. The procedure takes about 4 seconds.

Control pulses — Rhythmic signal recorded on a video tape's control track which guides theVCR during playback.

Copy protected — A signal recorded on a video tape renders the tape uncopyable

Cue channel — Extra (usually a third) audio channel, recorded on an extra track on the videotape-used to carry TV technician messages or time code data, such as the SMPTE time code. **Digital video recorder** — Advanced, professional VCR that records video as 1s and 0s. Digitalvideo tapes can be copied without generational losses

Dropout — A speck or streak of snow on the TV screen seen when a video tape player hits afleck of dirt or a barespot when the tape is playing. Dust or scratches can also cause a dropout to be recorded on a tape.

Flying erase head — A spinning head residing upstream of the video recording head that canerase video tape a split second before the video record head records a new picture.

Frame accurate — Edit or editing device that identifies a specific frame of video tape.

Perfectaccuracy when editing.

Jog — To move a video tape forward or back a very short distance (one or two frames) insearch for the perfectplace to edit

Linear (or normal) audio track — Audio recording made in a line along the edge of a videotape (as opposed to hi fi sound imbedded in the video tracks on the tape).

Linear audio track — A stripe of magnetic vibrations along the edge of a video tape thatcontains the audio signal, laid down by a stationary record/ play head.

Macrovision — Popular anti-copy signal recorded on a video tape to make it playable but notcopyable.

Mastering plant — A company that converts a video tape or other media into a mastervideodisc and makes copies of it.

Test tape — A video tape made under perfectconditions, used to test the performance of VCRs,VCPs, and sometimes other video equipment. Tape may include special test signals for measuring signal strengths, timing, and purity.

Video tape player or VTP — A machine which can play a video tape but cannot record one. **Videocassette** — A box containing video tape connected to an internal supply reel and a take-up reel, used in VCRs.

Working master — A carefully made copy of a master tape, which is in turn copied. Theworking master protects the master from damage and wear in the copying process because it is the working master which gets played many times while the master is archived.

Closed caption submaster tape — Copy of your master tape with closed captions encoded intoline 21 of the video.

Cue inserter — Device that puts a coded signal on the premaster tape. At the mastering plant,this cue is transformed into a level 1 chapter stop or picture stop.

Edited master — Same as master tape, but created by the editing process. **Edit-in point** — The first frame of raw footage video you wish to copy onto the master tape.Also the point on the master tape where you wish to start copying the footage. Both can be described by time code numbers.

Edit-out point — The last frame of raw footage video you wish to copy onto the master tape.Also the point on the master tape where you'll stop copying the footage

Master tape — The original copy of the finished version of a tape. Could be original footage ofa liveshow, or could be a program edited together from other tapes. The master is the best-quality copy of this program in existence.

3.9 Summary

CCU (Camera Control) Operations refers to a range of equipment and operations related to remote control of video/television camera functions. Partial CCU control is a common method to control camera functions in television production. This is a professional approach that allows for maximum control and quality. In a multi-camera production the CCU operator is generally responsible for more than one camera (2-3 cameras is common, but up to 1is possible). Of course a large production may require a number of CCU operators. For example, a 20-camera broadcast could have 5 CCU operators, each controlling 4 cameras.

Vision Mixer / Switcher A vision mixer (AKA video switcher or production switcher) refers to eitherA device used to mix multiple video sources into one or more master outputs. Or A person who operates a vision mixing device. A vision mixer also known as video switcher or production switcher refers to eitherA device to mix multiple video sources into one or more master outputs. A person who operates a vision mixing device. You need to note down that the term mixer is a European term while switcher is an American term. For simplicity we will call the mixing device as a vision mixer, and the operator a switcher. The main purpose of a vision mixer is to create a master output for a real-time video recording or broadcast. Typically vision mixers are used for events that are or any event where multiple sources need to be mixed in real-time (as opposed to post-production editing). Vision mixers can also be used to create various visual effects, from simple mixes and wipes between sources to advanced composite effects.

VT (Videotape) Operations refer to the job of operating one or more video tape machines, or any similar digital recording devices. VT operations are to operate one or more video tape machines, or any similar digital recording devices. VT operators are found in many video and television production environments. The duties of this position can

includeRecording a master tape of the production. Recording specific events, shots, camera angles, etc. Editing video footage. Cueing and playing video items at specific set times, or at the director's instruction. Slow Motion Replays

Prepare a tape for recording is to be understood as they are used for professional editing. Check that the tape is clean and free of dust. Fast-forward the tape to the end, then rewind. This ensures that the tape has the correct tension. Now record blackfrom a stable source throughout the entire tape and then rewind. This is important if you're planning on using insert editing, but is not compulsory for assemble editing. Now record 30-6seconds of correctly configured colour bars and audio tone at the beginning of the tape. This provides a technical reference for use later.

Master Tape is one of the most important roles of a VT operator. Creating a master tape is one of the most important roles of a VT operator. This is the recording that is done that is of the entire program for mastering, editing, reproduction, distribution, archiving, etc.

Slow-Motion Replays are an integral part of television genres such as sports and other action programming.

3.10 Self Assessment Test

1   Write a detailed note on CCU operations

2   Write a detailed note on the steps of how do you prepare a tape for editing

3   Write a short note on the values of target

4   Write a short note on How do you make a video tape?

5   Write a short note on how to take slow motion replays

6   Write a short note on Master Tape

7   Write a short note on VT Tape operation

3.11 Further Reading

•   Video Production Handbook, Second Edition, Gerald Millerson C.Eng MIEE MSMPTEMay 2001

•   The Film Editing Room Handbook How to Tame the Chaos of the Editing Room, 4th Edition, Norman Hollyn

- Video Production Handbook, 4THEdition, Gerald Millerson C.Eng MIEE MSMPTE, Nov 2007

- The Videomaker Guide to Video Production, Fourth Edition, Videomaker and John Burkhart, Nov 2007

- The Shut Up and Shoot Documentary Guide A Down Dirty DV Production, Anthony Q. Artis, Sep 2007

- Film and Video Budgets, 4th Edition, Kindle Edition, Jan 2006

Assignment

Make a speech and record it on the topic of CCU. Along with the video shoot also make a write up on the same

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Dr. Babasaheb Ambedkar Open University

BCADES-101
Video Production Basics BCA(DES)

Block

3

CROMA, SHOOTING AND STREAMING VIDEO TECHNIQUES

Acknowledgment

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The content is developed by taking reference of online and print publications that are mentioned in Bibliography. The content developed represents the breadth of research excellence in this multidisciplinary academic field. Some of the information, illustrations and examples are taken "as is" and as available in the references mentioned in Bibliography for academic purpose and better understanding by learner.'

ROLE OF SELF INSTRUCTIONAL MATERIAL IN DISTANCE LEARNING

The need to plan effective instruction is imperative for a successful distance teaching repertoire. This is due to the fact that the instructional designer, the tutor, the author (s) and the student are often separated by distance and may never meet in person. This is an increasingly common scenario in distance education instruction. As much as possible, teaching by distance should stimulate the student's intellectual involvement and contain all the necessary learning instructional activities that are capable of guiding the student through the course objectives. Therefore, the course / self-instructional material are completely equipped with everything that the syllabus prescribes.

To ensure effective instruction, a number of instructional design ideas are used and these help students to acquire knowledge, intellectual skills, motor skills and necessary attitudinal changes. In this respect, students' assessment and course evaluation are incorporated in the text.

The nature of instructional activities used in distance education self- instructional materials depends on the domain of learning that they reinforce in the text, that is, the cognitive, psychomotor and affective. These are further interpreted in the acquisition of knowledge, intellectual skills and motor skills. Students may be encouraged to gain, apply and communicate (orally or in writing) the knowledge acquired. Intellectual- skills objectives may be met by designing instructions that make use of students' prior knowledge and experiences in the discourse as the foundation on which newly acquired knowledge is built.

The provision of exercises in the form of assignments, projects and tutorial feedback is necessary. Instructional activities that teach motor skills need to be graphically demonstrated and the correct practices provided during tutorials. Instructional activities for inculcating change in attitude and behavior should create interest and demonstrate need and benefits gained by adopting the required change. Information on the adoption and procedures for practice of new attitudes may then be introduced.

Teaching and learning at a distance eliminates interactive communication cues, such as pauses, intonation and gestures, associated with the face-to-face method of teaching. This is particularly so with the exclusive use of print media. Instructional activities built into the instructional repertoire provide this missing interaction between the student and the teacher. Therefore, the use of instructional activities to affect better distance teaching is not optional, but mandatory.

Our team of successful writers and authors has tried to reduce this.

Divide and to bring this Self Instructional Material as the best teaching and communication tool. Instructional activities are varied in order to assess the different facets of the domains of learning.

Distance education teaching repertoire involves extensive use of self- instructional materials, be they print or otherwise. These materials are designed to achieve certain pre-determined learning outcomes, namely goals and objectives that are contained in an instructional plan. Since the teaching process is affected over a distance, there is need to ensure that students actively participate in their learning by performing specific tasks that help them to understand the relevant concepts. Therefore, a set of exercises is built into the teaching repertoire in order to link what students and tutors do in the framework of the course outline. These could be in the form of students' assignments, a research project or a science practical exercise. Examples of instructional activities in distance education are too numerous to list. Instructional activities, when used in this context, help to motivate students, guide and measure students' performance (continuous assessment)

PREFACE

We have put in lots of hard work to make this book as user-friendly as possible, but we have not sacrificed quality. Experts were involved in preparing the materials. However, concepts are explained in easy language for you. We have included many tables and examples for easy understanding.

We sincerely hope this book will help you in every way you expect.

All the best for your studies from our team!

VIDEO PRODUCTION BASICS

Block 1: CONCEPT OF GRAPHICS FORMATS AND COLOUR MODEL

Unit 1 HANDLING VIDEO CAMERA AND SHOT TYPES

Learning Objectives:

- To make the students aware about camera and its basic terminologies
- To help the students how to do planning for shooting
- To make the students aware of using camera functions
- To make them understand and work on shooting technique.'
- To make them understand the basic camera moves

UNIT2 SHOOT TYPES

Learning Objectives:

- Here you will understand what are camera shots
- What are various types of camera shots
- What are these camera shots used for
- How and when you require to use a specific camera shot.
- You will learn important definitions

Block 2 VIDEO CAMERA OPTIONS AND OPERATIONS

UNIT 1 VIDEO CAMERA OPTIONS

Learning Objectives:

- You will understand the importance of Camera focus.
- How iris play an important role in camera.
- You will learn how to do color balance
- You will know what is viewfinder.
- How shutter plays an important role in video shoot.

UNIT 2 VIDEO CAMERA TRIPOIDS

Learning Objectives:

- Various types of Tripods
- How to use tripods
- How to work and choose tripods
- Techniques to set up and the how to use and what are monopods and bipods
- You will learn monopods and bipods

UNIT 3 CCU (CAMERA CONTROL UNIT) OPERATIONS

Learning Objectives:

- How to work with CCU operations
- You will lean the usage vision mixer/switcher
- Then you shall study Videotape operations
- You will learn how to prepare a tape for recording
- What are master tape
- Then finally you will understand slow-motion replays

Block 3 CROMA, SHOOTING AND STREAMING VIDEO TECHNIQUES

UNIT 1 VIDEO CHROMA GREEN SCREEN

Learning Objectives:

- You can plan your studio settings.
- What kind of green screen to be used.
- And then how to lighten the green screen.
- And finally incorporating green screen footage into your videos using software and the followed by tips
- You will learn definitions

UNIT 2 SHOOTING INTERVIEWS

Learning Objective

- Learn the interview structure.
- Know how to do framing.
- Develop compositions.
- Know different types of interviews
- You will learn various definitions

UNIT 3 STREAMING VIDEOS

Learning Objective

- Understand what is streaming
- What are streaming servers
- To know what is HTTP streaming
- Understanding various streaming video files and formats
- You will learn certain important definitions

Block 4 VIDEO EDITING BASICS AND VIDEO FORMATS

UNIT 1 INTRODUCTION TO VIDEO EDITING

Learning Objective

- Know what is Video Editing
- Know Various editing methods
- Understand various terminologies
- Understand linear editing and non-linear editing
- Learn how to use editing software
- Work with capturing, editing and generating final output

UNIT 2 VIDEO FORMATS

Learning Objective

- 8mm Video8 Hi8
- Digital8 Beta
- Betamax Betacam Betacam SP Betamax SX
- Digital Betacam DV MiniDV
- DVCAM
- DVCPRO

UNIT 1

VIDEO CHROMA GREEN SCREEN

❖ **Learning Objectives:**

After reading this unit, you will learn:

- You can plan your studio settings.

- What kind of green screen to be used.

- And then how to lighten the green screen.

- And finally incorporating green screen footage into your videos using software and the followed by tips

- You will learn definitions

: Structure :

1.1 Introduction

1.2 Planning the studio setting

1.3 Green screen material

1.4 Lighting the green screen

1.5 Incorporating green screen footage into your videos

1.6 Tips

1.7 Definitions

1.8 Summary

1. 9 Self Assessment Test

1.10 Further Reading

1.1 Introduction

The green screen effect is a type of chroma key. The idea of chroma is to create a pure green or blue background that can be then replaced with whatever background image or video you want.

This unit explain shows you how to set up a green screen (cheaply if necessary) and how to use it in your video productions.

There are various types of variations on the standard green screen technique and you will need to develop your own system based on the resources you have available. Whatever you do but you need to remember the two most important considerations:

The colour and lighting of the green screen has to be as even as possible.

You can't have anything in the foreground (i.e. part of the the subjects) which is the same colour as the green screen..

1.2 Planning The Studio Setting

Planning a Green Screen Studio

You need to plan your green screen size and your layout before you actually start any construction. You can set the width of green screen wide enough as per your shoot and requirement of how much area you want to later take as transparent.

Set up your proposed studio area and camera(s). Go through each and every type of shot that you can think of wanting and measure the total required background area. You also need to allow yourself enough space to change your mind about framing or even widen the shot more than you originally thought. Also allow yourself that extra space to the sides of the screen to place lights.

You need to in reality keep some some space between the foreground subjects and the green screen this makes lighting easier.

Plan your budget.

1.3 Green Screen Material

Normally when it comes to choosing the material that you can use as a green screen you need to debate. Many professionals normally tell that the colour must be just the right shade of green, or that the screen must be made of certain material. It is certainly true that some materials and colours are better, but in reality you can make an effective green screen from just about any smooth, green surface.

If you really want the best possible screen you should do an Internet search for green screen material. There are varieties of websites that sell specialist material and doing a little research you can find something to suit your studio. But you need to take care that the professional green screen material can be a bit expensive.

In the more likely event that you would like a cheap option to get started with, you will be glad to hear that it's not hard finding useable material. There are three main options:

Use a solid material like cardboard or wood or painted green.

Use flexible or spongy material such as foam, spandex, etc. If you're going this way, you are probably better off to buy professional material.

Use some sort of fabric. You can either buy green material or buy white material and paint/dye it green.

Fabric

Go to a good fabric shop and hunt through the selection you should be able to find at least several choices.

The material should not be very reflective as this tends to create lighter hotspots.

Lighter, brighter green is better than dark green.

Material which is crease-resistant is very desirable. You also need to take care that there are no wrinkles and you need to have a material which can be set up and moved without destroying the smoothness.

You can go for heavy material if you want consistent colour, especially if there is any possibility of anything behind the screen showing through. However it can be prone to more creasing.

If you need to pack up the material for storage or moving, roll it rather than fold it this helps reduce wrinkling. It's always good to use cylindrical object with a diameter of at least 5-

10cm (2-4) to roll the material onto, for example, the heavy cardboard cylinders used as the centre of newsprint rolls.

You may want to iron your material from time to time to keep wrinkles away. If you are going to paint or dye the material, make sure you will be able to iron it. Note than ironing a piece of material this large without creating new creases can be a challenge.

Hang the material in whatever manner suits your situation. E.g., you could use thumbtacks or a shower rail attached to the wall. To make a mobile screen, use two stands (such as light stands or mic stands) and mount a rail between them. You could also make stands from clothing racks, hat stands, or any similar type of frame.

Solid Material

Cardboard or wood has the advantage of providing a nice consistent surface, free of wrinkles. But its sometimes tough as it's more difficult to pack up and move.

Although you can use any light, bright green paint, it is better to use a tint

designed for green screens. Do a search for chroma key paintto see some options.

1.4 Lighting The Green Screen

In case you wonder that the green screen does require it's own lighting. It's less likely that you would be able to use the screen with existing ambient light or the same light you use for the foreground subjects. As mentioned earlier you need to plan your screen lights before you begin construction.

The key to lighting a green screen is consistency. The entire idea is to create a single, consistent shade of colour across the entire screen.

You will need at least two lights, preferably more. The figure on the next page shows how you could light a green screen which is a few metres across, using a couple of 300-500w lights (one at each end) and a couple of 100-250w lights below pointing up.

