



# Basics of Video Camera, Light and Sound

## BA(JMC) 205

### Unit IV

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## Syllabus- Unit2

### Unit IV: [Sound]

- Audio Elements in Video Programmes: Lip Synchronized Sound, Voice Over, Music, Ambience And Sound Effects
- Use of Microphones, Audio Mixers for Recording
- Audio Control and Adjustment in Video Camera: Audio Level & Audio Channel
- In-camera Editing and File Formats

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### Audio Elements in Video Programmes: Lip Synchronized Sound, Voice Over, Music, Ambience And Sound Effects

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## Lip Sync

- Lip sync** (short for **lip synchronization**) is a technical term for matching a speaking or singing person's lip **movements with pre-recorded sung or spoken vocals that listeners hear**, either through the sound reinforcement system in a live performance or via television, computer or cinema speakers in other cases.
- The term can refer to any of a number of different techniques and processes in the context of live performances and audiovisual recordings.

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## Voice Over

- These are essentially self-explanatory. The **voice of the narrator** takes us through what is occurring on the screen. Infrequently do we see the film's narrator.
- In 500 **Days of Summer**, we never see the narrator, yet he guides us through **the film and highlights significant events**. Similarly, with motion design, we are sometimes led through the scenario by a figure who also serves as the narrator in explainer films.



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## Music

- We **may utilise music to establish** the dynamics of the atmosphere we desire to communicate in the **motion design project**. Which emotion do we want to feel when seeing the story? This should be the first question asked while developing a scenario and selecting music to complement the artwork.



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## SFX Sound Effect

- These are noises that are not produced naturally in the actual world and so cannot be captured by a microphone. The sound of a war in deep space, for [instance](#), [cannot be captured](#); it must be [imagined](#) and [reproduced](#).



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## Ambient Sound

- Ambient sound** refers to background or surrounding noises that are nearby in an **immediate location**, such as [traffic](#), [the chatter of passing pedestrians](#), [rain](#), [the honking of horns](#) etc.
- When you are listening to music, you would rather have little to no interruptions, unless, of course, an emergency arises. What we mean by this is that it is crucial to also be able to hear important sounds and be aware of your surrounding environment, even while listening to music.

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## Use of Microphones, Audio Mixers for Recording

# Use of Microphones, Audio Mixers for Recording

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Use Of Microphones

- Simply speaking, microphones convert one type of energy—sound waves—to another—electric energy. All microphones have a diaphragm, which vibrates with the sound pressures, and a sound-generating element, which transduces (changes) the physical vibrations of the diaphragm into electric energy, but the particular process each mic uses to accomplish this conversion determines its quality and use.

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Types of microphones

- 1. Large Diaphragm Condenser Mics
- 2. Small Diaphragm Condenser Mics
- 3. Dynamic Mics
- 4. Bass Mics
- 5. Ribbon Mics
- 6. Multi-Pattern Mics
- 7. USB Mics
- 8. Boundary Mics
- 9. Shotgun Mics

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Use Of Microphones

MICROPHONE	Element Type Pickup Pattern	CHARACTERISTICS	USE
Shotgun mic Sennheiser MKH 70  	Condenser Super cardioid	Excellent reach and presence, therefore excellent distance mic. Extremely directional. Quite heavy when held on extended fishpole.	Boom , fishpole, handheld. Best for EFP and sports remotes to capture sounds over considerable distances.
HAND, DESK, AND STAND MICS Electro-Voice 635N/D  	Dynamic Omnidirectional	An improved version of the classic 635 A. Has good voice pickup that seems to know how to differentiate between voice and ambience. Extremely rugged. Can tolerate rough handling and extreme outdoor conditions.	Excellent mic (and therefore standard) for all-weather ENG and EFP reporting assignments.

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 <b>Use Of Microphones</b>			
MICROPHONE	Element Type Pickup Pattern	CHARACTERISTICS	USE
HAND, DESK, AND STAND MICS 1. ShureSM57	Dynamic Cardioid	Good-quality frequency response. Can stand fairly high input volume.	Good for music, vocals, electric guitars, keyboard instruments, and even drums.
Beyerdynamic M160	Double ribbon Hyper-cardioid	Sensitive mic with excellent frequency response. Can tolerate fairly high input volume.	Especially good for all sorts of music pickup, such as strings, brass, and piano. Also works well as a stand mic for voice pickup.

