MUM 2600 – Notes 1

The recording industry consists of people with creative, technical and business expertise.

1. CREATIVE
    a. Musicians
    a. Producers
    a. Engineers
    a. Composers
    a. Arrangers/orchestrators
    a. Graphic artists/designers
    a. Inventors
    a. Promoters
    a. Directors (video)

1. TECHNICAL
    a. Engineers
    a. Electricians
    a. Acoustic design
    a. Instrument design
    a. Maintenance/repair
    a. Computer based recording technicians

1. BUSINESS
    a. Record companies
    a. Manufacturers
    a. Broadcast media
    a. Marketing
    a. Manufacturing
    a. Distribution
    a. Law
    a. Promotion
    a. Musical, electrical or design contractors
    a. Retail sales
    a. Artist or studio management

1. PRODUCT OUTLETS
    a. Retail stores
    a. Broadcast media (television, film, radio, internet, live performance)

RECORDING OVERVIEW

In the past, recording required a commercial recording facility or studio equipped with a large staff. The staff includes:
Engineers
Assistant engineers
Maintenance personnel

MUS 2600 – 1 p.2

RECORDING OVERVIEW – cont.

Administrative staff (studio manager, billing, hospitality, etc.)
Secretarial/clerical

Local examples of large commercial studios are:

a. The Hit Factory – Criteria
a. Crescent Moon (The Estefan's Place)
a. South Beach Studios
a. Circle House

Examples of large commercial studios who have gone out of business:

a. New River
a. Midiland
a. Quad-Radial
a. International Sound

Due to new technology, in particular the development of the LSI (large-scale integrated circuit), home/project/desktop studios in conjunction with the mass-marketing and distribution potential of the internet have enabled and empowered artist, musicians and engineers to make "home" or alternative recording a viable and often preferable alternative to the large commercial studio.

Technical advancements in recording over the last 30 or so years include:

1. MIDI (musical instrument digital interface)
1. Digital recorders (ADAT, TASCAM DA-88)
1. Software based recorders/sequencers (Digital Performer, Logic, etc.)
1. Hard disk recording (Pro-Tools, Mackie, etc.)
1. Affordable top quality recording gear.
1. Software based outboard gear/effects, samplers and synthesizers

The recording has been around and in a constant state of evolution for approximately 80 years. During this time, the recording studio has evolved from a large monster to the "home" and now to the portable laptop studio.

MUS 2600 – 1 p.3

TYPICAL FEATURES OF COMMERCIAL FACILITIES

1. One or more specially designed acoustic environments (rooms) specifically constructed and designed to capture sound. Designed and built to provide a clean and clear recording free of reflections and other naturally but unwanted naturally occurring acoustic phenomena.
1. Structurally isolated to keep unwanted sound out.
1. Wide variety of microphones and outboard gear.
1. Acoustic piano.

Studios vary in shape and size depending on:

1. Available space
1. The type of music to be recorded

For example, Criteria has:

1. Large rooms for recording strings, brass and live rhythm sections or bands. This room is also used for film scoring sessions.
1. Small rooms for overdubs or "sweetening" sessions.
1. Mix rooms with isolation booths for last minute touchups.

Audio-for-video, film dialog, voice-over and jingle studios like those at "Music a la Carte Studios" in Coconut Grove, FL incorporate a series of small rooms. Often these studios will have one large control room with a group of satellite rooms of varying size. The more rooms a studio has, the higher it's earning potential.

All recording studios are unique and are built to the taste of the owners and/or designers. No two sound the same or look the same. In general, most don't cost the same either.

During the 1970's, studios were built smaller and acoustically absorptive commonly termed "dead". This was due the popularity of adding the effects during recording and mixing.

Now, as in the 30's and 40's, commercial studios have once again become larger. Large halls with adjacent isolation booths have made the concept of the "room" sound popular once again.

For example, when recording drums, strings or brass we often simultaneously use "close microphones" to capture the direct sound of each instrument and room microphones to capture the overall performance in the room. This technique allows the engineer or producer the freedom to balance between direct and room at their discretion.