NoteDiffusion filters come very handy when lighting green screens. Diffusion helps creating more even lighting and reducing the impact of shadows.
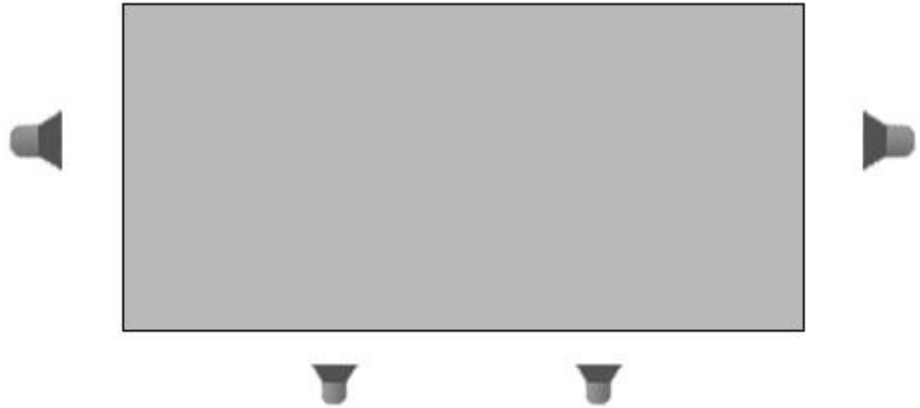
You need to experiment with different combinations to get the most even lighting.

Once the screen is lit up as per your satisfaction you need to add the main lighting for the subjects. At this point you will also find that shadows created by these new lights are cast on the screen. Adjust the light positions and filters until you get the best compromise.

1.5 Incorporating Green Screen Footage Into Your Videos

Once you have recorded your green screen footage now you will surely need to remove the green parts of the image and replace it with your own background. This is done through a process known as chroma keying,

and this means selecting a color and removing every instance of that colour in the image. Any image placed behindthis image then becomes visible.

Greenscreen footage is placed on a layer above the background

All green is removed from the greenscreen footage

The background is visible in all parts of the image that were originally green

Visual representation of how chroma work and final output

There are two common ways to create a chroma key:

In real time by using a video switcher or special effects generator.

In post-production, using editing or compositing software.

We assume you using the second method as this is by far the most common, especially for beginners. The editing software you use plays an imp role as to how you do a chroma key. However the general process used by most applications goes like this:

Place the green screen footage on a layer in the timeline.

Now place the footage or image that is to be used as the background on a layer below the green screen footage.

Now add a green screen or chroma key effect to the top layer (the example shown is the effect supplied with Adobe Premiere).

Select green as the colour to use in the key. Most software provides a colour picker to help you do this.

After selecting the colour various parts of the image will become transparent and you should see the background appear in these parts. Adjust various parameters to get the best effect.

1.6 Tips

Some software packages come with dedicated green and blue screen effects which may require the screen to be a very specific colour. If these effects don't work then use the more general chroma key effect.

In most of the studios there will be some variation in the screen colour, no matter how hard you try to make it consistent. When selecting the

key colour, try to select a part of the screen which best represents the overall colour.

Key parameters to adjust include similarity and blending. Experiment with these to see how they work. You will most of the times have to adjust these to get an acceptable effect.

Make sure anyone appearing in your video knows that they cannot wear green (or blue if you're using a bluescreen). You also need to avoid green (or blue) props and other objects. Also need to take care of the logos and symbols on people's clothing these may be small enough that nobody notices them while shooting, but after adding the key they become horribly obvious holes in the person's body.

You will also notice that some colours and shades work better than others when you avoid green or blue. For example, dark coloured clothes may create more of a green rim around foreground objects than light colours. You also should spend time experimenting with different colours.

1.7 Definitions

Blocking — Planning out everyone's position and movement for the show.

Audio director — Studio crew member who handles the microphone placement, sound mix,and other audio responsibilities before and during the show.

Charge back — Charging studio costs to another division of the same company. No moneychanges hands, it's just an accounting procedure.

Cue — A signal to performers (or crew) telling them to do something. Usually, the directorcalls out the cue, which is relayed via hand signals by a studio crew member

EFP — Electronic field production, producing TV shows outside the studio. Usually involvesstudio-quality equipment, techniques, and editing.

External sync — Electronic pulses, coming from outside the TV camera, which synchronizethe camera's picture with other cameras in the studio so the pictures can be mixed or switched. **Floor manager** — Studio crew member who assists by handling cables or relaying director'scues and commands.

Floor plan — A sketch, seen from above, showing where objects, walls, doors, cameras, etc., are to be positioned on the studio floor.

Foldback — Audio mixing system to allow sound effects, music, etc., to be mixed, amplified, and sent to the studio for performers to hear, as well as being recorded, mixed with the sounds of their microphones.

Head end — The place where the cable TV company sends its signals from. This is not necessarily where its offices are or where its studio is. It is the center where the signals start their journey down the web of wires to homes.

House lights — General overhead work lights used in the studio during rehearsals and between productions.

Intercom — An earphone/microphone headset that allows the director in the control room to speak with the camera operators in the TV studio.

Joystick — A multiposition lever on a studio switcher that positions special effects anywhere on the TV screen.

Lighting grid — Framework of pipes connected to the studio ceiling from which lights are hung.

Patch bay — Like a telephone switchboard, a console of sockets leading to the studio lights and another set of sockets leading to the dimmer circuits. Connecting the two via patch cords allows various dimmers to activate various lights

Patch cable — This special heavy-duty lighting cable plugs into the patch bay to carry current from the dimmer circuit to the grid circuit and studio lamp.

Pneumatic studio pedestal — Heavy duty studio camera pedestal and dolly that allow the camera to be raised and lowered smoothly with ease.

Scanned area — Part of a graphic seen by the studio camera and control room monitor but not necessarily seen on all home viewer TV sets.

Strike — To clear props and set pieces from the studio.

Studio crane — Large studio device able to smoothly lift camera and operator high into the air. **Studio production switcher** — A large active switcher/SEG that receives all the video sources (inputs from cameras, etc.) and is used to select the pictures or effects to be shown.

Sync generator — Electronic device that makes sync, the pulses that keep studio cameras, etc. electronically in step.

Talkback — A loudspeaker system to allow the control-room crew to speak directly to studiopersonnel.

Virtual set — Studio set that exists as a computer graphic. The set moves as the studio cameramoves so that the graphic looks real.

Wild sound — Background sound without narration or performing going on. During editing itcan be mixed with the performer's sounds if they have to redo their lines in a quiet studio. **Beaded screen** — Projection screen covered with tiny glass beads (looks like white sandpaper);has a gain of 2 or 3

Desktop video — The integration of several video disciplines, (i.e., titles, graphics, switcher,video editing) into one or several computers. Except for the cameras and microphones that gather the original footage, most of the production process can take place on a desktop computer.

Parallel cutting — Editing raw footage so that similar or parallel actions are seen one afteranother, making it look like everybody's doing it.

Print to tape — Process where a digital non-linear editor will play its data back to a VCR thatrecords the show on tape. Also the process where an analog NLE will follow the edit decision list to drive the VCPs, VCR, and SEG to create the final edited show from the raw footage.

Raw footage — Recordings made directly from the camera, intended to be edited into a finalprogram later.

Technical director — The person who pushes the buttons on the switcher/SEG during theshow.

Technical setup — Adjusting the video equipment prior to a show. Also the time period forthis process before a show.

1.8 Summary

Planning the studio setting is alwaysa good idea for studio layout and green screen size. You need to plan your green screen size and your layout before you actually start any construction. You can set the width of green screen wide enough as per your shoot and requirement of how much area you want to later take as transparent. Set up your proposed studio area and camera(s). Go through each and every type of shot that you can think of wanting and measure the total required background area. You also need to allow yourself enough space to change your mind about framing or even widen the shot more than you originally thought. Also

allow yourself that extra space to the sides of the screen to place lights.

For green screen material it is true that some materials and colours are better while in reality you can make an effective green screen from just about any smooth, green surface. Use a solid material like cardboard or wood or painted green. Use flexible or spongy material such as foam, spandex, etc. If you're going this way, you are probably better off to buy professional material. Use some sort of fabric. You can either buy green material or buy white material and paint/dye it green.

While Lighting the green screen you need to maintain consistency. In case you wonder that the green screen does require it's own lighting. It's less likely that you would be able to use the screen with existing ambient light or the same light you use for the foreground subjects. As

mentioned earlier you need to plan your screen lights before you begin construction. The key to lighting a green screen is consistency. The entire idea is to create a single, consistent shade of colour across the entire screen. You will need at least two lights, preferably more. The figure on the next page shows how you could light a green screen which is a few metres across, using a couple of 300-500w lights (one at each end) and a couple of 100-250w lights below pointing up. Incorporating green screen footage into your videos in done through a process called chroma keying. In real time by using a video switcher or special effects generator. In post-production, using editing or compositing software. Place the green screen footage on a layer in the timeline. Now place the footage or image that is to be used as the background on a layer below the green screen footage. Now add a green screen or chroma key effect to the top layer (the example shown is the effect supplied with Adobe Premiere). Select green as the colour to use in the key. Most software provides a colour picker to help you do this.

Tips as mentioned in the unit kindly read them carefully. In most of the studios there will be some variation in the screen colour, no matter how hard you try to make it consistent. When selecting the key colour, try to select a part of the screen which best represents the overall colour. Key parameters to adjust include similarity and blending. Experiment with these to see how they work. You will most of the times have to adjust these to get an acceptable effect. Make sure anyone appearing in your video knows that they cannot wear green (or blue if you're using a bluescreen). You also need to avoid green (or blue) props and other ob-

jects. Also need to take care of the logos and symbols on people's clothing these may be small enough that nobody notices them while shooting, but after adding the key they become horribly obvious holes in the person's body. You will also notice that some colours and shades work better than others when you avoid green or blue. For example, dark coloured clothes may create more of a green rim around foreground objects than light colours. You also should spend time experimenting with different colours.

1.9 Self Assessment Test

1   Write a detailed note on chroma and its uses

2   What a detailed note on the benefit of using green or blue screen

3   Write a short note on How do you light the green screen?

4   Write a shot note on What kind of green screen material is desirable?

5   Write a short note on How do you plan your studio settings?

6   Write a short note on how to plan the studio settings

7   Write a short note on the fabric that is used for chroma cloth

1.10 Further Reading

- Video Production Handbook, Second Edition, Gerald Millerson C.Eng MIEE MSMPTEMay 2001

- The Film Editing Room Handbook How to Tame the Chaos of the Editing Room, 4th Edition, Norman Hollyn

- Video Production Handbook, 4THEdition, Gerald Millerson C.Eng MIEE MSMPTE, Nov 2007

- The Videomaker Guide to Video Production, Fourth Edition, Videomaker and John Burkhart, Nov 2007

- The Shut Up and Shoot Documentary Guide A Down Dirty DV Production, Anthony Q. Artis, Sep 2007

- Film and Video Budgets, 4th Edition, Kindle Edition, Jan 2006

Assignment

o   Make a concept of your documentary or an Ad, now plan the set and do the chroma set up. Now you need to write the script and the scene description. Now do the chroma shoot and keep the footage ready.

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UNIT 2	SHOOTING INTERVIEWS

❖ **Learning Objectives:**

After reading this unit, you will learn:

- Learn the interview structure.
- Know how to do framing.
- Develop compositions.
- Know different types of interviews
- You will learn various definitions

: Structure :

2.1 Introduction

Shooting Interviews Introduction

1Interview Terminology

IVInterview

GuestThe person being interviewed.

One-ShotShot of a single person, either interviewer or guest. Usually a mid-shot or tighter.

Two-ShotShot of two people, e.g. interviewer and guest. Back-Cut QuestionShot of the interviewer asking a question, shown from the other side of the guest.

Noddy Shot of the interviewer nodding or showing an appropriate facial expression.

In video and television production an interview (IV) is a fundamental element, an interview is used in a huge range of programming. You can create contents through this most efficient ways and it is cheap to produce, effective for gathering and presenting information, and easy to edit into the program. In fact you can make entire programs using little more than interviews laced with cutaways and links.

In order to produce a successful interview you require a combination of skills. In professional situations these responsibilities can be shared by various designations like the producer, director, interviewer, camera operator, audio and lighting technicians. In other situations it is a one-person operation.

2.2 Getting Started

Interview shoots are very unforgiving. In an interview situation you need to get everything right first time and make the job flow smoothly and comfortably for everyone involved. Interviews will not fall in place and so you have to take care that they dont start going wrong or taking a long time. Therefore you need competent operators who can organise and shoot interviews in their sleep. It is a skill that has to be second nature so you should be well practiced in this art before you attempt a mission-criticalinterview.

Preparing for an interview involves:

Contacting and making arrangements with the guest(s)

Choosing a location

Preparing equipment

Traveling to the location and setting up

Final briefing and technical checks

Before you begin shooting, double check everything. If you're not 100%

fully sure enough that it is all working okay, stop and get it right. Don't use take one of the IV as a practice or test record.

2.3 Interview Structure

In a video interview you normally involve three types of people in a conversation:

The interviewer is the facilitator. The interviewer has to choose the topic of conversation also asks questions and guides the discussion.

The guest is the subject of the interview. (S)he will do most of the talking and get most of the camera shots.

The viewer is a silent observer who has been invited into the conversation.

This creates a three-way interaction. A good interviewer has the ability to to include all three groups in the correct mix.

Typically, the interviewer begins by setting the scene then inviting the viewer into the conversation by introducing the location, guest and topic. At this point the interviewer is might be speaking to the camera as if they were looking the viewer in the eye.

Next, the interviewer turns to speak to the guest. Then follows a one-sided conversation in which the interviewer asks questions which are (usually) designed to encourage the guest to talk a lot.

The progress of the interview depends on the situation. A short style interview will last long enough to get the information from the guest and then close, often quite abruptly. For a more in-depth interview or a personal interview you need to go through a settling-in stage where simple facts are discussed, then move gently towards the more thorny issues.

The interview is usually concluded by thanking the guest. The interviewer may then turn back to the camera and say goodbye to the viewer, as well as tidy up any script requirements

such as leading to the next piece in the program.

2.4 Framing

In addition to the normal rules of framing, there are a number of guidelines specific to interviews.

Facing Direction

In most cases the subject (interviewer or guest) is facing slightly left or

right of the camera. This shows that the subject is talking to someone else (not the viewer), but by being relatively front-on the viewer is still part of the conversation.

Also it is a major part of the video interviews is make sure that the interviewer and guest are always facing the right wayso they are talking to each other. If they are facing the same way they will both appear to be talking to an unseen third person.

Avoid severe profile shots you should always be able to see both eyes. People are very attuned to seeing someone's whole face when they talk and if the viewer can't see enough of the face it becomes uncomfortable. Profiles are also unflattering to the guest.

Common Interview Shots

Common interview normally include shots that are ranging from mid-shot to medium close-up (MCU) while the wider shots are occasionally used as establishing shots or cutaways. The following rule is especially important in interviews so keep that in mind:

Shots ranging from wide shot to MCU are best for information delivery, i.e. when the subject is talking about factual information.

Shots tighter than a MCU are appropriate for when the guest is talking about something personal or emotional the shot pulls the viewer into the same emotional space. For this reason it's not usually a good idea to go tighter than a MCU on the interviewer, since their feelings are not the focus and they should be portrayed as slightly detached from the emotion of the topic (but not completely detached).

The Sequence of Shots

In general most of the interviews start with quite a loose shot of the interviewer and/or

guest. Make sure you leave enough room for a name/title key if necessary. You should normally have a similar framing for both interviewer and guest at the beginning of the interview. As the interview progresses the relative framing can vary.

A common practice is to begin the interview with a mid-shot as the guest talks about the facts, then slowly zoom in to a close up when the guest begins talking about their feelings. This technique is quite famous in current affairs programs and documentaries. Don't drag the close-up on

for too long after a while it becomes uncomfortable and makes the viewer feel that they are invading the speaker's personal space. Watch television interviews and learn to judge the timing of these moves.

Use appropriate, motivated framing. For example:

If the guest starts using hand gestures, zoom or cut to a shot which includes them (if possible).

If the interview is to be closely edited with other interviews or content, make sure your shots will match as necessary.

And you need to rememberWider shots are for information and casual conversation, tighter shots are for intensity.

2.5 Composition

Once you are accustomed with the basic framing requirements that are for interviews now you can read the following composition tips and tricks.

Set the interview in a proper location, maybe with appropriate background features. It is often require that you make the background appear to be the guest's normal surroundings. If you are in outdoors then you can use an identifiable building or a milestone; if you're inside you could use photos, logos, etc.

With lighting you can set the mood.

The position and framing of interviewer and guest play a very important role and this will affect the perceived relationship. E.g., if you have an interviewer who is behind a desk then it gives a feeling of authority.

Also you can keep the props if required at a place that is in front of the interviewer so that whenever you talk about them you can show them.

Backgrounds

Not GoodThe speakers in the background make the guest look he has antennae.

You have to be sure enough that there is nothing distracting in the background of the person speaking.

Its always good to work with conceptual backgrounds that go well with the kind of shoot you are having

Check the microphone and cube. A wind-sock which is hanging off the mic doesn't look good.

Eyelines

It is very important to make sure the guest's eyes are level with the interviewer's. There should not be any noticeable difference that adds discomfortand also you should avoid unwanted message like such as dominant and submissive appearances.

In studio situations all chairs have to be adjusted such that everyone appears to be at the same height.

In the field you may need to be a bit more inventive. The audience need never know the true height relationship.

