The audio engineer

Art & Culture, Music

A vital part in the making of any professionally made album is the production and post-production process. These processes are theresponsibilityof audio engineers employed by record labels. The engineers are responsible for the recording, mixing, and mastering of audio tracks. To do this, engineers are trained with various technologies in the fields of multi track recording, outboard gear and digital/analog workstations.

With their knowledge and tools, engineers help the artists convey their art as best as possible not only to themselves but also to the demographic they wish to express their art to. The job of the engineer can be best described as a presenter in a techno artistic field. The job requires the technical capabilities and instinct to translate the artist’s ideas into a working production. In order to do this, the engineer must be educated in the Audio Industry with a Bachelors Degree in at least one of many Audio Production courses.

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The individuals training for this degree must know the fundamentals of proper signal flow, how to work a mixing board, set up microphones, and manipulate outboard equipment that includes time based and dynamic processors. Once the engineer has taken the proper courses for the specific field and has received their commemorative degrees, they can learn more about audio engineering by taking in aninternshipat a recording studio, musicvenue, or radio station.

A suggestion made by the Audio Engineering Society states that, “ students should complete and internship or apprenticeship to gain hands-on

experience, which will make them more marketable to potential employers" (www. aes. org). After receiving the hands on experience from internships, the climb to the top of their field starts and soon they begin to take on more important tasks in the studio, which can include becoming a second engineer or even becoming the lead engineer.

As an engineer, the skills learned through out the course of onescareercan build a high reputation in the industry, which in turn opens a wide range of opportunities to experience. The first phase in the production process of any project is recording. In this phase, the engineer captures one or more sound sources through the use of a wide range microphones and record it directly to one or more of the isolated tracks of a recording system.

Through the process of multi track recording however, technologies have added a degree of flexibility by allowing multiple sound sources to be captured onto and played back from isolated tracks. Some of the many types oftechnologyand supplies engineers use in the recording process include microphones, dynamics and time based processors, equalizers, and personal address systems. Personal address systems are made up of three different components that include speakers, amps, and mixers along with a wide variety of backline equipment.

Time Based Processors include effects such as echo which is recognizable, repeat of direct sound and reverb which consists of multiple, blended, random echoes. Dynamic based processors deal with compressors that reduce the dynamic range of a signal by making the loud signals softer and the soft signals louder or vice versa; a gate, which utilizes a threshold knob, that tells the processor when to start the process by cutting out certain

frequency ratios. The microphones for each instrument are selected by experience or by experimentation and are then connected to the desired console.

They then place the microphone in the desired position in order to get the best possible sound without distortion. Once that is processed, the microphone and track selection should be noted onto a track sheet for easy input and track assignment in the studio. After all the assignments and labeling have been applied, the engineer can begin the process of setting levels for each instrument and mic input by communicating with each musician to play in solo mode or by asking for a complete run through of the song and listening to one input at a time.

With the new age of pro studios, project studios, and digital audio workstations, engineers have a wide variety of tools and options for different types of productions, causing the approach to the projects to vary in many different ways. According to aninterviewof noted audio engineer Simon Kasprowicz “ what makes a good engineer from a bad is totally subjective and depends upon individual desire because what may sound fantastic to someone, others will find fault in” (Kasprowicz, about. com).

When all of the tracks of a project have been recorded, assembled, and edited onto the digital audio workstation or tape deck, the next step would be to individually mix the elements of their work in their final edited forms. The mix down process occurs by routing the various tracks of a digital audio workstation or tape based recorder through a hardware virtual mixing console to alter the overall session’s program, all which include getting relative level, spatial positioning, using equalizers, and effects. Once these

measures are taken care of, the engineer can then set up a rough mix of the song by adjusting evels and the spatial pan positions. The producer who is mostly provides feedback to the artist and the engineer during the session, listens to the mix and may ask the engineer to make specific changes such as amplitude adjustments. Instruments in their isolated tracks are often soloed for equalized changes to be made. The usual compression and limiting can be used in the mixing process to make individual tracks sound fuller and more consistent in level or to prevent them from overloading the mix when searching for a desired level.

Finally, the team consisting of the artists, producers and engineers in the session can now begin the cooperative process of building the mix in its final form. When the mix begins to take its form, signal processors, such as effects like reverb and echo, can be added to shape the ambience of the recording in order to help blend with instruments and give a more live feeling to the mix. It’s very important for levels to be as consistent as possible between the various takes. Very often, good judgment is needed to monitor compatible listening levels on speakers or headphones.

The reasoning behind this technique is due to the variations in human ear frequency response at different sound pressure level will result in inconsistencies between song balances. Once the final mix is made, the engineer will listen to the mix over different speaker systems for flaws that may have been missed. Making copies of the final mix and sending them out to the producer and artists to listen to is also an ideal way to discover any changes that may be necessary before sending out the final mix to the mastering engineer.

Mastering is the process that uses specialized high quality audio gear together with one or more sets of critical ears to help artists and producers attain the desired sound. This has to be done before the recording is made into a finished product. Bob Katz, author of Mastering Audio states that, “ Mastering is the last creative step in the audio production process, the bridge between mixing and distribution” (Katz, 13). It is the last opportunity to enhance sound or repair problems within a studio under an audio microscopic spectrum.

Once the final mix is completed, the edited mix down project is sent to the mastering engineers who then fine-tune the overall project. These engineers lend their well-trained ears to help determine what can go wrong technically or aesthetically. With this in mind, mastering too can be considered a techno-artistic field; when applying the rules that one mastering engineer can have a different approach to the sound and overall feel of the project than a different engineer. Mastering can have an important impact on the final project and the assignment of finding the right engineer should never be taken lightly.

At times, the mastering engineer may not need to adjust the final mix at all and just give the track the seal of approvable for press. Most of the time, however, the engineer still aids the producer in the track they could not get right during the mix down process by adding their final touch to it. With the audio industry’s constant evolution due to new artists, technologies and recording techniques, labels and production companies are constantly seeking the services of professionally trained engineers.

The importance of audio engineers in the hypercompetitive world of entertainment will only increase as new media become more prevalent. Whether its recording tracks at the beginning of the project, assembling and implementing sound effects during the mixing process, or finalizing the project to a desired standard, the audio engineer will continue to be an integral member in the creation of mass distributed records.