A Course (Sept 80 - Dec 80, 13 weeks)

Tests: Weekly, Pass Mark = 60%

A Course Part 1 – Fundamental Principles & Broadcasting Systems

Introduction to BBC: Income & Expenditure, Management Organisational Charts Course Outlines, Assessments

Audio Signal: Frequency range, Pitch, Timbre, Bandwidth, Wavebands and Allocated Frequencies in UK, Octaves, Semitones, Fundamental, Harmonics, Transients

Electrical Terms & Units: Atoms, Electrons, Protons, Coulomb, Current, Voltage, Resistance, Conductance, Conductors, Semi-conductors, Insulators, Power, Energy, Resistance combinations (parallel, series, combinations), Units (kilo, mega, etc)

Impedance: Equivalent circuits, Impedance, Input & Output Impedance, Impedance matching, Resistors (colour coding), Pads (balanced, unbalanced, 'T'), Terminators

Reactance & Impedance: Inductance, Capacitance, Resonance, Tuned circuits, Q factor, LR, CR, and LC circuits, parallel and series, Differentiation and Integration of signals, Time Constants

Semiconductors: Atoms, Crystal Structures, P and N types, Diode, Reverse Bias, applications, Transistor, DC and AC amplification, applications, Singles and Multi stage amplifiers, Impedances, Emitter follower, Common Base, Gain, DC Coupling, Negative Feedback, Power Amplifiers, Class A, B, C, Crossover distortion,

Alternating voltages: Period, Frequency, Amplitudes (peal, average, R.M.S.), Phase shift, AC and DC components, Mark-Space, Waves (Sine, square, sawtooth), signal measuring, VU meter, PPM, Dynamic range, Line up, Measuring Equipment (EP14), Noise,

Oscillators: Positive Feedback, Sinusoidal, Types,

Meters: Shunt, Moving Coil, Moving Iron, Repulsion, Thermocouple, Electrostatic, Shunts, Multipliers, Multi-Range, AC measurement

Lines: Types (control, music, vision, noise, stop coil, Equalisation, Test Signals

Decibel: Logs, Power Ratio, As applied to audio & video

Oscilloscope (full analysis): Trig Level, Stability, Position, X-gain, Timebase, Chop/Alt, Z-mod, Electron gun, focus, deflection, astigmatism

Jackfields: tip, ring, sleeve, listen, break jack, double-innering

Magnetism: Magnetic fields, Flux density, inducing voltage, Fleming's rules, as applied to tape recording (Hysterisis loops, Remanence, Coercivity, Permeability, Hysterisis Loss, Saturation, air gaps, Inductance, Transformers: V, I, P, transformations, losses: copper loss, Eddy currents, Hysterisis loss, Flux leakage, self capacitance)

Sound Waves: Velocity, Frequency, Wavelength, Reflection, Diffraction, Standing Waves

Tape recording: Tape Transport, Record Chain, Playback Chain, Erase and Bias, Line-up, Head Gap, Azimuth, Extinction Frequency, Quadruplex, Helical Scan, Servo control

TV principles: Field rate, Line rate, Interlace, active line, flyback, blanking, sync pulses, equalising pulses, scanning, black level, white level, broadcast signal, transmission standards, vestigial sideband, sound-in-syncs

Colour: Visible Spectrum, Photopic Curve, Hue, Luminance, Brightness, Saturation, Primary Colours, Secondary colours, Additive Mixing, Subtractive Mixing

TV Colour Coding: Compatibility, Reverse Compatibility, Bandwidth Restrictions, Luminance, Chrominance, Colour Difference Signals, PAL, Reference Burst

TV Studios: BBC TV Centre specifics, PCR, VAR, CAR, VCR, SCR, ICR, teletext, Studio staffing by role, Studio Logs (types, distributions), Presentation, Continuities, Regional Opts, Simultaneous Broadcasts, Regional Inserts

Receivers: Tuning Stage, Selectivity, Sensitivity, A.M. Receiver, Heterodyning, Demodulation, Output Stages

Motors: Types, Commutator, Induction, Synchronous

Micrphones: OmniDirectional, Moving Coil, Figure-Of-Eight, Ribbon, Cardioid, Hyper Cardioid, Electrostatic, Electret

Comms Systems: Telephone, PABX, EMX, Control Lines, Carrier Systems, Talkback, Intercom, Buzzers, Cue Programme, Cue Lights, Cue Dots, Teleprinters, Presfax

Limiters & Compressors: Principles, Threshold, Compression, Limiting, Recovery Time, Uses,

Aerials: Wavelength, Standing Waves, Aerial Types, Polarisation, Arrauys

Misc: Soldering, Binary Maths,

Safety: Mouth-to-mouth, vomiting position, Risks, Studio safety, spray painting, working at heights, Studio audience, camera and microphone mountings, Studio Grid Areas, Manual Handling/Lifting, Cable safety, Fire Procedures, Inflammables, Liquids,

Electrical Safety: Electric shock, Fire, Protection of equipment, Fuses, ELCBs, Distribution, Double Insulation, Isolating Transformers, Electrical Testing, Earth Loop Impedance,

Power Supply Units: Rectification, Smoothing, Regulation, Stabilisation,

Film: BBC specifics, staffing, cameras, sound recording, S-V synchronisation, Telecine, Dubbing

Transmission: AM, Sidebands, Bandwidth, Suppressed carriers, FM, Pulse Modulation, Standards (TV, Radio),

Valves: Principles, Triode, Pentode, applications, Singles and Multi stage amplifiers

Track Laying & Dubbing: Sync and non-sync sound, Effects, transfer Suite

Sound Control: Balance, Microphones, Line Inputs, EQ, Channels/Groups, PFL/AFL, Echo/Effects, Insert Jackfield, PA, Foldback, Two-way Working, Clean Feeds,

Sound Operations: Boom, Sound Effects, Tape, Multi-track, Line Up, Tape Editing, Mono/Stereo, Pauses/Breaths, Stress, Intonation, Rhythm, Leaders,

Disc Operations: Mono, Stereo, Stylus, Cartridge (Moving Coil, Moving Magnet, Variable reluctance, Ceramic), Equalisation, Distortion (Tracing, Tracking, Echo, Wow, Flutter, Rumble)

Camera Operations: Pan, Tilt, Crab, Tracking, Crane Up/down, Focus, Zoom, Shot Types, Depth Of Field

Videotape Operations: Record Pairs, Line Up, Record, Replay, Monitoring (waveform, vectorscope), Control Track, E to E, Timebase Correction, Editing (Assemble, Insert A and/or V),

Monitor Operations: 525/625, Focus, Gamma, Height, Width, X shift, Y shift, Chroma, Phase, RGB A1 Controls, Input Select, Mono, Brightness, Contrast, PLUGE, Ext Sync., Grey Scale Tracking, Convergence, Pincushion, Purity, RGB Black Levels, RGB Gains, Degaussing, PAL (simple, Delay),

Film Operations: Shooting, Transferring, Editing, Dubbing, Telecine

TV Lighting: Lamp Types, Light Level, Contrast Ratio, Colour Temperature, Hard and Soft Light Sources, Angles, Shadows, Modelling, Interview Lighting, Sound considerations

Loudspeakers: Moving Coil, Frequency Response, Directivity, Crossover Networks, Enclosures, Baffles, Reflex

Stereo: Binaural hearing, A-B, M-S, Phase, Panning, Broadcast (M + S (DSSC with pilot tone))