2.6 Different Types of Interviews

Lets now in this section study various types of interviews

2.7 Studio IVs

There are various possible settings to conduct interviews. The first setting that you should know is the seated interview. You have to arrange the interviewer, guest(s) and cameras in order to achieve the look and feel that best suits your objectives irrespective of whether you are in permanent studio or in some other indoor location.

You have various types of common floorplans from which you can choose. You normally will come across some of the limiting factors like space and number of cameras. The guidelines below include options for most settings.

1 Guest, 1 Camera

In this simple case the interviewer and guest are given a similar framing and appear with equal prominence. This is useful if you are not sure as to who would be doing most of the talking, or if the talk-time is spread evenly between the interviewer and guest.
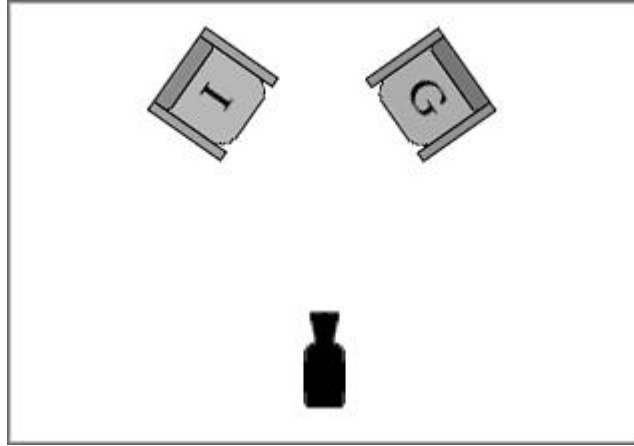
1 Guest, 1 Camera

It is a quite informal setting especially suitable for less formal interviews.

1 Guest, 1 Camera

Taking the same situation and moving the camera to one side gives a different feel. Now the guest is much more important and becomes the main focus and the interviewer can face the camera at the beginning and end of the interview, but not usually during. This would leave the interviewer with profile framing so your 1-shots will be reserved for the guest. From time to time you can zoom out to a 2-shot you, back in to the guest.

If the IV is to be edited, you will most likely frame most of the interview on the guest. At the end of the interview you need to move the camera to the other side and
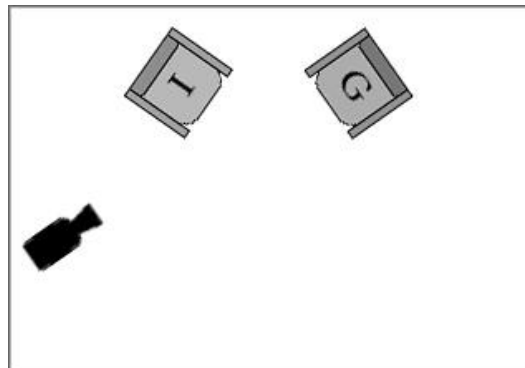
1 Guest 1, 1 Camera

shoot the back-cut questions and noddies (more on this later).

1 Guest, 2-3 Cameras

By adding a second camera facing the interviewer you not only provide a second shot but also allow each camera to reframe its shot while the other camera is being used. This allows you to cut between a range of shots without actually having to constantly zoom in and out. A third camera in the middle adds the security and flexibility of a permanent 2-shot.
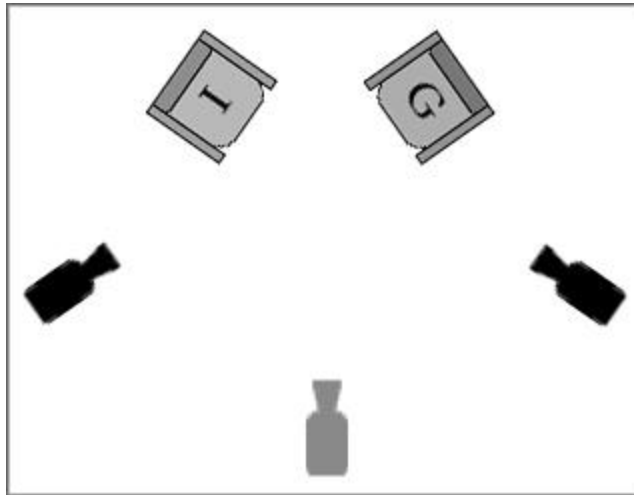
1 Guest, 2-3 Cameras

2 Guests, 2 Cameras

This kind of set up accommodates two guests in a welcoming manner. It works well when the guests are somehow connected (e.g. coffee with karan, any celebrity interview), or share similar views about the subject.

If you have one camera covering both the guests they can be covered with a 2-shot for much of the time but you will probably want to include some tighter shots. The camera operator must move cautiously among the guests to track whoever is talking. With the optional extra camera this problem can be eliminated as one camera is dedicated to each guest.
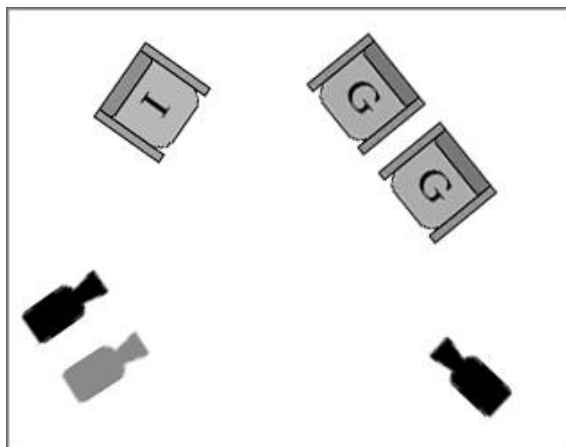
2 Guest, 2 Cameras

1 Guest, 2-3 Cameras

2 Guests, 2-3 Cameras

This arrangement is preferable if the guests are expected to be antago-nistic toward each other, or don't want to sit so close together.
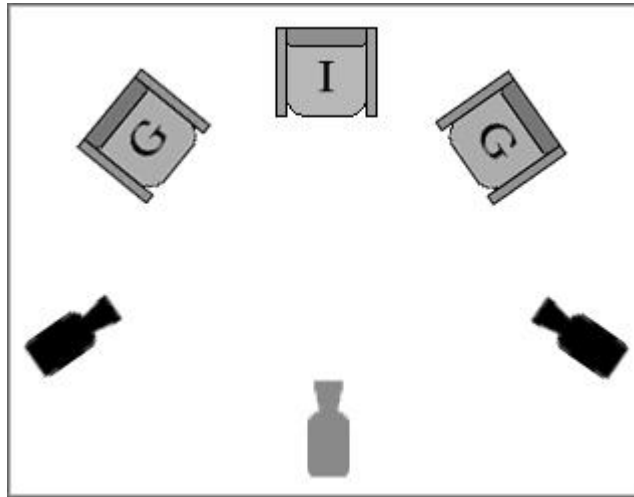
2 Guests, 2-3 Cameras

2-3 Cameras

By making the guests sit at opposite ends of a table you actually create a more confrontational situation. This is preferable for guests who carry contrasting views on the subject.
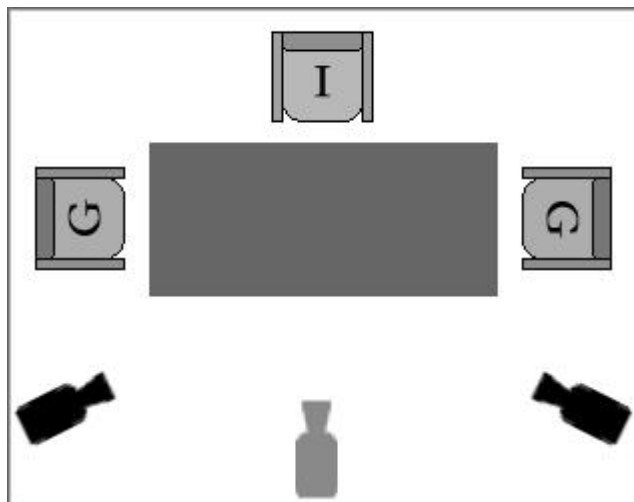
2 Guests, 2-3 Cameras

2.8 Mobile IVs

Shoulder-Mounted Camera

Shooting off the shoulderis an easy and flexible method for recording interviews.

Typically this will involve one camera, although other cameras can be added easily enough.

This is the most common technique for field shoots in which speed and efficiency are important. A minimum of equipment is required and the production team can move around quickly and easily.

This is also a very useful method if you want to include the surroundings in the interview. Because the camera operator is so mobile, (s)he can move around and show objects and scenery as they are talked about.

The standard technique is pictured here, with the camera situated just to the side of the interviewer. This gives a nice front-on shot of the guest. The interviewer and camera should be close together so the guest is facing just slightly off-camera.

Off-the-shoulder interviews have a tendency to be quite a different experience to tripod/pedestal interviews. They are less formal, less restricted, and involve more movement. You get a very different impression of off the shoulder interviews as the participants are usually standing or moving around, you get an impression of being up and about instead of sitting sedately in a studio setting. Certainly off-the-shoulder cameras are sometimes used in studio settings to achieve this effect.

The amount of movement involved actually depends on the production requirements. News stories tend to be quite static, concentrating on what the guest has to say and minimising distractions. Programmes that are more entertainment related might include a lot more variety, with the camera operator moving around and showing different angles of the guest, presenter and surroundings.

Tripod-Mounted Camera

You can use a tripod in much the same way as above.

Advantages:

Nice steady shots - important if the interview will be edited alongside other tripod-mounted shots.

Reduced fatigue for the camera operator, which will make a big difference if the interview is going to be long or if you'll be shooting lots of them. Off-the-shoulder shots can become shaky if the operator begins to wear out.

Disadvantages:

You are much more restricted in terms of movement and framing.

You have another piece of equipment to carry around (and good tripods are heavy).

Walking and Talking

A nice effect is the walking IV in which the interviewer and guest stroll side-by-side toward the camera. The camera operator has to walk backwards in order to maintain a constant distance. Obviously this must be well planned.

The camera operator should have someone to act as a guide the usual routine is for the guide to place their hand in the middle of the operator's back and walk with them.

In the example pictured here, the sound operator is doubling as the guide (he needs to keep turning his head backwards and forwards to do both jobs).

Field Kit Checklist

> Camera, tripod and plenty of tapes
>
> Batteries/power + multiboxes and extension leads
>
> Microphones
>
> Audio mixer, headset and leads
>
> Lights, stands and gels
>
> Video Monitor
>
> White balance cards
>
> Shot-log sheets, pen, etc.

2.9 Remote IVs

In a remote interview the interviewer is geographically or physically separated from the guest. It is with the help of Transmission equipment that theinterview can take place in real time, either for live broadcast or recording. Remote interviews can occur between two studios,

between a studio and temporary field location, or between two field locations.

The signature of the remote interview is the split screen (pictured right). With this one can establish both locations and provides comfortable transitions among them.

Now you will see that the remote interview can have numerous technical and logistical complications. Before starting the interview you need to

make thefollowing preparations in addition to normal preparations:

Set up transmission and communication links among locations and complete technical checks.

Prepare the guest for the interview (see below).

Sometimes vision monitors are set up so the participants can see each other, but this isn't usually necessary (or even desirable as it can be distracting for the guest).

The cameras in each location must be matched in composition, colour balance, etc. It's not a good look when one head is much bigger than the other.

Preparing the Guest

How you prepare the guest will depend on the their level of experience. If they are new to this type of interview they will need to be well briefed. It is a difficult and unnatural situation and not everyone will cope.

The guest will need to be rigged with a microphone and earpiece. While this is happening, explain briefly how things work and what to expect. If a hand-held mic is being used, make sure the guest knows how to use it. If possible, let the interviewer and guest have a short preparatory conversation before the actual interview begins. This ensures they are both comfortable with each other's audio level and quality, and helps relax the guest.

Useful advice for the guest includes:

The interview will be similar to a telephonic conversation.

Look straight at the camera. Imagine the camera lens is a small window through which you and the interviewer can see each other.(This is because many people tend to look aimlessly toward the ground or sky as they talk. If they feel more face-to-face with the interviewer then they are more likely to look in the right direction).

The Interview Sequence

The interview sequence will typically begin like this:

The interview Sequence

Full-screen shot of the interviewer with their preamble.

As the interviewer begins introducing the guest (e.g. I'm joined from Auckland by...), a split screen is shown between interviewer and guest. Titles given below each person identifies the respective locations.

Soon after the guest begins answering the first question their shot is shown full screen.

The guest's name/title key is shown.

The interview can then easily cut between the two full-screen shots, just as if the two people were sitting next to each other in the same studio. Occasionally the split screen is cut in in order to remind viewers of the situation and to allow the interviewer and guest to interact together on screen.

Telephone and Audio-Only Interviews

A simpler version of the remote interview can be conducted by telephone. This is often referred to as a phone-in interview.

A graphic is prepared like the one on the right, which includes a picture of a telephone or some other icon which makes it obvious what's happening. If possible, use a photo of the guest. The graphic is then used when the guest is speaking (i.e. in place of video shots).

If for any reason there is a situation where the video is not available you can use this technique with normal transmission equipment if for any reason video is not available.

New Technologies

You can also use mobile video phones to conduct remote interviews. You normally conduct remote interviews when you want to keep the equipment and personnel to the bare minimum, or when resources are spread very thinly.

Expect this type of remote interview to become very common as the technology improves.

2.10 Vox Pops

The term vox popcomes from the Latin phrase vox populi, meaning voice of the people. The vox pop is a tool used in many forms of media to provide a snapshot of public opinion. Random subjects are asked to give their views on a particular topic and their responses are presented to the viewer/reader as a reflection of popular opinion.

For video and television vox pops, the interviewer approaches people in the streetand asks them simple questions about the topic. Normally these people are new to interviews and will often be panicky, anxious, giggly, etc. so itsimportant to make them feel at ease and calm.

When asking people to participate, fast is best - don't give them time to worry about how they look or what their friends will think. Use a short, sharp standard question such as Would you mind answering a couple of quick questions about genetically modified food for TV3 news tonight?. (NotePeople are always eager to know what channel you are with and when the programme will be broadcast, so it helps to get that out of the way quickly.)

And also pay attention that you ask majority open-ended questions and avoid leading questions. At the same time, you must be specific enough to obtain brief answers.

Camera shots are usually framed as an MCU or close up. It is important to think about where the guest would be looking i.e. looking direction, and then get an equal number of left-facing and right-facing subjects. These can then be alternated in post-production. Some producers go so far as to get all answers with a particular opinion facing one way, and answers

with an opposing opinion facing the other way. Whether or not you think this is effective is up to you you may feel that it is too contrived.

It pays to ensure that an accurate mix of genders and races are represented, appropriate to the population being surveyed.

Here's an example of how some vox pops can add interest to a news item on genetically modified foods. Now let us consider a situation where at some point in the story the journalist would say something like meanwhile, public opinion is still divided...The following sequence is then inserted:

I think we need more research. I think we've seen this product arrive on our shelves in a tearing hurry, without any long-term case histories available for us to look at any possible harm.

I think it will be better in the short term, but in the long run it will promote more diseases, some inherited ones like cancer or something like that.

I don't actually have that much of a problem with it. I think that basically science enters every part of our existence anyhow. Scientists have been genetically modifying animals and things since the beginning of time, so no, I don't have much of a problem with it.

I don't really have a problem with it myself. I mean, it's coming up to the year 2000, the new millennium, we're going to have new changes, aren't we? People have got to get used to it. If they don't like that, if they can't stand the change, well... get out of the way and let those who can stand the change look after it.

I'd prefer not to have it, not to use any of it, but I'm not sure what's been altered and what hasn't.

Recording Sound for Interviews

Sound quality is especially important in interviews. The audience will be concentrating more on what the guest is saying than how they look. Without crystal clear sound your interview will be irritating to viewers.

Microphones

The first decision is which type of microphone best suits your situation.

Hand-Held Mics

Hand-held mics are versatile and relatively easy to use. They are well-suited to mobile interviews, and to situations where the interviewer needs to direct the talking (people can only speak when the interviewer points the mic at them).

Lapel Mics

Lapel (lavalier) mics create high quality, consistent sound. Each person has their own mic, the mics are (theoretically) always in the correct position and unwanted noise is rejected well.

The disadvantage is that they are slower and more difficult to set up, especially if there are a number of guests coming in and out of the IV setting. Also, if the mic position does happen to go awry, you have to interrupt the interview to fix it.

Boom Mics

Microphones placed on a boom arm are also very versatile and are used in both studio and mobile settings.

The main advantage is that the IV participants don't need to be rigged for audio or worry about mics, and the sound operator is in full control. The microphone is usually a shotgun (very directional) mic which can easily be pointed to any speaker (or other sound if required).

The boom operator and camera operator need to work together to make sure the mic stays out of camera shot.

PZM (Pressure Zone) Mics

PZM mics are useful when a number of participants are seated around a table. The mic is placed in the middle of the table and can pick up all speakers.

Radio Mics

You can plug in the microphone into a small battery-powered radio transmitter and sent to a receiver at the recording end. This frees the interviewer and guest from the restraints of audio cables. It also means the participants can be a long way from the camera (which would obviously be on a long zoom).

Built-in Camera Mic

If you're desperate you can use the mic which is built into the camera. However this is unlikely to produce good interview sound.