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 <b>Use Of Microphones</b>			
MICROPHONE	Element Type Pickup Pattern	CHARACTERISTICS	USE
LAVALIERE MICS SennheiserMKE 102	Condenser Omnidirectional	Mixes well with boom mics. Excellent, smooth overall sound pickup. Very sensitive to clothes noise and even rubbing of cable, however. Must be securely fastened to avoid rubbing noises.	Excellent for most lavalier uses. Works well as a concealed mic.

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 <b>The Audio Console</b>	
<p>All incoming audio signals must reach line-level strength before they can be further adjusted or mixed at the audio console. Because not all input levels of microphones or line signals are the same, they run the risk of becoming over amplified. To prevent this from occurring, you can manipulate the signals individually with the trim control, which adjusts the input strength of the microphone signals so that they won't become distorted during further amplification.</p>	 <p>Each module of this audio console contains a volume control (slide fader), various quality controls, and assignment switches. It can route several mixes to various destinations.</p>

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## The Audio Console

- In sound recording and reproduction, **audio mixing** combines multitrack recordings into a final monaural, stereo or surround the sound product. These tracks that are blended are done so by using various processes such as equalization and compression. Audio mixing techniques and approaches can vary widely, and these can greatly affect the qualities of the sound recording.

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## The Audio Console

- Audio mixing techniques largely depend on music genres and the quality of sound recordings involved. The process is generally carried out by a mixing engineer, though sometimes the record producer or recording artist may assist. After mixing, a mastering engineer prepares the final product for production.
- Audio mixing may be performed on a mixing console or digital audio workstation.
- A mixer (mixing console, mixing desk, mixing board, or software mixer) is the operational heart of the mixing process. Mixers offer a multitude of inputs, each fed by a track from a multitrack recorder. Mixers typically have 2 main outputs (in the case of two-channel stereo mixing) or 8 (in the case of surround).

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## Continue

- Mixers offer three main functionalities:
  - Mixing** – summing signals together, which is normally done by a dedicated summing amplifier or in the case of digital by a simple algorithm.
  - Routing** – allows the routing of source signals to internal buses or external processing units and effects.
  - Processing** – many mixers also offer on-board processors, like equalizers and compressors.

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## Audio Control and Adjustment in Video Camera: Audio Level & Audio Channel

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## Audio control

- Audio control and adjustment are crucial aspects of video production, ensuring that the audio quality of your videos matches the visual quality. Video cameras, whether **ENG, EFP**, or other types, generally provide options for adjusting **audio levels and managing audio channels**. Let's delve into these concepts:
  - ✓ Audio levels: The volume or Intensity of the audio is referred to as an audio level. Inaudible recordings or audio distortion (clipping) are avoided with proper audio level adjustment. The audio levels can typically be adjusted on most video cameras in the following ways:
    - Manual Audio Control
    - Auto Gain Control (AGC)
    - Audio Meters

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## Audio Channels:

- **Audio Channels**
- Audio channels refer to audio sources or tracks the camera can record. Cameras can capture audio from various sources, and these sources are often separated into different channels for more control during post-production:
  - Mono and Stereo
  - External Microphones
  - Audio Sources
  - Mixing and Panning

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## Tips for Audio Control

- **Avoid Clipping:** Keep an eye on the audio meters and ensure the levels don't go into the red (clipping). Adjust the levels so that they stay within an optimal range.
- **Use Headphones:** Always use headphones to monitor the audio being recorded. This helps you catch any issues in real-time and adjust as needed.
- **Test and Monitor:** Before recording important content, conduct audio tests to ensure that the microphone placements, levels, and channels are set correctly.
- **External Audio:** Consider using external microphones that offer better audio quality than built-in microphones for professional results.
- **Post-Production:** Even with proper on-camera adjustments, audio may still need tweaking in post-production. Having separate audio

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