

Area of Study 3: The development of recording and production technology

3.1 Software and hardware: digital

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A

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Digital hardware/software attributes

PCM
Sample rate
Nyquist
Aliasing
Bit depth
Bytes, Kilobyte, Megabyte, Gigabyte, Terabyte
The differences between digital and analogue recordings
The advantages and disadvantages of digital hardware/software
Graphical user interfaces (GUI)
Sampling theory and converters

DAW

Core and advanced functions of a DAW
Real-time (native) processing; software instruments
Non-destructive and non-linear editing
Convolution reverb
Amp modelling

Digital consumer formats

CD; mp3/m4a; high definition masters
Emerging technologies

Digital recording and sampling hardware

Digital multitrack formats
Sampling with limited available memory

3.2 Hardware: analogue

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Analogue hardware attributes

The advantages and disadvantages of analogue recordings
Valves
Soft clipping
Tape saturation
Solid state (transistor) amplifier
Distortion for hard clipping
Maintenance issues

Tape machines

Editing and splicing
Multitrack tape formats
Wow & flutter; variations in pitch

Analogue consumer formats

Vinyl
Cassette tape
Mono and stereo releases
Mixing and mastering principles for analogue formats

Analogue effects

Delay: Tape, bucket brigade
Mechanical reverbs: plate spring
Rotary speaker (Leslie cabinet)
Vinyl scratching
Pitch changes and reversing using vinyl and tape

Analogue synthesisers

Advantages and disadvantages
Modules and patching

Electric instruments

Electric guitar; bass guitar
Theremin; Mellotron; electric organ; electric piano; Clavinet