Mixing and Recording

In the studio, mics will be routed to the sound desk and mixed into the program audio by the sound operator.

In mobile interviews, the ideal situation is to have a dedicated sound operator (soundie). The soundie will plug the mics into a portable sound mixer like the one pictured and monitor the audio via a headset. The output of the mixer will either be fed to a portable recording device or (more commonly) fed to the camera and recorded on the same tape as the vision.

Audio Traps to Avoid

Many people begin their sentences loudly then tail off. You may need to compensate. You also need to be sure that you dont have noisy microphones that are cheap and inexperienced presenters.

If wind is a problem, use a sock or (preferably) shield the mic.

Background music means death in the edit suite. Turn any background music off.

Lighting Interviews

The normal rules of lighting apply to interviews. This section covers some general tips specific to interview lighting, whether or not you have your own lights.

If You Have Your Own Lights

You need to decide whether or not they are actually necessary. Conventionally you need to control the interview lighting yourself as far as possible, in many situations the existing light will be fine and more practical.

Shooting outside

The weather will obviously influence your decision. If the natural light is sufficient there

may be no need to add artificial light. If you do use your own lights you will need to add the appropriate gels to match your lights to the daytime colour temperature. If the sun is too strong you could find a shady location.

Shooting inside

Find the best location - ideally a room with plenty of space and the ability to control existing light. Unless you have a good reason to use existing light sources, try to eliminate them all (close curtains, turn off lights, etc). Then set up your own lights.

If You Have No Lighting

In many situations you are limited to the available light. This is where a reflector board (pictured) can be a lifesaver. Easy to carry and use, it can create useful lighting effects and compensate for unfavourable conditions. If you don't have a reflector board you can sometimes improvise with other reflective objects.

Camera-Mounted Lights

In many situations a light mounted on the camera is all you have. This is common in mobile operations such as news coverage. Although it is a simple, practical solution, it does not produce particularly good lighting and should only really be used when better lighting is not possible.

Lights which draw power from the camera battery will reduce the battery's charge time.

Editing Interviews

Before you shoot your interview you must know how it will be edited. For example, if there are going to be lots of other shots inserted you may want to hold a static shot throughout the IV so that these shots can easily be added anywhere. On the other hand, if there is to be little or no editing you may want to vary your shots to maintain interest.

Despite the many different styles of interview, most have a fairly common basic structure. The following example outlines a typical approach

Establishing Shot A very wide shot which shows the location. Not always necessary.

2-Shot A visual introduction to both interview participants (interviewer and guest).

Usually a wide shot or MCU.

1-Shot Begin concentrating on the guest with an MCU and overlay name/title key. Questions Noddies While most of the interview concentrates on the guest, the

interviewer is occasionally shown asking and responding to questions.

Cutaways When appropriate, relevant cutaways can be dropped in.

Cutting between Interviewer and Guest

The most common edit is the cut between shots of interviewer and guest, whether it be live cuts between cameras or post-production edits.

The natural instinct is to cut exactly between the end of a question and the beginning of the answer. However this tends to look stilted. Try cutting a little before or after the question/answer is complete.

When you are doing a live multi-camera shoot of situations it is sometimes likely that you are caught behind the action, cutting to the wrong person at the wrong time. This can happen, for example, when you expect one person to speak but another person does. Do not chasethe person speaking - it's better to have a shot of someone else listening for a few seconds than to cut quickly to the speaker and draw attention to your mistake. If you have the luxury of a wide shot, this can often get you out of trouble.

Back-Cut Questions

If you are using one camera and the IV is to be edited in post-production, the usual routine is to concentrate your framing on the guest during the interview. Then when the interview has finished you reposition the camera to face the interviewer and shoot them asking the questions again. The interviewer is in exactly the same position as they were during the IV, facing the empty space where the guest was (which is of course out of shot). These shots are then inserted into the interview over the original questions. The result is an interview which looks like it was shot with two cameras.

Obviously it's important to record the back-cut questions exactly the same as they were asked during the actual IV. You will usually have a pre-prepared list of questions to help you, but you should also make notes during the IV of any new questions.

Your position and and eyelines have to be consistent, as well as the placement of microphone.

Noddies

Noddyis the term given to a shot of the interviewer reacting to the guest. The interviewer may be nodding, smiling, frowning, looking concerned, etc. Noddies perform two functions.

To include the interviewer and show their reactions.

To provide edit points.

Noddies are shot in the same way as the back-cut questions. The interviewer faces the same direction and provides a series of nods, smiles and any other expressions relevant to the interview. If you are a fresher then it will be little difficult and will be a kind of an amusement for anyone watching who has never seen it done before.

NoteIf you are tempted to laugh and make jokes at your first professional shoot - don'tExperienced presenters have heard all the noddy jokes a million times and it just shows how new you are.

In the edit suite, whenever you need to remove a segment of the guest's speech you simply inset a noddy to cover the edit. Obviously the noddy must be appropriate - you don't want a shot of the interviewer smiling as the guest relates a tragic incident. This is why you must make sure you shoot the whole range of expressions - so you'll always have the right one for the edit.

Note: For better or worse, noddies can give emotional cues to the viewer. For example, if a guest is reciting some facts and figures, a shot of the interviewer looking shocked suggests to the audience that these figures warrant a strong reaction. Some More Rules:

When you are shooting for post-production purpose who have to create clean lead-in and lead-out space, and include information about the IV content.

At the beginning of the IV have the presenter record a brief intro and 3-second countdown, leaving the onesilent, e.g:

IV with John Smith regarding environmental contamination, starting in 3... 2.... (silence)...The interviewer then begins the actual interview on zero.

At the conclusion of the interview, pause and don't move. This stops the guest from immediately looking or walking away, providing you with enough time to mix or wipe away to the next shot.

Keep an eye on looking room and direction. When gathering and editing lots of different shots you must be constantly ensuring that everyone is facing the right way. For example, if you shoot your back-cut questions the wrong way the interviewer and guest will appear to be facing opposite directions.

Cutaways and noddies will save your edit. You can't have too many of them.

General Tips for Shooting Interviews

The KISS Principle

When you're starting out shooting IVs it's probably best to keep it simple. It's better to have a boring static shot for 6seconds than an empty or soft shot. Remember, the important stuff is what the guest is saying, not how creative your framing is.

Dealing with Newbie Guests

Guests who have never been interviewed before can be a challenge, especially if they are very nervous. It's important to reassure them and make them feel comfortable. Here are a few things you might find yourself saying to the nervous newbie:

Just treat it as a normal conversation. There's no reason for you to worry about anything else that's happening. The best thing you can do to look

good for the cameras is to ignore them. Don't worry if you make a mistake or muddle up your words - just carry on. It actually happens all the time in interviews, but because it's something the audience is used to seeing in everyday conversations they won't even notice.

You look fine!

Note: If the interview is to be edited, you can point out that any serious mistakes can be cut out.

Pace Yourself (and Everyone Else)

Fatigue is the enemy. Interviewers and guests who are tired do not perform well, so be careful not to exhaust them. When preparing the set, use stand-ins to take their place while you set up the shots. Do not ask for multiple takes unless necessary (you will often find the first take is the best anyway).

Clothing

Beware of clothing which is un-camera-friendly. This includes shirts and jackets with fine patterns which produce the moire effect. Dark glasses or caps which obscure/shade the eyes are not good.

Be Prepared

Think about everything that could happen during the interview. You need to know how you're going to move if you are shooting off the shoulder and there is a chance that your subjects can move around. Try to ensure that unwanted bystanders aren't going to interrupt the IV.

2.11 Definitions

Intercutting — Editing together several separate events or interviews to tell one story, makeone statement, or answer one question using pieces from each.

Credit — List of participants in a TV production, usually scrolled at the end of the show.

Credits — The listing, usually at the show's end, of the people who participated in making it.

2.12 Summary

Shooting Interviews IntroductionThe interview (IV) is a fundamental element of video and television production, used in a huge range of programming. Interviews are a very efficient way of creating content cheap to produce, effective for gathering and presenting information, and easy

to edit into the program. In fact entire programs can be made using little more than interviews laced with cutaways and links. Do arrangement of Contacting and making arrangements with the guest(s), Choosing a location, Preparing equipment, Traveling to the location and setting up, Final briefing and technical checks

Interview Structure is a video interview can be thought of as a conversation involving three types of people, interviewer, guest, and viewer. The interviewer is the facilitator. The interviewer has to choose the topic of conversation also asks questions and guides the discussion. The guest is the subject of the interview. (S)he will do most of the talking and get most of the camera shots. The viewer is a silent observer who has been invited into the conversation.

FramingIn most cases the subject (interviewer or guest) is facing slightly left or right of the camera. This shows that the subject is talking to someone else (not the viewer), but by being relatively front-on the viewer is still part of the conversation. Also it is a major part of the video interviews is make sure that the interviewer and guest are always facing the right way Composition comes into play once you are familiar with the basic framing requirements for interviews.

1 Guest, 1 Camera:In this simple case the interviewer and guest are given a similar framing and appear with equal prominence. This is useful if you are not sure as to who would be doing most of the talking, or if the talk-time is spread evenly between the interviewer and guest.

1 Guest, 1 CameraTaking the same situation and moving the camera to one side gives a different feel. Now the guest is much more important and becomes the main focus and the interviewer can face the camera at the beginning and end of the interview, but not usually during. This would leave the interviewer with profile framing so your 1-shots will be reserved for the guest. From time to time you can zoom out to a 2-shot you, back in to the guest.

1 Guest, 2-3 CamerasBy adding a second camera facing the interviewer you not only provide a second shot but also allow each camera to reframe its shot while the other camera is being used. This allows you to cut between a range of shots without actually having to constantly zoom in and out.

2 Guests, 2 CamerasThis kind of set up accommodates two guests in a welcoming manner. It works well when the guests are somehow connected (e.g. coffee with karan, any celebrity interview), or share similar views about the subject.

2 Guests, 2-3 CamerasThis arrangement is preferable if the guests are expected to be antagonistic toward each other, or don't want to sit so close together.

2-3 CamerasBy making the guests sit at opposite ends of a table you actually create a more confrontational situation. This is preferable for guests who carry contrasting views on the subject.

2.13 Self Assessment Test

1   Write a detailed note on How does composition play an important role in interviews?

2   Write a detailed note on the interview structure

3   Write a short note on framing interview shots

4   Write a short note on How do you prepare a guest

5   Write a short note on Vox pops

6   Write short note on general tips on shooting an interview

7   Write a shot note on Telephone and Audio interviews

2.14 Further Reading

- Video Production Handbook, Second Edition, Gerald Millerson C.Eng MIEE MSMPTEMay 2001

- The Film Editing Room Handbook How to Tame the Chaos of the Editing Room, 4th Edition, Norman Hollyn

- Video Production Handbook, 4THEdition, Gerald Millerson C.Eng MIEE MSMPTE, Nov 2007

- The Videomaker Guide to Video Production, Fourth Edition, Videomaker and John Burkhart, Nov 2007

- The Shut Up and Shoot Documentary Guide A Down Dirty DV Production, Anthony Q. Artis, Sep 2007

- Film and Video Budgets, 4th Edition, Kindle Edition, Jan 2006

Assignment

o   Make a concept of interview as per the topic of ad or documentary. Now make asset up of the interview and write down the description that describes your set with benefits and how that set works best for that particular interview of yours with the guest. Also shoot the entire dummy interview.

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UNIT 3

STREAMING VIDEO

❖ **Learning Objectives:**

After reading this unit, you will learn:

- Understand what is streaming
- What are streaming servers
- To know what is HTTP streaming
- Understanding various streaming video files and formats
- You will learn certain important definitions

: Structure :

3.1 Introduction

When we talk of streaming whether video or audio it is the technique of sending compressed video or audio over internet and then it si displayed on the clients machine in real time. Because of streaming the client has not to wait for the streamed video or the audio as streamed audio or

streamed video is a continuous stream of data that gets played as it keeps downloading and coming. Of course to play the streamed audio or video the client shall need the player that is appropriate to that media and these players can be always downloaded over the internet from various websites free of cost.

Streaming video is actually the prerecorded video files from where they are sent, however these streamed videos are then distributed as part of a live feed and this live feed you can also call as broadcast feed. When we talk of live broadcast the video signal gets converted into a compressed digital signal and then it gets transmitted from a special web server which is capable of sending the same file to multiple users at the same point of time.

Here you shall be studying the different types of video streaming on the internet and introduces the two main methods of streaming videoStreaming servers (true streaming) and HTTP streaming. This will give you information and idea of basic digital video concepts, and who understand how websites work.

When you are creating streaming video there are two things that you need to understandThe video file format and the streaming method.

3.2 Creating Streaming Video

There are many video file formats to choose from when creating video streams. The most common formats are:

Windows Media

RealMedia

Quicktime

MPEG (in particular MPEG-4)

Adobe Flash

There are pros and cons for each format but in the end it comes down to personal preference. Be aware that many of your users will have their own preferences and some users will only use a particular format, so if you want to reach the widest possible audience you should create separate files for each format. In reality this isn't usually practical so you need to make a judgment call on which formats to provide. So it definitely depends on how precisely you understand all the options such that you can take better decisions.

Streaming Methods

There are two ways to view media on the internet (such as video, audio, animations, etc)Downloading and streaming.

Downloading

When you download a file the entire file is saved on your computer (usually in a temporary folder), which you then open and view. This has some advantages like quicker access to different parts of the file but has the big disadvantage of having to wait for the whole file to download before any of it can be viewed. If the file is quite small this may not be too much of an inconvenience, but for large files and long presentations it can be very off-putting.

You can use a simple hyperlink to the file if you want to have a downloadable video files. A slightly more advanced method is to embed the file in a web page using special HTML code.

Delivering video files this way is known as HTTP streaming or HTTP delivery. HTTP means Hyper Text Transfer Protocol, and is the same protocol used to deliver web pages. For this reason it is easy to set up and use on almost any website, without requiring additional software or special hosting plans.

NoteThis is not technically truevideo streaming the best it can do is a passable imitation.

Streaming

Streaming media works little different the end user can start watching the file almost as soon as it begins downloading. In effect, the file is sent to the user in a (more or less) constant stream, and the user watches it as it arrives. The obvious advantage with this method is that no waiting is involved. Streaming media has more advantages like being able to broadcast live events (sometimes referred to as a webcast or netcast).

You need a specialized streaming server if you have to deliver a true streaming video.

Progressive Downloading

There is also a hybrid method known as progressive download. In this method the video clip is downloaded but begins playing as soon as a portion of the file has been received. This simulates true streaming but not necessary have all the advantages.

Which Method to Use?

The method you choose will depend on your situation, but most people will opt for HTTP streaming (download or progressive download). This is the easiest and cheapest way to get started. If necessary you can upgrade to a streaming server later.

Still, you will want to understand both options so the next two pages of this tutorial look at each one in a bit more detail. After that we'll talk about how to create the actual video files.

3.3 Streaming Servers

A streaming media or streaming video server is a specialized application which runs on an Internet server. This is often referred to as true streaming, since other methods only simulate streaming. True streaming has advantages such as: The ability to handle much larger traffic loads.

The capacity to sense users' connection speeds and provide appropriate files automatically.

The ability to broadcast live events.

There are two ways to have access to a streaming server:

Operate you own server (by purchasing or leasing)

Sign up for a hosted streaming plan with an ISP (Internet Service Provider)

Operate your own server

NoteThis is a serious step and is well beyond the needs of most websites.

To run your own streaming server, you can either purchase a standalone server machine or purchase a streaming server software package and install it on an existing web server. Streaming software is available for all common server platforms such as Linux, Windows, etc.

Some examples of streaming media software

Helix Universal Server from RealNetworks. This server supports a variety of formats, including RealMedia, Windows Media, Quicktime and MPEG-4.

Quicktime Streaming Server, supporting a few formats including MPEG-4 and 3GPP. Macromedia Communication Server specializes in Flash-based video and interactive multimedia.

Sign up for a hosted streaming plan

In much the same way that you sign up for a website hosting plan, you can get yourself a hosting plan which specializes in streaming media. This is a far more realistic option for most people.

Some examples of hosted streaming media plans:

RealNetworks Managed Application Services (MAS) Apple Quicktime Streaming Services Macromedia Communication Server Hosts

True video streaming in any form can be an expensive business. Unless you really have a need for it, you are probably better off starting with basic HTTP streaming...

HTTP Streaming Video

This is the simplest and cheapest way to stream video from a website. Small to medium-sized websites are more likely to use this method than the more expensive streaming servers. For this method you don't need any special type of website or host just a host server which recognises common video file types (most standard hosting accounts do this).

There are some limitations to bear in mind regarding HTTP streaming:

HTTP streaming is a good option for websites with modest traffic, i.e. less than about a dozen people viewing at the same time. For heavier traffic a more serious streaming solution should be considered.

You can't stream live video, since the HTTP method only works with complete files stored on the server.

HTTP cannot automatically detect the end user's connection speed. If you want to create different versions for different speeds, you need to create a separate file for each speed.

HTTP streaming is not as efficient as other methods and will incur a heavier server load. These things won't bother most website producers it's normally only when you get into heavy traffic that you should be worried about them.

To Create HTTP Streaming Video

Create a video file in a common streaming media format Upload the file to your web server

Make a simple hyperlink to the video file, or use special HTML tags to embed the video in a web page.

