

MAS 432: Audio Production Midterm Exam Review

Consoles and Control Surfaces

A console is also known a board, or a mixer, or, in Europe, as a mixing desk. But they are all essentially the same thing.

But there are different applications: some are used for live sound reinforcement, and some are used for recording in studios. For that reason, there are slight differences between the two. Neither of these should be confused with an on-air broadcast console, which is essentially just a device for routing the input of various devices.

Common feature of most production consoles:

Input/output (I/O) channel – this channel strip processes and delegates the incoming signals and sends them on for recording.

Input selector control – switches between low-level (microphone) signals, line-level (instrument) signals, and high-level (CD players, etc.) signals. Don't confuse these or problems will result

Phantom power – supplies power (48 volts DC) to capacitor (or condenser) mics.

Microphone preamp – see above. Mic levels are very low, so they need some amplification before being sent on for processing.

Trim, or gain control – adjusts input levels to accommodate different instruments playing at different levels. This is so all levels coming into the board at at unity, or the optimum signal strength for the system.

Pad – reduces the signal level by predetermined amounts.

Overload indicator – also know as a peak indicator, but known to everyone as a clip light. This means the circuitry has been overloaded and noise has been introduced.

Channel assignment and routing – all consoles have an internal network known as a bus. Any input can be switched to any combination of inputs and outputs.

Pan pot – short for panoramic potentiometer. Positions the sound from left to right in the stereo mix

Equalizers – alter selected frequency ranges. This primarily applies to live sound and not recorded sound, where EQing is done after the recording by some other means.

Dynamics sections – this is most often some kind of outboard equipment, but it includes compression, limiting and noise-gating

Cue and effects sends – routes signals for listening for preview (cue) and out of the board to outboard effects such as reverb and delay.

Solo and pre-fader listen – activating the solo button cuts off all the channels except the one you want to listen to. This means you don't have to mute all the other channels.

Mute control – shuts off the channel you don't want to listen to.

Channel and monitor faders – these are also referred to sliders, but the actual technical term is potentiometer. In other words, it turns voltage up and down like the dimmer on the chandelier in your parents' dining room.

Meters

Are essential to the production process. Paradoxically, the way to determine levels is a visual process. You cannot trust your ears. There are too many places the signal can be turned up or down.

Sound in electrical form is measured in decibels (dBs). In measuring electrical current in a line, the main concern is impedance, or the resistance to the flow of electricity. Quality sound equipment is low-impedance.

Volume Unit Meter (VU meter) measure voltage and indicates 0 dB, which is 100% of modulation. Above 0 dB, you are in the red. In analog technology, there is a little headroom above 0. That is not the case with digital technology.

Peak meters – works like an electrical VU meter, but keeps a record of the peak programming performance.

LED (Light-emitting diode) meters – are a series of lights arranged vertically or horizontally that register signal levels

Plasma displays indicate signal strength through continuous columns of light that are very sensitive and very accurate.

Master Section

The master section contains the master controls for master buses, the master fader, the master effects sends and returns, level and mute controls, and meters.

Monitor Section

The monitor section allows monitoring of the line or recorder input, selects various inputs to the control room and or studio monitors, or both. May include talkback feature for communication between the control room and the studio.