

DIPLOMA STANDARD

1. Acoustics-measurements of reverberation time of theatres and scoring stages, Methods adopted to control the reverberation in theatres and sound scoring stages.
2. Microphones-study of microphones-Directional characteristics of microphones -Omai directional, Bidirectional - unidirectional microphones - Polar patterns - Super and Hyper Cardioid-Ultra directional - Dual pattern microphones - Microphones impedance - Micro phone sensitivity.
3. Study of Different types of Transistors used in Audio Amplifiers - R-C coupling - Twostage Amplifier design consideration - Study of Semi conductor Diodes - Full - wave Bridge - Rectifiers - Photo - diode and its application - Photo diode Pre-amplifier circuits - Transistor class B Pushpull output stage - Different types of Distortion in Audio Amplifiers - Frequency Response of Amplifiers - Different types of Oscillators and circuits - Negative feed back - Transistor Regulated power supply circuits.
4. Net work theory-Dividing networks - combining net works used in recording mixers.Attenuators-various types of Attenuators - Equalizers fixed - variable andgraphic equalizer - parametric equalizers High pass filter low pass filter- Band repass filter, Design of fixed attenuationpad.
5. Optical recording - the principle of variable area and density recording - types of variable area tracks - variable area - light - valve - Galvanometer - Modulators- Noise Reduction Circuit used in Variable Area recording. Block diagram of variable area recording system.
6. Film drive - study of mechanical filters - flutter measurements - compression and limiting circuits employed in recording equipments. Recording systemmeasurements - power level gain level-distortion level-quality control of variable area sound tract Intermodulation and cross modulation tests. Magnetic recording - Theory of magnetic-DC bias recording AC bias recordingtransfer characteristic-recording and replay. Study of record replay and erase heads. Azimuth alignment.Physicaltract dimension- Synchronous and non-synchronous magnetic recording equipments.
7. Film reproduction - Standard reproduction Characteristics Scanning losses Photo Diode coupling methods - Theatre amplifier characteristics - Loud speaker system used, cross overnet work and its characteristic. The component parts of an In-Line recording console - along with its equalizers and Effects, Echo-delay chambers. Practice in using Professional Sync-Recorders, Transfer process from 1/4" and 35 mm magnetic tape to optical film

Pre-scroing and post synchronising

Use of test films:-

- a Buzztract
- b Azimuth alignment film
- c Frequency film and
- d Focussing film

Modern trend in motion picture recording

a stereophonic sound

b Perspective sound. Special motors used in film recording and reproduction - Governor controlled, synchronous and inter lock types

8 Use of different types of measuring instruments:

- a Multimeters
- b VTVM
- c Output metres
- d Cathode ray
- e Oscilloscopes

Measuring Instruments:-

- 1 Study of Motors having different sensitivity and its effect on the circuit under measurement.
- 2 Construction of multi-meters and how to use them for measuring voltage, current, resistance.
- 3 Using audio oscillators to determine the frequency response of audio amplifiers.
- 4 Use of cathode ray oscilloscope in checking the performance of amplifiers.

Audio amplifiers Characteristic curve of resistance-capacity coupled inductance coupled and transformed coupled amplifier construction of audio amplifiers - Push pull amplifiers - Measurement of gain and frequency response of amplifiers with and without feed back. Study of the effect of tone controls. Construction of cathodes follower amplifiers - Tracing and localising the troubles in amplifiers.

Practice in using Professional sync 1/4" recorders and recording, checking the frequency response of different types of magnetic recording equipment. Determination of bias current-Azimuth adjustments of recording and reproducing head.

Practice in film recording - Dialogue recording - music recording. Dubbing re- recording - mixing in practice. Projection - Film splicing - Bud joints - Film checking and packing.

9. Study of projector mechanism.

Shutter adjustments - replacement of maltese cross and sprocket.

Adjustment of idler-rollers, guide rollers, pad rollers and gate tension.

Refocussing of optical in projector. Instaflation and maintenance of projection equipments. Study of change over system. Different types of wide screen Techniques and its Aspect Ratios. Study of screens and measuring screen illumination. Study of Digital Theatre System and its reproduction process. Safety precautions - Fuses earthings and other devices. Electrical lay out and wiring of theatres, studios and projection cabins.

10. Digital integrated circuits - The Binary System - Binary logic gates - Transistor as a Binary device - Basic transistor logic gate circuits - Flip - Flops circuits, (Threshold voltage - Fan in-Fan out - operating temperature - Power dissipation - operating speed)

DTL Circuit - TTL circuits and ECL circuit wave shaping circuits -Multi- Vibrators - Bi-stable - Mono-Stable - Digital to analogue conversion - Analogue to Digital conversion - uses of Digital Audio Tapes and Digital Audio Recorders.