That's essentially all there is to it. When a user clicks the hyperlink, their media player opens and begins streaming the video file. If the file is embedded, it plays right there on the page.

Now let's look at how to create the necessary video files...

Create a Streaming Video File

This page provides a brief overview of how streaming video files are created.

The methods below are for creating stored video files for the purposes of streaming, not for providing live video broadcasts. Live events must use a streaming server.

There are two ways to create stored streaming video files:

Use a conversion utility program. This takes an existing digital video file and converts it into the streaming format of your choice.

Export streaming files from video editing software such as Adobe Premiere, Final Cut Pro, etc.

Conversion Utilities

A conversion utility is a stand-alone program which imports a video clip and exports it to a different format. E.g. RealNetworks Real Producer and Sorenson Squeeze

Basically, you simply open a file and select which which format to save it as. You can set various parameters to optimise the final video. The program will then chug away for some time while it makes the conversion.

In the window shown here, the pane on the left shows the original file. The right pane shows t he file as it is being con verted to a streaming me dia format.

Exporting a File

Most of the video editing applicati ons have options where you can export video for the internet. This is ofte n the easiest way to create streaming video files .

We will use Adobe Premiere to illustrate t he process. Different applications have different methods and they gi ve you the general ide a. However you need to look into your application's help file for specific instructions.

Open y our video clip in Premiere.

From the File menu, select Exp ort Clip.

There are several option s - the exact options available will depend on w hich plugin s you have installed. By default you should be able to export to RealMedia, Windows Media and Quickti me.

Choose whi ch format yo u would like to export. The Save fo r Web opti on is a good place to start - it will give you the win dow shown below.
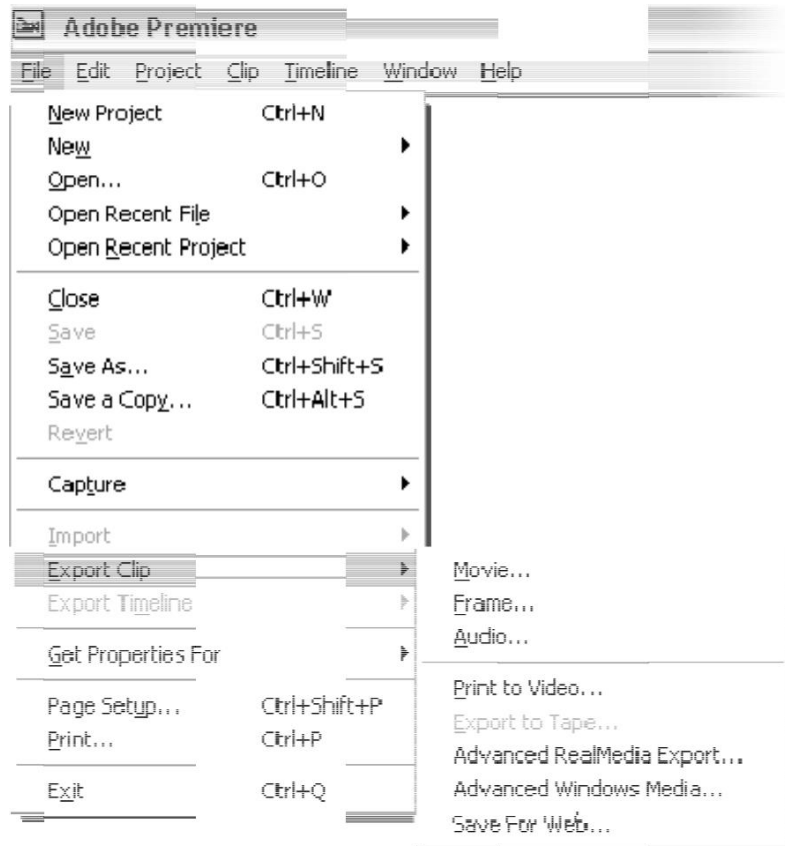
The Save for Web window provides a range of existing templates for different formats.

You can also customise your own settings.

Remember, it's entirely up to you which format(s) to use. When you gewt started you need to create a number of different versions in different formats - experimentation is the best way to decide what works best for you.

What to do with the File

Once you have created your streaming video file you then have to upload it to your website. Location is not so importatnt as long as you can access it from a web page. For example, you might like to create a folder caller mediaor videoand put all your video files there. The next step will

be to create the appropriate HTML code for your web pages in order to display the video.

3.4 Streaming Video Formats

This section provides an overview of the main video streaming formatsWindows Media, Real Media, Quicktime, MPEG-4 and Flash. We will also look into the pros and cons of each format and study the basics of using them in order to deliver video on the Internet.

Before you start you need to understand how video streaming works, especially the difference between true streaming and HTTP streaming.

3.5 Streaming Formats

Lets study various types of streaming formats in details

3.6 Windows Media

Windows Media is quite famous as it is backed by the biggest player in personal computing. And this is going to exist for many more years to come as long as Microsoft has its huge circle of business across the world. Updates to the Windows Media Player are quite easy and people who run Windows have the correct player.

In our experience Windows Media performs well. Files are relatively high quality and low size.

But Microsoft is also known for changing formats and standards quite frequently. If you are functioning as a video producer then sometimes it gets tough to cope up with changing versions. And even Microsoft is a very proprietary format and any platform other than Windows/IE may have problems.

3.7 Real Media

Real Media (www.real.com) is one of the first streaming video solutions and it carries a well-known history. This was one of the best streaming format in the early days. It is still a good format but it has lost a lot of ground in the format wars.

Real Media video images are little less sharp than other formats and this is then a good or even bad thing depending on your preferences. Real media format handles moving images quite good but finer information can be also lost fast with an average image quality to be perfect for many applications.

Thought sometimes you will find real difficulty in downloading the free Real Media Player. Real Media has to go through lot of struggle in order to maintain a feasible commercial business model and they strongly encourage you to buy the full version. This has of course led many people to become disillusioned with this format and its standing has not held up well over recent years. Of all the common formats, Real Media looks like the one which is struggling the most.

3.8 Quicktime

Quicktime (www.apple.com/quicktime) is a quite a respectable format and it has prevailed since the beginning of digital video production. In many ways Quicktime is more complex than Windows Media or Real Media, but for most producers the complexities don't actually matter. As a web designer you need to know how to deal with Quicktime's .mov (movie) files.

Among the advance features of Quicktime you can create interactive video, panoramas, virtual reality settings and more.

For some producers Quicktime is the ruler of video formats, others just can't seem to be able to make it work. Our opinion is somewhere in between. It is certainly a good format with many unique features. But in order to get good quality video you have to do experimentation as sometimes the default settings do not give a good enough quality.

You can easily integrate Quicktime with other products as it is widely supported by many editing, authoring and general applications.

3.9 MPEG-4

MPEG-4 came into development in the late 1990s. Initially this development of MPEG-4 was supported my many companies like Apple and Microsoft also, but Microsoft has since abandoned active support. Apple Quicktime still supports MPEG-4 like other companies like DIV-X.

MPEG-4 is a very good quality standard with low file sizes.

The MPEG-4 standard is comparatively complicated and can become confusing. You may find many variations of the format like some are ISO-compliant and some are not. Quicktime, for example, deals with both ISO-compliant .mp4 files and non-compliant .mov files. Some MPEG-4 file can play in any player while others will only play in certain players.

There are various applications available in order to create MPEG-4 and one of the most known is Apple Quicktime Pro.

3.10 Flash

With the release of Flash Player 7, Macromedia Flash (www.macromedia.com) has established itself as a serious force in the world of streaming video. This is now the format we recommend most strongly.

Flash uses two formats.swf that is the standard Flash file format for across the web on web pages, and .flv which is a special Flash video format. flv files can be called from within swf files.

Flash has the disadvantage of being expensive. For this you need to know the Flash software as well as being pricey, there's a lot to learn (although if you have experience with video editors you will pick it up quickly).

On the plus side, if you can afford it and you're prepared for a steep learning curve, Flash will give you power and flexibility beyond your wildest dreamsCustom controls and menus, interactive video and animations, advanced integration with web pages... the sky is the limit.

Flash also has a widely-supported cross-platform player. It is such a common plugin that almost everyone has it.

Sorenson Squeeze

Flash uses a codec called Sorenson Video Standard Edition to make Flash files. It is very important to have a note that there is another version of this codec available called Sorenson Video Professional Edition. The professional version is of course better and gives higher quality video and smaller file sizes.

Of course in order to use the professional codec you will have to purchase Sorenson Squeeze This is a better option than exporting directly from Flash, so even if you own Flash, Squeeze is worth considering if you want the best results.

3.11 Definitions

Quicktime movie — A file format that takes a series of individual files (pictures) and combinesthem into one file and can play them in sequence, creating animation or motion.

3.12 Summary

Creating Streaming Video you need to keep in mind video file format and the streaming method. There are pros and cons for each format but in the end it comes down to personal preference. Be aware that many of your users will have their own preferences and some users will only use a particular format, so if you want to reach the widest possible audience you should create separate files for each format. In reality this isn't usually practical so you need to make a judgment call on which formats to provide. So it definitely depends on how precisely you understand all the options such that you can take better decisions. When you download a file the entire file is saved on your computer (usually in a temporary folder), which you then open and view. This has some advantages like quicker access to different parts of the file but has the big disadvantage of having to wait for the whole file to download before any of it can be viewed. If the file is quite small this may not be too much of an inconvenience, but for large files and long presentations it can be very off-putting.

Streaming Servers is a streaming media or streaming video server is a specialized application which runs on an Internet server. A streaming media or streaming video server is a specialized application which runs on an Internet server. This is often referred to as true streaming, since other methods only simulate streaming. True streaming has advantages such asThe ability to handle much larger traffic loads. The capacity to sense users' connection speeds and provide appropriate files automatically. The ability to broadcast live events.

HTTP Streaming is the simplest and cheapest way to stream video from a website. HTTP streaming is a good option for websites with modest traffic

Streaming Video Files are the ones that you upload on your websites. Use a conversion utility program. This takes an existing digital video file and converts it into the streaming format of your choice. Export streaming files from video editing software such as Adobe Premiere, Final Cut Pro, etc.

Streaming Video Formats are Windows Media, Real Media, Quicktime, MPEG-4 and Flash Windows Media is backed by the biggest player in personal computing. Windows Media is quite famous as it is backed by

the biggest player in personal computing. And this is going to exist for many more years to come as long as Microsoft has its huge circle of business across the world. Updates to the Windows Media Player are quite easy and people who run Windows have the correct player.

Real Media video images tend to be slightly less sharp than other formats this can be a good or bad thing depending on your preferences. Real Media (www.real.com) is one of the first streaming video solutions and it carries a well-known history. This was one of the best streaming format in the early days. It is still a good format but it has lost a lot of ground in the format wars. Real Media video images are little less sharp than other formats and this is then a good or even bad thing depending on your preferences. Real media format handles moving images quite good but finer information can be also lost fast with an average image quality to be perfect for many applications.

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Flash is a serious force in the world of streaming video.

3.13 Self Assessment Test

1   What a detailed note on streaming

2   Write a short note on streaming servers

3   Write a detailed note on Streaming video formats

4   Write a short note on MPEG-4

5   write a short note on why is Flash so important and well known?

6   Write a shot note on Qucktime format

7   Write a shot note on Real Media Video images

3.14 Further Reading

- Video Production Handbook, Second Edition, Gerald Millerson C.Eng MIEE MSMPTEMay 2001

- The Film Editing Room Handbook How to Tame the Chaos of the Editing Room, 4th Edition, Norman Hollyn

- Video Production Handbook, 4THEdition, Gerald Millerson C.Eng MIEE MSMPTE, Nov 2007

- The Videomaker Guide to Video Production, Fourth Edition, Videomaker and John Burkhart, Nov 2007

- The Shut Up and Shoot Documentary Guide A Down Dirty DV Production, Anthony Q. Artis, Sep 2007

- Film and Video Budgets, 4th Edition, Kindle Edition, Jan 2006

Assignment

o   Make a write up on the benefits of streaming videos

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Block

4

VIDEO EDITING BASICSAND VIDEO FORMATS

UNIT 1 INTRODUCTION TO VIDEO EDITING

UNIT 2 VIDEO FORMATS

ROLE OF SELF INSTRUCTIONAL MATERIAL IN DISTANCE LEARNING

The need to plan effective instruction is imperative for a successful distance teaching repertoire. This is due to the fact that the instructional designer, the tutor, the author (s) and the student are often separated by distance and may never meet in person. This is an increasingly common scenario in distance education instruction. As much as possible, teaching by distance should stimulate the student's intellectual involvement and contain all the necessary learning instructional activities that are capable of guiding the student through the course objectives. Therefore, the course / self-instructional material are completely equipped with everything that the syllabus prescribes.

To ensure effective instruction, a number of instructional design ideas are used and these help students to acquire knowledge, intellectual skills, motor skills and necessary attitudinal changes. In this respect, students' assessment and course evaluation are incorporated in the text.

The nature of instructional activities used in distance education self- instructional materials depends on the domain of learning that they reinforce in the text, that is, the cognitive, psychomotor and affective. These are further interpreted in the acquisition of knowledge, intellectual skills and motor skills. Students may be encouraged to gain, apply and communicate (orally or in writing) the knowledge acquired. Intellectual- skills objectives may be met by designing instructions that make use of students' prior knowledge and experiences in the discourse as the foundation on which newly acquired knowledge is built.

The provision of exercises in the form of assignments, projects and tutorial feedback is necessary. Instructional activities that teach motor skills need to be graphically demonstrated and the correct practices provided during tutorials. Instructional activities for inculcating change in attitude and behavior should create interest and demonstrate need and benefits gained by adopting the required change. Information on the adoption and procedures for practice of new attitudes may then be introduced.

Teaching and learning at a distance eliminates interactive communication cues, such as pauses, intonation and gestures, associated with the face-to-face method of teaching. This is particularly so with the exclusive use of print media. Instructional activities built into the instructional repertoire provide this missing interaction between the student and the teacher. Therefore, the use of instructional activities to affect better distance teaching is not optional, but mandatory.

Our team of successful writers and authors has tried to reduce this.

Divide and to bring this Self Instructional Material as the best teaching and communication tool. Instructional activities are varied in order to assess the different facets of the domains of learning.

Distance education teaching repertoire involves extensive use of self- instructional materials, be they print or otherwise. These materials are designed to achieve certain pre-determined learning outcomes, namely goals and objectives that are contained in an instructional plan. Since the teaching process is affected over a distance, there is need to ensure that students actively participate in their learning by performing specific tasks that help them to understand the relevant concepts. Therefore, a set of exercises is built into the teaching repertoire in order to link what students and tutors do in the framework of the course outline. These could be in the form of students' assignments, a research project or a science practical exercise. Examples of instructional activities in distance education are too numerous to list. Instructional activities, when used in this context, help to motivate students, guide and measure students' performance (continuous assessment)

<u>PREFACE</u>

We have put in lots of hard work to make this book as user-friendly as possible, but we have not sacrificed quality. Experts were involved in preparing the materials. However, concepts are explained in easy language for you. We have included many tables and examples for easy understanding.

We sincerely hope this book will help you in every way you expect.

All the best for your studies from our team!

VIDEO PRODUCTION BASICS

Block 1: CONCEPT OF GRAPHICS FORMATS AND COLOUR MODEL

Unit 1 HANDLING VIDEO CAMERA AND SHOT TYPES

Learning Objectives:

- To make the students aware about camera and its basic terminologies
- To help the students how to do planning for shooting
- To make the students aware of using camera functions
- To make them understand and work on shooting technique.'
- To make them understand the basic camera moves

UNIT2 SHOOT TYPES

Learning Objectives:

- Here you will understand what are camera shots
- What are various types of camera shots
- What are these camera shots used for
- How and when you require to use a specific camera shot.
- You will learn important definitions

Block 2 VIDEO CAMERA OPTIONS AND OPERATIONS

UNIT 1 VIDEO CAMERA OPTIONS

Learning Objectives:

- You will understand the importance of Camera focus.
- How iris play an important role in camera.
- You will learn how to do color balance
- You will know what is viewfinder.
- How shutter plays an important role in video shoot.

