# SOUND ENGINEERING

## Course Description

The course is designed to introduce basics of Audio engineering technology to the learners especially those who have no prior knowledge of this topic. Participants, under this course, will be exposed to basics of Audio Engineering including studio architect, studio equipment, basic recording techniques and software and some other important aspects which they might want to understand.

## Course Goals

To demonstrate how knowledge of acoustics along with computer and electrical engineering (specifically, digital and analog electronics as well as signal processing techniques) is used in the field of audio engineering. Also, to provide students interested in pursuing careers related to audio engineering guidance in developing a plan of study that meets their objectives.

## Course Content

The course comprises in 8 Modules

Module 1 Intro to Mixing & Analyzing
- Introduction to Mixing
- Stages of a Song
- Hearing Capabilities & Limitations
- Importance of Metering in Mixing
- Setting up the Sweet Spot
- Training your Ears
- Preparing your Mix
- Volume and Dynamics
- What is headroom

Module 2 Understanding Panning & Mixing
- Panning Techniques
- Understanding your Genre for Mixing
- Knowing what to avoid in a Mix
- Creative Vocal Mixing Techniques
- Mix a Track Using Plugins

Module 3 Frequency Separations Using EQ
- Filters
- EQ Techniques
- Mixing Low Frequencies like Kick & Bass
- Linear Phase EQ
- What is Phase
- Mono Compatibility
- L/R Mixing
- Mid Side Mixing
- Distortion, Saturation, Exciter

Module 4 Types of Reverb & Techniques
- Using different types of Reverbs
- Mono vs Stereo Reverbs
- Reverb Strategies
- Secret to build great Reverbs

Module 5 Dynamics & Loudness Control
- What is Loudness & Dynamic Range
- What is Compression
- Compressor's Parameters
- Threshold, Ratio, Attack, Release
- Knee, Make up Gain
- Peak vs RMS

Module 6 Types of Compression & EQ
- Pumping Effect using Compression
- Parallel Compression
- EQ Techniques for Parallel Compression
- Multiband Compression
- Buss & Group Compression
- Pre & Post EQ in regards to Compression

Module 7 Microphones & Vocal Processing
- Vocal Recording and Editing
- Concept of Multiple Options in vocals
- Effects on Vocals

- Pitch Correction
- Auto-tune
- Removing Frequencies in Recording
- Remove Blows & Noises Using Gate

Module 8 Mastering Techniques
- Preparation for Mastering a Track
- Compression on Mix
- Using Multiband Compressor
- Using Clippers
- Using Limiters
- Loudness Control
- Dithering

## Student Learning Outcomes

The students will be able to:
- Identify acoustic and electronic concepts
- Describe basic aspects of human hearing in including frequency range and amplitude characteristics
- Identify the basic components of sound – direct sound, early reflections and reverberation, as well as related qualities of acoustics space such as flutter echo, live and dead spaces
- Utilize effective file management strategies for an audio engineer project
- Match the technical specifications of projects required in YouTube, Radio, Television broadcast, Animation, Film, OTT platforms and other media platforms.

## Student Assignments

Assignments have been developed that will enhance your learning. To better understand a topic, you will be given assignments on key information that you will need to remember for your career as a Sound Engineer.

Students will be required to successfully complete the following:
- **Listening Assignment**
  Each student will bring in one recorded project for the class to listen and to analyze
- **Spot-on Audio Submission**

Audio cleaning, Mix and Master a track. Provide 1 wave file within a given period of time with required technical specifications.

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**Additional Information:** Follow-up relating to learning conditions and goal-fulfilment takes place both during and upon completion of the course in order to ensure continuous improvement. Course evaluation is partly based on student views and experiences obtained in accordance with current regulations and partly on other data and documentation.