MUS 2600 – 1 p.4

THE CONTROL ROOM

1. Sonically isolated
1. Designed as a critical listening environment. Control rooms are tuned to provide the most accurate sonic reproduction possible. Most studios are constantly tweaking their control room. This process can take months or years and be very expensive involving changes in equipment and design.
1. The control room houses the mixing console, monitor speaker, outboard gear such as amplifiers (amps), equalizers (EQ), reverbs, computers, CD and DAT decks, midi gear and many other types of recording equipment. The control room is where the engineer, producer and clients spend most of their time.

The mixing board is the input/output device for the studio. Usually, everything recorded goes in and out of the board. In the hands of a great engineer or producer, the mixing board is an amazing musical instrument and tool.

The console's basic functions are:

1. Input/output
1. Mixing – control over the relative amplitude (volume) and signal between channels.
1. Spatial positioning (panning). Left, right and now in 5.1 mixing rear left, rear right, front left, front right and sub woofer.
1. Routing
1. Switching from a variety of signals and sources (i.e. Pro-Tools, Room, DAT, CD, MD, satellite feed, etc.)

Tape machines are usually located inside the control room in the rear or side of the room. Because computers, power supplies and amplifiers are noisy and create heat, they are usually located in a dedicated room which is cool, dry and sonically isolated. This room usually has easy access and has windows or glass doors.

Every control room and studio is different.

RECORDING TECHNIQUES

There are 2 basic types of recording:

1. Multi-track (more than one track)
1. Live recording [usually a mono (1 track) or stereo (2 track left/right) recording]

Multi-track recording

1. Able to capture or playback individual or combinations of sounds/performances on separate tracks.
1. Tracks are usually in groups of 8. 8 to 96 most common.
1. All tracks can be recorded, edited or erased independently.

MUS 2600 – 1 p.5

Terms (also see p.10-11 of textbook)

1. Record – to capture sound or a performance with a microphone or a direct line from an audio source.
1. Track – to record
1. Sweeten – augment or overdub.
1. Overdub – to record along with the original recording on separate tracks.
1. Punch – to insert a performance onto an existing track.
1. Mix – to combine the sounds of all recorded tracks in a manner pleasing to the ear.
1. Dump – to record to tape all information from a sequencer. This is usually midi information being played by a synthesizer or sampler.
1. Bounce – to transfer information from one or more tracks to a track or a set of tracks.
1. Monitor – to listen to a previously recorded track or a track being recorded.

Example of a drum set being recorded on 8 separate channels. Multi-track recording.

Track #1	Instrument
1.	Bass drum “kick”
2.	Snare drum “snare”
3.	Hi hat “hat”
4.	Tom tom “tom”
5.	Ride cymbal “ride”
6.	Crash cymbal “crash”
7.	Overhead microphone left “overhead L”
8.	Overhead microphone right “overhead R”

OVERDUBBING

Overdubbing or sweetening is the most time consuming aspect of the recording process. When overdubbing, one listens to the track(s) of their choice and records his/her performance on new and separate tracks. Common instruments that are overdubbed include but are not limited to: strings, brass, vocals, guitars, Latin percussion and synthesizers.

MIXDOWN

First, the engineer works on each rack to optimize their sound quality. This includes adding effects, changing the volume or gain, the tone by adding equalization (EQ), panning, reverb, delay, etc.

After that is completed, the engineer then combines all the tracks to create a mix and dumps them to a stereo pair of tracks or a 5.1, surround-sound mix. The final mix is usually in the form of a CD or a DAT (digital audio tape) tape.

MUS 2600 – 1 p.6

Mixing includes altering the following:

1. Balancing and combining tracks to create a performance
2. Performance editing
3. Volume (gain)
4. Tone (EQ)
5. Spatial positioning (panning)
6. Adding effects (reverb, delay, chorusing, etc.)

LIVE/ON LOCATION MULTI-TRACK RECORDING

This is a situation when the studio goes to the musician. It is usually an expensive proposition due to the cost of the equipment, rental of the venue and the set-up.

Types of live recording:

1. A large truck, housing a full, large-studio, control room. A studio motor home if you will. (Local example would be Peter Yanilos' Artisan Mobile Recording.)
2. Project or home studio. Generally a combination of midi and digital recording.
3. Laptop recording studio.