UNIT 2 VIDEO CAMERA TRIPOIDS

Learning Objectives:

- Various types of Tripods
- How to use tripods
- How to work and choose tripods
- Techniques to set up and the how to use and what are monopods and bipods
- You will learn monopods and bipods

UNIT 3 CCU (CAMERA CONTROL UNIT) OPERATIONS

Learning Objectives:

- How to work with CCU operations
- You will lean the usage vision mixer/switcher
- Then you shall study Videotape operations
- You will learn how to prepare a tape for recording
- What are master tape
- Then finally you will understand slow-motion replays

Block 3 CROMA, SHOOTING AND STREAMING VIDEO TECHNIQUES

UNIT 1 VIDEO CHROMA GREEN SCREEN

Learning Objectives:

- You can plan your studio settings.
- What kind of green screen to be used.
- And then how to lighten the green screen.
- And finally incorporating green screen footage into your videos using software and the followed by tips
- You will learn definitions

UNIT 2 SHOOTING INTERVIEWS

Learning Objective

- Learn the interview structure.
- Know how to do framing.
- Develop compositions.
- Know different types of interviews
- You will learn various definitions

UNIT 3 STREAMING VIDEOS

Learning Objective

- Understand what is streaming
- What are streaming servers
- To know what is HTTP streaming
- Understanding various streaming video files and formats
- You will learn certain important definitions

Block 4 VIDEO EDITING BASICS AND VIDEO FORMATS

UNIT 1 INTRODUCTION TO VIDEO EDITING

Learning Objective

- Know what is Video Editing
- Know Various editing methods
- Understand various terminologies
- Understand linear editing and non-linear editing
- Learn how to use editing software
- Work with capturing, editing and generating final output

UNIT 2 VIDEO FORMATS

Learning Objective

- 8mm Video8 Hi8
- Digital8 Beta
- Betamax Betacam Betacam SP Betamax SX
- Digital Betacam DV MiniDV
- DVCAM
- DVCPRO

<table>
<tr><td>**UNIT
1**</td><td>**INTRODUCTION TO
VIDEO EDITING**</td></tr>
</table>

❖ **Learning Objectives:**

After reading this unit, you will learn:

• Know what is Video Editing

• Know Various editing methods

• Understand various terminologies

• Understand linear editing and non-linear editing

• Learn how to use editing software

• Work with capturing, editing and generating final output

: Structure :

1.1 Introduction

The process of manipulating and re arranging video shots into a new created work is called video editing.Editing is one of the processes in the entire part of post production process other post-production tasks include titling, colour correction, sound mixing, etc.

While in non-professional situations lot of people use the term editing instead of post production. Editing actually means the following:

Rearranging, adding or removing small or big parts of video clips or audio clips.

Doing color correction, filters and other enhancements.

Creating transitions between clips.

1.2 What is Video Editing?

The Goals of Editing

There are many reasons to edit a video and your editing approach will depend on the desired outcome. You must have a clearly defined goals that you have before you start editing and that may include any of the following:

Remove unwanted footage

This is the simplest and most common task in editing. In many videos you can make a huge impact by just getting clear with the flawed or unwanted bits.

Choose the best footage

It is always wise if you shoot more and more or extra footage than you actually need and choose only the best material for the final edit. Many times you would require to take lot many shoots 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. In editing you need to make sure thatthe video flows in a way which achieves this goal and this is a very crucial step in editing.

Add effects, graphics, music, etc

This is often the wowpart 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

If you are a good editor you will have a flair to createcreate fine mood prompts in a video. Such techniques like mood music and visual effects can greatly give an impact on how the audience will react.

Give the video a particular angle

You can give a particular angle to a video by tailoring the video in order to support a particular point of view and impart a message or serve an agenda.

1.3 Editing Methods

There are several different ways to edit video and each method has its pros and cons. But most of the editors go in for digital non-linear editing for most of the projects, it makes sense to have an understanding of how each method works.

This page provides a very brief overview of each method.

Film Splicing

Technically this isn't video editing, it's film editing. But it is worth a mention as it was the first way to edit moving pictures and conceptually it forms the basis of all video editing.

Traditionally, film is edited by cutting sections of the film and rearranging or discarding them. The process is very straightforward and mechanical. In theory a film could be edited with a pair of scissors and some splicing tape, although in reality a splicing machine is the only practical solution. A splicing machine allows film footage to be lined up and held in place while it is cut or spliced together.

Tape to Tape (Linear)

In fact linear editing was the original technique for editing electronic video tapes, before editing computers became available in the 1990s. Although it is no longer the preferred option for most serious work, it still has a place and remains the better option in some cases. It is likely that linear editing will be a useful skill for a long time to come.

In linear editing, video is selectively copied from one tape to another. It requires at least two video machines connected together one acts as the source and the other is the recorder. The basic procedure is quite simple:

Place the video to be edited in the source machine and a blank tape in the recorder.

Press play on the source machine and record on the recorder.

The idea is to record only those parts of the source tape you want to keep. In this way desired footage is copied in the correct order from the original tape to a new tape. The new tape becomes the edited version.

This method of editing is called linearbecause it must be done in a linear fashion; that is, starting with the first shot and working through to the last shot. If the editor changes their mind or notices a mistake, it is almost impossible to go back and re-edit an earlier part of the video. But of course with a bit of hands on linear editing is comparatively simple and trouble-free.

Digital/Computer (Non-linear)

In this method, 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 has lot of important and special advantages as compared linear editing. Most notably, it is a very flexible method which allows you to make changes to any part of the video at any time. This is why it's called non-linear because you don't have to edit in a linear fashion.

Hardware and software options available are one of the most difficult tasks in non-linear editing. There are many common video standards that

are not compatible with each other, and setting up a robust editing system can be a challenge.

Of course non-linear editing is more difficult to learn than linear, once you have mastered the basics you will be able to do much more, much faster.

Live Editing

In some situations multiple cameras and other video sources can be made to route through a central mixing console and edited in real time. Live television coverage is an example of live editing. Live editing is a fairly specialist topic and won't concern most people.

1.4 Terminology

Capture Device: This is a hardware or firmware device that is used to convert analogue videointo digital video.

Compressors Codecs: This is a Software or firmware that is used to compress and decompressdigital video. Compression makes the file size smaller.

Editing: Editing is a process of rearranging, adding or removing sections of video clips. Alsocreating transitions between clips. Editing is part of post-production.

Encoding: Encoding is the process that converts a digital video into a particular format, forexample, saving a video project in MGEG-2 format for DVD distribution.

LayeringAdding multiple layers of superimposed video.

Linear Editing: Also known as tape to tape editing. Linear editing is a method in which youcan edit in which footage is copied from one tape to another in the required order

Non Linear Editing: This is an editing method in which you use computer software to edit thefootage.

Transition: The way one shot changes to the next

Post Production: Post Production is the last stage in th world of film animation, here yourvideo and audio enters for further processing after the production stage e.g. after the footage has been shot. Post production comprises ofvideo editing, audio editing, titling, colour correction, effects, special effects, compositing, etc.

1.5 Linear (Tape to Tape) Editing

In this section you will learn how to edit from one video tape to another. You will need:

Two VCRs -video tape machines, preferably with AV - audio and video outputs. If you do not have AV outputs then you can use the RF aerial outputs instead. At least one video monitor, but preferably two. Though professional monitors are the best choice but you can also use televisions if necessary.

Connecting cables.

The tapes that you have to edit and a blank tape to edit onto also become the master tape.

1.6 Introduction To Editing

The original video tape editing method was the original Linear editing and before editing computers became available in the 1990s. now a days for many people linear editing appears to be obsolete. This is not actually true. But of course non-linear editing is the chosen method for most of the projects and linear editing still has a place and exists along with non-linear editing.

1.7 Setting Up

The figure next shows a simple linear - tape to tape editing system. It comprises two VCRs, two video monitors or TVs and connecting leads. The fundamental process is to play the original tape in the source machine and record a new (edited) version on the record machine.

You start off choosing which of your VCRs will function as your source and which will be the record. In most of the cases it would hardly make a difference as to which one is used for each purpose, but if one machine is strong in one area it might make a difference. E.g. if one machine has better recording features it will be the obvious choice for the record machine. If you don't know which to use, assign them at random.

Firewire Connectors

To connect the two VCRs together, plug the video and audio outputs of the source machine into the video and audio inputs of the record machine.

You have a number of common analogue connection types and the most common being RCA, RF (AKA aerial or Belling-Lee), S-Video and SCART. S-Video is probably the best choice for video and RCA for audio. RF has the lowest quality and has other complications too so you can avoid it.

Digital video machines can also have connectors like Firewire or USB, which are the best quality of all.

Connect the Monitors

Once the tape machines are connected, connect each machine to its own monitor. Exactly how you do this will depend on your VCRs

The record machine should ideally have AV outputs available and you need to plug these into the record monitor. If the only output is RF (aerial), connect this to the monitor instead (just like a TV).

If the source machine has spare AV outputs, connect these to the source monitor. Again, if necessary, use the RF output instead.

Finally, select the correct inputs on the record machine and both monitors. E.g. if you have connected the source machine's AV outputs to the record machine's AV inputs, you will need to select AV from the record machine's input selector. If you are using RF, you will need to tune the record machine and/or monitors.

Notes:

Though you can edit with one monitor you still significantly will find it easier with two.

If you don't have a second video monitor, we strongly recommend that you buy a small, cheap

TV. If you still have to stick to one monitor then it will be connected as the record monitor.

In order to keep things simple we have assumed the monitors are also playing back audio (like a TV). If possible, route the audio from the record machine to a good stereo or audio monitor.

Testing

Once everything is connected, test the system.

Play a tape in the record machine and make sure it appears on the record monitor. Also check the audio.

Stop the record tape and play a tape in the source machine. It should appear on both the source and record monitors (because it is being fed through the record machine). Check the audio.

If something isn't working, chances are you have either made the wrong connections or selected the wrong input(s). There are limited number of combinations and if at all, all else fails employ trial and error.

If your testing is successful, you are ready to begin editing.

1.8 Edit Controllers

If you are lucky you will have access to an edit controller. Edit controller connects to the source record and thus controls the source record machines.

Here we shall consider the example of Sony edit controller. The controls that are on the left above and that include the jog/shuttle ring control the source machine. The corresponding controls that are on the right are for the record machine and also notice the addition of a red record button.

The controls in the middle are for multiple edit options like as marking in/out points, etc. Some smaller edit controllers you see are only one set of controls, and a switch to select either the source or record machine. This way you can still control both machines but only one at a time.

You can use edit controllers to program your edits more precisely, preview the edit before recording it, and perform other useful tasks. In some cases there is an on-screen menu that is generated to help you program multiple edits.

1.9 Assemble Editing

Overview

Assemble editing is so-called because shots are assembled one at a time in sequential order. This is where the concept of linearediting comes

from - assemble editing only works when shots are added in a strictly linear fashion.

When new footage is recorded onto an analogue video tape, you will notice a section of picture disturbance at the end of the newly-recorded section. Anyone who has used a VHS tape to record TV programs will be familiar with this at the end of the recording the picture jumps all over the place and goes to snowbefore settling down and any previously-recorded video becomes visible.

Also most important this can happen at the end of a newly-recorded section, the start of the new video begins tidily and appears as an instant cut from one shot to the next. Therefore it is possible to record as many new sections of video as you like as long as they are all recorded in the correct order and you begin recording each new video clip before the end of the last. At the end of the entire video there will always be a section of unstable video the idea is to make this well after the end of the main feature (it is common to record a long section of black after the closing shot).

How to Assemble Edit

Assuming your editing equipment is all set up and you have prepared a blank master tape1, you are ready for action.

The First Edit

In your record machine, using the jog/shuttle or other controls, move the record tape to the point where you want to begin recording. Don't start at the very beginning of the tape - record a minute or so of colour bars and/or black first2. Put the machine into record/pause mode, so that as soon as you hit the pause button again it will begin recording. In most machines record/pause mode allows you to see the pictures you are about to record.

In your source machine, shuttle the tape to the start of the clip you wish to add to the edit and pause the tape.

At this point you have both machines in pause mode. You need to press the pause button on both the machines at the same time, the source tape will play and the record machine will begin recording the pictures. Let both the machines run as long as you have finished recording the footage you needed and then stop both tapes.

The Second Edit

Rewind the record machine to the desired end point of the footage you have just recorded, then place the machine in record/pause mode. Shuttle the source tape to the start of the next clip to be added and put it in pause mode. Release the pause buttons and record the clip.

Keep repeating this process until you have finished the entire edit.

Get the Timing Right

Now this process in not very accurate in most of the consumer level VCRs,the recording will start slightly before or after the paused position. This is because it takes time for the machines to get up to speed and begin playing/recording after you release the pause button.

In professional machines this is not normally the as the machines have built-in pre-rollfunctions which automatically rewind a few seconds and get the timing right. You may even have the Video Production Basics Self Instructional Material 147 option to set the exact pre-roll time.

If you are working with consumer-level machines then you need to do some experimenting and learn each machine's exact characteristics. You can do this by recording a shot of a stopwatch with 100th/second increments. The time between hitting the record/pause button and the first frame which is actually recorded will tell you what the machine's delay is. You can compensate for the delay created by pausing the machine the appropriate number of frames before (or after) the position you want the recording to begin. You should be able to achieve accuracy of a few frames on most video machines even though some machines are less consistent that others.

1.10 Insert Editing

Sometimes its your requirement when you want to insert a new video clip on top of existing video footage. For example, you might have a lengthy shot of a person speaking and you'd like to insert a few cutaway shots to break it up and make it more interesting.

As discussed earlier if you want to do this by using assemble editing, you will get a horrible picture disturbance at the end of the edit. Also, the audio from the new footage will replace the existing audio in the example above this would not be desirable.

This can be done by insert editing, this is method in which a new video is inserted over old video with clean beginning and end points. You can also add new pictures along with the original audio intact.

You will see that not all video machines are capable to do video inserts. It is a slightly more advanced process for consumer-level equipment, and is normally only available in semi-professional or professional machines.

One thing to note with insert editing is that it must be done over the top of pre-recorded footage (or stable black). This is due to the fact that insert editing uses the synch pulse of the underlying video. If you try to insert edit on top of the unrecorded video tape the picture remains unstable.

The way insert editing works varies between machines. Consult your manual for exact details and instructions.

1.11 Audio Insert

Audio insert editing is also known as audio dubbing and this functions in a similar manner as video insert editing. The only distinction is that instead of replacing a section of video with new pictures, a section of audio is replaced with new sound.

Most of the video machines that have the capacity of insert editing allow you to insert video and audio at the same time, so you have the option to simultaneously replace both pictures and sound if you like.

And of course you again must consult your operating manual for detailed directions.

1.12 Titles Extras

Adding titles and other effects in linear editing normally requires specialized equipment.

This can be anything from a cheap title maker to a professional graphics generator.

Adding a graphics generator to your edit suite is fairly straightforward - it goes between the source machine and the record machine. The graphics generator will create titles or graphics with either a solid or trans-

parent background. This means that the video from the source machine can be visible below the superimposed graphics.

There are so many different types of graphics devices that it would be impractical to cover them all. Do a search for video title generatorand see what you find.

If you don't have a graphics generator, there may be other options, for example, many cameras include a title feature. The creative enthusiast can also use their imagination to make a title out of whatever material is at hand and simply shoot it. However, serious graphics requires an investment in equipment.

1.13 Non Linear (Digital) Editing

This section will tell you or rather give an introduction to the world of computer-based digital video editing, known as non-linear editing. You will understand how to set up a computer editing system, record footage from a camera or VCR onto your hard drive, edit the footage and record it back to tape or disk.

Editing with a computer can be a complex process. This section will gives you an overview and general instructions that you may require to consult your manuals or support forums for some specific tasks related to your software and hardware.

1.14 Set Up

To edit video on a computer you will need:

A source device to play the original tape or disk. Typically a VCR or camera.

A computer with at the following specs20MHz processor / 64 MB RAM / Fast hard drive with 1 GB or more free space.

NoteIf you want decent results, you'll need much higher specs. Some editing s/w requires a high-performance computer to work properly.

A video capture device. To capture video from an analogue source (such as VHS or Video8) you need a device to convert the video into a digital format. This can be a standalone device that can be plugged into the computer or into a video capture card which becomes part of the computer.

If you are using a source device which outputs a digital signal (such as

Firewire or USB) you don't need a capture device, but you do need to make sure your computer has the appropriate input available.

Connecting take you to plug the source device into the capture device or computer.

Software to control the capturing, editing and outputting.

A video monitor (or television).

We'll come back to the software on the next page. First, let's have a look at the hardware and physical connections. There are various options depending on your equipment.

Camera and Computer

The most general method in non-professional situations is that you plug your video camera directly into your computer via a Firewire or USB connection. These are digital connections and allow you to dumpfootage straight from the camera to the hard drive. This is a convenient and inexpensive way to operate. Consult your camera manual for details.

If your camera is not having digital output and has analogue AV outputs then you can use a capture device. Follow the next example, using your camera in place of the VCR.

If your camera doesn't have any video outputs at all, you will need to use a VCR as the source device.

Computer and VCR

The example below shows a VCR used as the source device, connected to a computer with capture card. You can monitor the pictures using a video video monitor or television. Audio can be monitored with the TV speakers, a separate sound system or headphones.
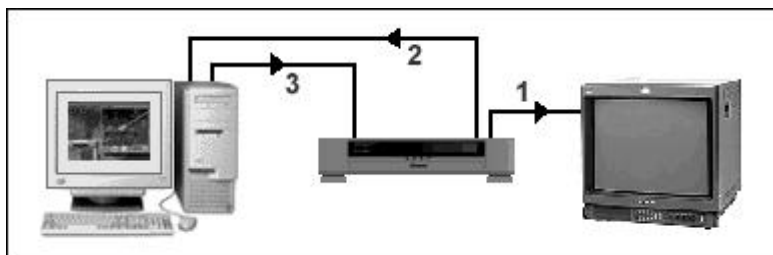
Computer and VCR

(1) You can use one of the AV outputs if your VCR has two or more AV outputs to plug into the AV input of the monitor. If you have only

one AV output then you can use the RF aerial output instead of and then cab use the AV output for the next step.

(2)   The second AV output of the VCR will plug into the AV input of the computer's capture card.

(3)   The AV output of the capture card plugs into the AV input of the VCR.

In this system the footage is played from the VCR on to the computer, edited, then played back from the computer to the VCR (for recording).

Computer and Two VCRs

This system is a bit more elaborate and can have advantages like the ability to record directly from one VCR to the other /linear editing/ Even if the computer has appropriate hardware you can use it to overlay graphics in real time as you record from one VCR to the other.
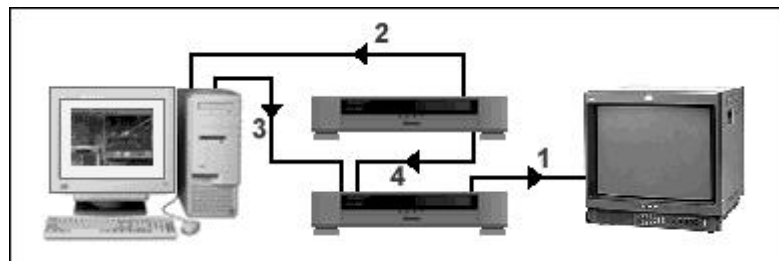
The top VCRSource device. The bottom VCRRecorder

(1)   The AV output of the record VCR plugs into the AV input of the monitor.(2) The AV output of the source VCR plugs into the AV input of the computer's capture card.

(3)   The AV output of the capture card plugs into the AV input of the record VCR.(4) The second AV or RF output of the source VCR plugs into the second AV (or RF) input of the record VCR.

On the record VCR you need to select the appropriate input to record from either the computer or the source VCR.

Note: You could also use the second (or third) AV output of the source deck to feed another video monitor.

Example of a home-based edit suite

You can explore a lot with various possibilities. The edit suite that is shown in the figure incorporates both consumer-level and professional equipment. It is used for editing home movies, DVDs, television-quality productions, and authoring internet material

Home-based edit suite

1.15 Software

Deciding which video editing software to use is not easy. You have a wide range available starting from the very basic applications such as Windows Movie Maker to professional packages such as Final Cut Pro, ULead MediaStudio and Adobe Premiere.

For most people, the main constraint is money. Good editing s/w is quite expensive and also sometimes require a high-priced computer in order to run effectively. Obviously the more money you can spend the better, but you can achieve reasonable results with software costing less than $US500.

Very cheap or free software (e.g. Windows Movie Maker) tends to be very limited and somewhat impractical. If you are at all serious you will need to spend some money.

Note that many capture devices and cameras come with their own editing software, or perhaps a limited version of a professional package. This can be a cost-effective way to get started.

How Editing Software Works

Most general-purpose editing software does three things:

1. Capture

2. Edit

3. Output

This means that the s/w can control the capturing or what you say recording of the footage, provides a way to edit the footage, and allows the finished product to be output to a recording device such as a VCR or DVD.

If you like, you can use separate software for capture or output, but initially you will probably find it more convenient to use the same program for all tasks.

Projects

Of course the terminology may change and can be different, but non-linear video editing is found on the concept of a project. An editing project is a collection of elements which are used to create the finished product. Elements can include video clips, audio clips, titles, graphics, etc.

The project also includes information as to how these various elements are arranged in the edit. In fact a project is made up of all the individual elements and instructions on how they are put together. When you create a video project, you import or capture the elements you need, then arrange them in the order you want (adding effects and other goodies if you like).

What to Look For in Editing Software

Make sure it is well-matched with the hardware and operating system. Check the capture, import and export options. Make sure it can handle the formats and resolution you want to use.

Check if the software allows for layering and effects and what other advanced features it carries?

Is there any other software bundled with the package (e.g. audio editing)?

Is it compatible with other common software (e.g. Adobe Photoshop)?

1.16 Capture

Once you have set your edit system correctly you then need to record or capture the footage from the source machine (e.g. camera or VCR) onto the computer's hard drive. The capture process goes like this:

Turn everything on and launch the video capture software. How this will really work greatly depends on the software you have but in most cases you will have a menu option to open a capture window.

E.g.In Adobe Premiere Pro, choose File > Capture (F5) to open a window like the one pictured here.

Press play on the source machine. Then capture window shows the picture that is coming from the source. If you dont get this then you need to read the help file of your software.

Look for a record or capture button in the capture window. Now just click this button to start recording. Keep recording until you have all the footage you want. In most of the cases you need to capture only the footage as per your needs but it is always better to capture more footage than less you can discard unwanted clips later.

When you have captured all the footage finally save the video file on to your computer hard drive.

1.17 Edit

Once you have captured the desired footage to the hard drive you are now all set to start a new project and begin editing.

The Editing Workspace

The Project Window

The top left of the screenshot of this window has all of the elements that are used in the current project (video clips, audio, graphics, etc).

The Monitor Window

Top centre and right that is the monitors show the video that you are editing. In this situation there is one monitor for the source for the master edit.

The Timeline

Along the bottom the timeline seen shows the flow of the video project. This is the place where you insert the video and other elements and arrange these videos and other elements as per your requirement and how you desire.

When you send the video to the output it will play from the left to right and include everything on the timeline.

The Timeline

You need to drag and drop various elements that you need to arrange in the timeline, you need to drop them into the timeline from the project window. Then after dropping them you can adjust them e.g. trim video clips to make them shorter or reduce the volume of audio clips. You can also rearrange these elements as much as you want and can keep previewing the results before finalizing them.

These days any good s/w package will let you add multiple layers of video, audio and graphics which can be mixed and superimposed to create various effects.

Of course different s/w packages will be different for the steps mentioned above. In order to get good coverage and usage you should always read the s/w manual to understand how to use it properly.

1.18 Output

Now that you are done with editing your footage and work and you have also finalized your timeline, you are ready to output the video file. The two most common ways to do this are: Now you need to encode the video into a digital format like MPEG-2 and record it directly to DVD or other optical disk.

Now you need to send the output of the work i.e. the video from your computer's video card to a recording device such as a VCR.

You can of course consult your software/hardware manual for specific instructions. The example below is Adobe Premiere's Export menu. Now select the appropriate option for your needs and each of the options will open a window which allows you to define various settings before exporting.
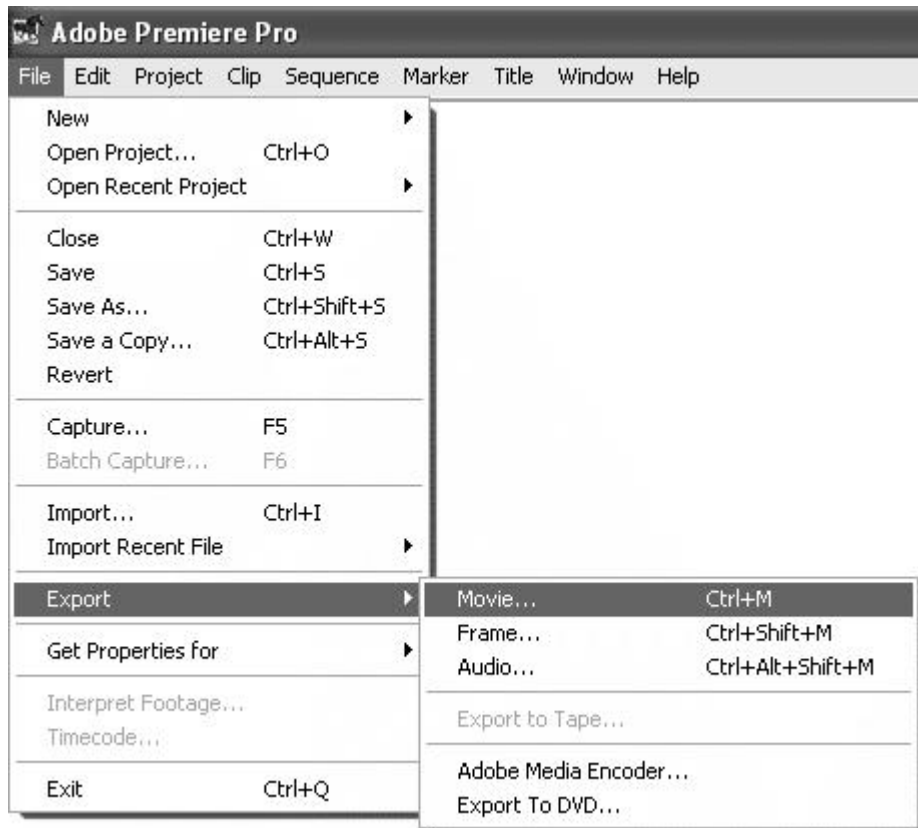
Export Movie shown

1.19 Video Transitions

Simple Transitions (Shot A to Shot B)

CutA changes instantly to B

CrossfadeA merges (fades) into B

WipeA is progressively replaced by B

The way in which any two video shots are joined together is called the transition. Transitions play a very important role and thats why each one from the camera operator to the editor must have a good understanding of how to make effective transitions.

The most common transition is the cut, in which one shot changes instantly to the next. The next most common transition is the crossfade (AKA mix or dissolve), where one shot gradually fades into the next. Advanced transitions include effects like wipes and digital effects in which shots zoom about or do complex changes whilst leading into the next.

You can also think of a moving shot as being a transition from one shot to a new one, e.g. a pan from one person to another, or a zoom from a mid-shot to a close-up.

Transitions can be a lot of fun but be warnedOver-using transitions is a common mistake made by amateurs. In professional productions mostly all transitions are actually simple cuts or crossfades. Too many animated transitions are distracting and impact on the flow of the video.

Although it is important to choose an appropriate ype of transition, the real issue is how well the two shots fit together. Ask yourself:

What do you intend to achieve with the transition?

Do the shots fit comfortably together?

Does the transition make sense, or is if confusing?

Does it progress the story?

Creating Transitions

A cut doesn't need any sort of processing one shot ends and the next begins. Other types of transition can be added in several ways:

In-cameraIn-camera come with in built transitions and fades.

Generating DeviceIn live productions, transitions can be added in real-

time using special effects generators. Most switchers include a selection of transitions.

Post-ProductionYou can add transitions during editing by using appropriate software.

Types of Video Transition

Cut

The most common transition an instant change from one shot to the next. The raw footage from your camera contains cuts between shots where you stop and start recording (unless of course you use built-in camera transitions).

Cut is the majority if transitions in film and television production

Mix / Dissolve / Crossfade

These are all terms to describe the same transition a gradual fade from one shot to the next.

Crossfades have a more relaxed feel than a cut and are useful if you want a meandering pace, contemplative mood, etc. Scenery sequences work well with crossfades, as do photo montages. Crossfades can also convey a sense of passing time or changing location.

Fade

Fades the shot to a single colour, usually black or white. The fade to blackand fade from blackare ubiquitous in film and television. They usually signal the beginning and end of scenes. Fades can be used between shots to create a sort of crossfade which, for example, fades briefly to white before fading to the next shot.

Wipe

Here in wipe one shot is replaced in a progressive manner by another shot in a geometric pattern. There are many types of wipe, from straight lines to complex shapes.

Wipes often have a coloured border to help distinguish the shots during the transition.

Wipes are a good way to show changing location.

Digital Effects

Most of the editing applications give you a wider selection range of digital transitions with various effects. There are too many to list here, but these effects include colour replacement, animated effects, pixelization, focus drops, lighting effects, etc.

Many cameras also include digital effects, but if possible it is better to add these in post-production.

1.20 Definitions

NLE — Non-Linear Editor.

Non-linear editing — Assembling video sequences that are randomly accessible, typically digitized onto a hard drive. The process is much like word processing in that items can be moved, deleted, copied, or changed electronically before being printed or copied to video tape.

Non-linear editor or NLE — Computerized video editor that permits scenes to be selected and rearranged on the computer's screen before being assembled (by the NLE) on the master tape.

NTSC — National Television Standards Committee. United States organization that developed the NTSC video standards which ensure that all TV signals in the United States are compatible.

NTSC video — National Television Standards Committee method used in the United States for electronically creating a color TV signal. The color and brightness aspects of the image travel together on the same wire.

Off-line editing — Making a practice editusing inexpensive video equipment. Result is alower-quality draftcopy used for decision making and to create a list of edits to be performed later on-line.

On-line editing — Editing a video tape with the highest-quality VTRs and editor controllers.Process results in final edited master but costs more than off-line editing

PAL — Phase alternate line—a European video standard incompatible with the U.S. NTSCsystem

PCM or pulse code modulation — Method of recording digital high fidelity sound on 8mmand hi8 tapes. The spinning video head places the PCM signal at the end of each diagonal video track.

PCM — Pulse Code Modulation, a second method of recording hi fi sound with 8mm and Hi 8VCRs. Unlike AFM, PCM audio can be edited without affecting the picture.

Rolling edit — Edit that adds or subtracts material to/from the timeline, but doesn't push aheadthe following scenes or close them up. Such an edit replaces other material or leaves a blank spot where material used to be.

Safe title area — Central portion of a graphic or a control-room monitor's TV screen that can always be seen when the picture is viewed on misadjusted TV sets; the place where it is safeto put a title because you know it will all show.

SECAM — SEquential Color And Memory—a video standard used in much of Asia,incompatible with our NTSC system.

Standards converter — A device that changes one standard of video signal (say, NTSC) intoanother (say, PAL) or vice versa, bridging the gap of incompatibility between standards. **Standards converter** — Expensive electronic device which changes one TV standard intoanother (i.e., PAL into NTSC) for use with other TV equipment

Super — SVHS, Hi8, ED Beta 3/4U-SP or any improvement to a VCR format that increasesthe picture sharpness above 40lines of resolution. Sometimes called High Band.

Super VHS (S-VHS) — Improved VHS format using special tape and yielding 40lines ofresolution picture sharpness.

S-VHS — Super VHS, much improved version of VHS, downwardly compatible with VHS. **Time code** — A way of measuring where (how far from the beginning of a tape) scenes arelocated. Usually a magnetic pulse recorded on the tape that can be converted into a listing of hours, minutes, seconds, frames.

Time code generator — Electronic device that makes the time code signal, which may then berecorded on the tape.

Time code reader — Electronic device that decodes the time code from a tape on playback andconverts it into recognizable numbershours, minutes, seconds, frames. **Trim** — To precisely define the edit-in and edit-out points of a scene.

TV standard — Set of technical specifications describing how a TV picture is made. In theUSA, the FCC (Federal Communications Committee) ordained the NTSC (National Television Standards Committee) standard. In Europe, they use a different, incompatible standard, PAL.

UHF — Ultra high frequency; TV channels 14-69

Ultrasonic — Sound with a pitch so high, humans can't hear it. When used in autofocuscameras, ultrasonic waves bounce off the subject to sense the focusing distance.

DAT — Digital Audio Tape, a cassette with binary data representing stereo audio sound. Alsothe machine that converts analog audio to digital and records it, as well as plays it back converting the digital data to analog audio.

Digital non-linear editor — NLE that digitizes the scenes from the VCPs, then performs the

edits within the computer, then plays the final program from its hard drives

Lip Sync — Synchronization between the performers' audible words and the movement of theirlips.

1.21 Summery

Video editingThis is the process of manipulating and rearranging video shots to create a new work. You need to remove unwanted footage, choose the best footage, create a flow, add effects, graphics, music, etc, alter the style, pace or mood of the video and give the video a particular angle.

Editing Methods Although most editors opt for digital non-linear editing for most projects, it makes sense to have an understanding of how each method works. You can use film splicing, tape to tape, use digital or computer or do live editing.

Capture DeviceThis is a hardware or firmware device that is used to convert analogue video into digital video.

Compressors CodecsThis is a Software or firmware that is used to compress and decompress digital video. Compression makes the file size smaller.

EditingEditing is a process of rearranging, adding or removing sections

of video clips. Also creating transitions between clips. Editing is part of post-production.

EncodingEncoding is the process that converts a digital video into a particular format, for example, saving a video project in MGEG-2 format for DVD distribution. LayeringAdding multiple layers of superimposed video.

Linear EditingAlso known as tape to tape editing. Linear editing is a method in which you can edit in which footage is copied from one tape to another in the required order

Non Linear EditingThis is an editing method in which you use computer software to edit the footage.

Post ProductionPost Production is the last stage in th world of film animation, here your video and audio enters for further processing after the production stage e.g. after the footage has been shot. Post production comprises ofvideo editing, audio editing, titling, colour correction, effects, special effects, compositing, etc.

Linear (Tape to Tape) Editing A method of editing in which footage is copied from one tape to

another in the required order. Two VCRs -video tape machines, preferably with AV - audio and video outputs. If you do not have AV outputs then you can use the RF aerial outputs instead.

At least one video monitor, but preferably two. Though professional monitors are the best choice but you can also use televisions if necessary. Connecting cables. The tapes that you have to edit and a blank tape to edit onto also become the master tape.

Non Linear (Digital) Editing is the computer-based digital video editing. Editing with a computer can be a complex process. This section will gives you an overview and general instructions that you may require to consult your manuals or support forums for some specific tasks related to your software and hardware.

1.22 Self Assessment Test

1   What detailed note on Video Editing?

2   Write a detailed note on editing methods.

3   Write a short note on non-linear editing

4   Write a short note on linear editing

5   Write a short note on video transitions

6   Write a short note on Post Production

7   Write a short note on Differences between linear and non liner editing

1.23 Further Reading

- Video Production Handbook, Second Edition, Gerald Millerson C.Eng MIEE MSMPTEMay 2001

- The Film Editing Room Handbook How to Tame the Chaos of the Editing Room, 4th Edition, Norman Hollyn

- Video Production Handbook, 4THEdition, Gerald Millerson C.Eng MIEE MSMPTE, Nov 2007

- The Videomaker Guide to Video Production, Fourth Edition, Videomaker and John Burkhart, Nov 2007

Assignment

o   Do research and make a complete document as to how video editing is used in the field of animation, commercials, films, live videos.

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UNIT 2	VIDEO FORMATS

: Structure :

10.1 Introduction

Information about various video formats and standards.

8mm, Video8, Hi8, Digital8

Beta, Betamax, Betacam, Betacam SP, Betacam SX , Digital Betacam

DV DV, MiniDV, DVCAM, DVCPRO, DVCPRO50, DVCPRO HD

DVD, Blu-Ray, HD-DVD, HD-VMD, CH-DVD

HDTV, 1080i, 1080p

Flash

LaserDisc LaserDisc

M, MII

MXF

mpeg MPEG, MPEG-4

Quicktime

real RealMedia

VHS VHS, VHS-C, S-VHS, S-VHS-C, D-VHS

Windows Media

2.2 8mm

8mm Video is a group of 3 video Video8, Hi8 and Digital8. All three of them together, pioneered by Sony played a very crucial part in the early history of consumer and pro-sumer camcorders.

Video8 and Hi8 are now obsolete. Digital8 is still current but is something of a transition format and is unlikely to survive much longer.

More information:

Video8The original 8mm analog format

Hi8Higher-resolution analog format

Digital8Digital format with backwards compatibility

Digital8 vs MiniDVThere is a comparison of these challenging formats

2.3 Video8

The Video8 format was launched by Sony in the mid-1980s. This format functioned as the first minicassette for camcorders and it was for an important size reduction from the full-sized VHS cassettes.

The horizontal resolution of Video8 was same as VHS and it is 24lines. Initially Video8 had much higher audio quality as it has the FM helical-scan recording, but this later became standard in VHS as well.

While Sony was getting overcome in the Betamax as compared to VHS war, the Video8 format performed well in the camcorder market. At that time the compact VHS-C cassette was introduced and was brought into a serious competition. Video8 was as such then well established and was preferred by most technical enthusiasts, but had the severe disadvantage of not being playable in VHS machines. Because VHS-C used an adaptor the tape could go straight from the camcorder to the VCR.

Thus digital video made them both obsolete, but Video8 probably fared better overall.

2.4 Hi8

Hi8 was the higher-resolution version of Video8. Hi8 was brought in order to compete with the VHS-equivalent S-VHS. Both these formats boasted 40lines of horizontal resolution that then put them in the (lower) range of broadcast quality. Hi8 camcorders were well-liked with amateur enthusiasts and were also used in television productions which required lightweight portable equipment.

Hi8 like S-VHS, used a mixture of higher-grade tape and enhanced recording mechanisms to increase bandwidth. Recording lengths were 30, 6and 12minutes.

Later versions of Hi8 had PCM digital audio and XR capability which slightly increased picture quality.

Hi8 was eventually replaced by Digital8 and MiniDV.

2.5 Digital8

The Digital8 format known as D8 came into market in the late 1990s and replaced Sony's analog Video8 and Hi8 formats.

Digital8 is a transition format that is a compromise between the digital MiniDV format and Sony's existing 8mm formats. Digital8 uses the digital codec same as MiniDV in the traditional 8mm cassette tape. Digital8 is backward compatible with previous 8mm formats that is an advantage for existing Sony users.

Digital8 is not a strong player in the digital video market MiniDV is dominant.

2.6 Beta

The Beta group of video formats has the not so successful consumer-level Betamax as well as a number of very successful professional-level formats. The professional Beta formats are the leaders in television production market, especially in the field of ENG (Electronic News Gathering).

Betamax

Betacam

Betacam SP

Betacam SX

Digital Betacam

2.7 Betamax

Betamax was developed by Sony and launched in 1975. It became first commercially successful home video standard. In the well known format war that followed, Betamax lost to JVC's VHS system.

Betamax began the home video revolution. For the first time people were able to do three things:

Record television broadcasts for time-shifting that is known viewing later

View cinematic movies at home

View video pornography in privacy

Technical Specifications

Tape Width: 12.7mm (inch)

Tape speed: 1.873 cm/s

Cassette Size 156 X 96 X 25 mm

Record Time Up to 215 minutes. Most standard Betamax tapes are 6minutes.

Video bandwidth Approx 3.2 MHz

Horizontal resolution Approx 25lines

Vertical resolution: lines for NTSC, lines in PAL

Audio

Betamax has only the audio-only mode that allows the entire bandwidth to be used for sound. As the video tape machine uses a helical scanning recording head, means higher fidelity recordings are possible compared to stationary-head audio tape recorders.

Obsolescence

Betamax then had lost the format war to the VHS by late 1980s, but a staunch niche market of supporters meant that Betamax machines were still manufactured in America until 1993. Of course production continued in other parts of the world till 1998, then only in Japan until ceasing altogether in 2002. Now a days Betamax equipment is a rare to see mainly among collectors.

2.8 Betacam

As Sony was being humiliated in the VHS vs Betamax war, a similar war was being fought in the professional video arena with very different results.

Betacam was launched in 1982. This was the first professional video format in the Sony Beta range. In stark contrast to the failure of Betamax in the home video market, Betacam was a great success. In the professional market where quality and reliability are the most important not like the consumer market which is more concerned with recording times

and availability of movies. Betacam was a high-quality and hence it has a lot of attention being caught amongst professionals.

The original Betacam cassettes were fundamentally the same as Betamax. The variation was that Betacam used component video instead of composite, and recorded at a much higher tape speed. Tapes of Betamax and Betacam were interchangeable not like unlike the later Betacam SP tapes.

Betacam tapes came in two sizesS (small) and L (large). Betacam cameras used the S size; Betacam tape decks could use either size.

Betacam tapes1/2-inch with 30lines of horizontal resolution.

Betacam was much short-lived format, it was replaced by the next generation of the Beta family Betacam SP.

2.9 Betacam SP

Betacam SP is the successor to Sony's Betacam. This was launched in 1986 and went on to become the most successful general-purpose professional video format of the 20th Century.

Betacam SP was taken as the standard format for practical field work such as ENG (electronic news gathering), but was also good enough to be used for edit mastering. Every respectable studio had Betacam SP capabilities.

SPstands for Superior Performancethat was developed by using a metal-formulated tape instead of oxide. Horizontal resolution was increased to around 36lines. Tape sizes were the same as Betacam.

2.10 Betamax SX

Betacam SX is a digital version of Betacam SP. This was launched in 1996. Betacam SX is functions as a transitional format which was cheaper than Digital Betacam. It is also compatible with Betacam SP tapes.

Betacam SX uses MPEG 4:2:2 compression that has 4 channels of 48 KHz 16-bit PCM audio.

Betacam SX cassettes come in S and L sizes as other Beta formats, coloured yellow. S tapes have a recording time of around 6minutes; L tapes record up to 194 minutes.

2.11 Digital Betacam DV

Digital Betacam, also know as Digibeta and D-Beta was brought into market by Sony in 1993 as a replacement for the analog Betacam SP format. Digital Betacam was better in performance as compared to DVCam and DVCPro, while being cheaper than D1.

Digital Betacam had quite a bit of professional support but didn't go as far as to become an industry standard like it's predecessor.

Cassette sizes are equivalent as other Beta versionsS (small) tapes record up to 4minutes, L (large) tapes record up to 124 minutes. Cassettes are light blue.

Digital betacam can record component video with 10-bit YUV 4:2:2 compression. PAL resolution is 720x576, NTSC resolution is 720x480. The bitrate is 9Mbit/s. There are 5 audio channels out of which 4 main channels are the uncompressed 48KHz PCM and 1 cue track.

Some Digital Betcam equipment is backwards compatible with Betacam and Betacam SP

2.12 MiniDV

DV (Digital Video) is a video standard launched in 1996. It was formed by a consortium of companies and was given an official name as IEC 61834. The DV standard has spawned a few variations, including

2.13 DVCAM DVCPRO

DVCAM (Sony) and DVCPRO (Panasonic). Consumers know DV in it's smaller format HYPERLINK http://www.mediacollege.com/video/format/dv/minidv.htmlMiniDV.

DV uses intraframe compression and this means that the compression within each frame takes place instead of between consecutive frames. This makes it an ideal format for editing.

Note: The HDV format is a HD (high definition) version of DV and uses the same style tapes. However it uses MPEG-2 for compression.

DV uses the Firewire (IEEE 1394) interface in order to transfer video files among cameras, editing equipment, etc.

DV tapes can be played back in both DVCAM and DVCPRO VCRs.

2.14 Aspect Ratio

The term Aspect Ratio refers to the width of a picture (or screen) in relation to its height. Ratios are expressed in the form width x height. For example, a 4x3 ratio means the picture is 4 units wide by 3 units high. Alternatively a colon may be used (e.g. 4:3 or 16:9) or a ratio to the number 1 (e.g. 1.33:1 or 1.78:1).

You need to pay attention that the original physical size of the picture is not so relevant as the aspect ratio refers only to the relationship between width and height.

The three most common aspect ratios are shown below. There are many changes and variations additional to these but most video and film production uses one of these formats.

4x3

This is the standard television format that is being used all through the second half of the 20th Century. Sometimes referred to as 12x9.

16x9

This format has gained recognition as an emerging standard for widescreen TV, DVD and high-definition video.

21x(Cinemascope)

A very wide screen format that is used for theatrical release movies.

Converting Between Aspect Ratios

The problem of converting pictures among various different formats has weighed down film and television companies for years. Conversions mostly and always involve compromise and this leads to annoying the end user, the film director, or both.

For example, if we take the 29ximage above and convert it to a narrower format, we will have to lose quite a large part of the picture. .

WipeA is progressively replaced

2.15 Definitions

VHF — Very high frequency; TV channels 2-13.

VHS — Video home system. The most popular consumer 1/2-inch videocassette format.

VHS-C — VHS compact format using VHS tape in a minicassette.

VHS-HQ — Slightly improved version of VHS format, totally compatible with it.

VIASS or VISS — VHS Index-Address Search System, a way of bookmarking up to 8 placeson a VHS or SVHS tape, making them easy for a VCR to findlater.

Video distribution amplifier or VDA — Electronic device that splits one video signal intoseveral (often four) and boosts each to make them as strong as the original signal.

Video Encoder — A device that makes a composite color video signal from component videosignals.

Video tape recorder or VTR — A machine which can record picture and sound on a tape.Nearly all can also play back a tape. Although a videocassette recorder is also a video tape recorder, VTR usually implies that reel-to-reel tape is used rather than cassette.

Videocassette player or — VCP — A machine which can play a videocassette but cannotrecord one.

Videocassette recorder or VCR — A video tape recorder which uses cassettes rather thanopen reels of tape.

VISCA — Sony Video system Control Architecture, a two-way protocol from Sony thatpermits computers, through their RS-232 or RS-422 ports, to communicate with VCRs and other control-M or LANC enabled devices

Betacam — Aging popular professional camcorder format using betamax-like cassettes,recording separate colors at high tape speed for high quality. Expensive. **Betacam SP** — Component VCR format using Betacam cassettes.

Betacam-SP — Improved version of betacam, downwardly compatible with it, very popularamong professionals.

Betamax — Introduced by Sony, nearly extinct, 1/2-inch consumer videocassette format. **CD** — Compact disc containing digitally recorded sound, or the machine that plays the discs. **CD-I** — Compact Disc Interactive, a disc (or player) able to play interactively, up to 74 minutesof limited motion MPEG-1 compressed audio and video. **CD-R** — Recordable CD.

CD-ROM — Compact Disc-Read Only Memory, a CD with data files on it, readable by yourcomputer.

CD-ROM XA — CD-ROM Extended Architecture, plays music CDs and CD-ROM data onone multisession disc. Discs can be recordable.

Codec — Coder/decoder, device to convert video and audio into digits transportable via phonelines, then convert the digits back to audio/video for the recipient. Codecs may also employ digital compression.

Codec — Coder-Decoder, an electronic device devoted to compressing and decompressingvideo.

Digital videocassette (DVC) recorder — A VCR that records and plays back digital datarepresenting a video picture and sound.

Digital VTR — Video recorder that converts the video signal to ones and zeroes (digits) andrecords the numbers. Upon playback, the numbers are converted back to video.

DLP or digital light processing — Method of projecting a bright image by beaming light ontoarrays of microscopic mirrors, some of which

reflect light through a lens onto the screen. The angles of the mirrors correspond to the pixels in the original image.

DLT or Digital Linear Tape — A digital tape in a cassette that stores large amounts of dataand can play it quickly. The magnetic stripes go the length of the tape.

DV — Digital Video Format where images and sound are recorded as digital data onto 1/4 inchcassettes with very high quality.

DV, DVC — Digital Video. General term meaning audio and video are converted into ones andzeros for digital recording, transmission, and manipulation. DV also stands for a particular digital VCR format using 4:1:1 sampling, 5:1 compression, and 25 Mbps data rate recorded on a 1/4cassette. Format also called DVC—Digital Video Cassette.

DVC PRO — Panasonic professional format based on DVC but using a wider track and fastertape speed to record more data with less compression than consumer DVC.

DVD or Digital Video Disc or Digital Versatile Disc — Disc that can hold the data of 7 CD-ROMs and play full motion video and audio with good quality.

D-VHS — JVC's digital video recorder using VHS tape. Not the same as DV or Digital-S. **DVR** — Digital Video Recorder. A VCR or computer disk recorder that records/plays digitsrepresenting audio and video.

ED beta — Extended definition betamax. Much improved version of betamax, downwardlycompatible with it

EP or ELP or SLP — Extra play or extra long play or super long play— the 6-hour speed of aVHS VCR.

HDTV (High-Definition Television) — Proposed method of displaying sharper, wider TVpictures than the present NTSC system. Pictures would be shaped into a 16:aspect ratio, composed of 1,125 scanning lines, each line having 1,92pixels.

LCD panel or computer display panel — LCD device which when placed on an overheadprojector can project computer data.

LCD projector — Projector (with built in light source as opposed to

the LCD panel that usedan overhead projector for light) using a liquid crystal mosaic to create the image.

Superbeta — Slightly improved totally compatible version of betamax

Tri-standard — A TV or VCR which can work with an NTSC, PAL, or SECAM TV signal.

Tri-standard TV — A TV which switches from NTSC to PAL to SECAM standards to displayforeign video signals or broadcasts.

Video CD — Compact Disc able to hold full motion video and audio, playable on PC andMacIntosh computers**.**

2.16 Summary

8mm 8mm Video refers to a group of three video formatsVideo8, Hi8 and Digital8. Together these formats, championed by Sony, played a very important part in the early history of consumer and pro-sumer camcorders. Video8 and Hi8 are now obsolete

Video8 The Video8 format was launched by Sony in the mid-1980s. It was the first minicassette for camcorders and was a significant size reduction from the full-sized VHS cassettes.

Hi8 Hi8 camcorders were popular with amateur enthusiasts and were also used in television productions which required lightweight portable equipment. Used a combination of higher-grade tape and improved recording mechanisms to increase bandwidth. Recording lengths were 30, 6and 12minutes

Digital8 Digital8 is a transition format which is a compromise between the digital MiniDV format and Sony's existing 8mm formats. Digital8 uses the same digital codec as MiniDV but in the traditional 8mm cassette tape

Beta The professional Beta formats have been leaders in the television production market, especially in the field of ENG (Electronic News Gathering)

Betamax Betamax was developed by Sony and launched in 1975. It was the first commercially successful home video standard

Betacam Betacam was a high-quality format and attracted a lot of attention amongst professionals

Betacam SP Betacam SP was adopted as the standard format for field work such as ENG (electronic news gathering), but was also good enough

to be used for edit mastering. Every respectable studio had Betacam SP capabilities

Betamax SX Betacam SX is a digital version of Betacam SP

DVCAM DVCPRO DV tapes can be played back in both DVCAM and DVCPRO VCRs. Aspect Ratio The term Aspect Ratio refers to the width of a picture (or screen) in relation to its height

2.17 Self Assessment Test

Write a short note on the following

1   Betamax SX

2   Digital8

3   Betacam SP

4   DVCAM DVCPRO

5   Aspect Ratio

2.18 Further Reading

*   Video Production Handbook, Second Edition, Gerald Millerson C.Eng MIEE MSMPTEMay 2001

*   The Film Editing Room Handbook How to Tame the Chaos of the Editing Room, 4th Edition, Norman Hollyn

*   Video Production Handbook, 4THEdition, Gerald Millerson C.Eng MIEE MSMPTE, Nov 2007

*   The Videomaker Guide to Video Production, Fourth Edition, Videomaker and John Burkhart, Nov 2007

*   The Shut Up and Shoot Documentary Guide A Down Dirty DV Production, Anthony Q. Artis, Sep 2007

*   Film and Video Budgets, 4th Edition, Kindle Edition, Jan 2006

Assignment

o Do research and make a complete document existing and future file formats that are emerging and existing in the industry in the field of video production.

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