**LESSON PLAN**

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| **Faculty** |  | :Naveen KUMAR |
| **Discipline** | | : ELECTRICAL ENGINEERING |
| **Semester** |  | : 3rd |
| **Subject** |  | : Electronics |
| **Duration** |  | : WEEKS(From 15 sep2022 t0 16 jan 2023) |

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| **Week** | **Practical** | | |
| **Topic** | **Practica**  **l Day** | **Topic** | |
| 1st | Introduction to the subject and the marks distribution | 1st | Introduction to the subject and the marks distribution | |
| Difference between voltage and power amplifier |
| Important terms in Power Amplifier, collector efficiency, distortion and dissipation capability |
| 2nd | Classification of power amplifier class A, B and C | 2nd | To study the effect of coupling capacitor on lower cut off frequency and upper cut off frequency by plotting frequency response curve of a two stage RC coupled amplifier | |
| Class A single-ended power amplifier, its working and collector efficiency |
| Impedance matching in a power amplifier using transformer |
| 3rd | Heat sinks in power  amplifiers | 3rd |  | |
| Push-pull amplifier: circuit details, working and advantages (no mathematical derivations) |
| Principles of the working of complementary symmetry push-pull amplifier |
|  | **Test of Chapter No. 01** |  | Quiz No. 01 and Viva Voce | |

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| 4th | Introduction:Tuned Voltage  Amplifier | 4th |  |
| Series and parallel resonance ( No mathematical derivation) |
| 5th | Single and double tuned  voltage amplifiers | 5th | To measure (a) voltage gain (b) input and output impedance for an emitter follower circuit To measure frequency generation in (a) Hartley  (b) R-C Phase Shift oscillator |
| Frequency response of tuned  voltage amplifiers |
| Applications of tuned voltage  amplifiers |
| 6th | **Test of Chapter No. 02** | 6th | To observe the differentiated and integrated square wave on a CRO for different values of R-C time constant |
| Feedback and its importance, positive and negative feedback and their need |
| Voltage gain of an amplifier with negative feedback |
| 7th | Effect of negative feedback on voltage gain, stability, distortion, band width, output and input impedance of an amplifier (No  mathematical derivation) | 7th | TEST |
| Typical feedback circuits |
| Effect of removing the emitter by-pass capacitor on a CE transistor amplifier |
| 8th | Emitter follower and its  applications | 8th | Quiz No. 02 and Viva Voce |
| **Test of Chapter No. 03** |
| Sinusoidal Oscillators – positive feedback in  amplifiers |
| 9th | Difference between an oscillator and an alternator | 9th | To generate square-wave using an astable multivibrator and to observe the wave form on a CRO and verify the result using p-spice software |
| Continued |
|  | Essentials of an oscillator |  |  |
| 10th | R-C oscillator circuits, phase shift and Wein bridge  oscillator circuits | 10th | To observe triggering and working of a bistable multivibrator circuit and observe its output wave form on a CRO |
| Introduction to piezoelectric crystal and crystal oscillator circuit |
| **Test of Chapter No. 04** |
| 11th | Concept of Wave-shaping | 11th | Quiz No. 03 and Viva Voce/ test |
| Wave-shaping circuits   1. R-C differentiating and integrating circuits 2. Diode clipping circuits 3. Diode clamping circuits 4. Applications of wave- shaping circuits |
| Transistor as a switch (explanation using CE transistor characteristics) |
| 12th | Collector coupled astable, monostable, bistable  multivibrator circuits (explanation using wave shapes).    Brief    mention  of  uses of multivibrators | 12th | To use the op-Amp (IC 741) as inverting one and non-inverting amplifiers, adder, comparator, integrator and differentiator and verify the result using p-spice software |
| Working and applications of  transistor inverter circuit using power transistors |
| **Test of Chapter No. 05** |
| 13th | Working Principles of different types of power supplies viz. CVTs | 13th | To study the pin configuration and working of IC 555 and its use as monostable and astable multivibrator |
| Working Principles of different types of power supplies viz IC voltage regulator (78  XX,79XX) |
| **Test of Chapter No. 06** |

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| 14th | The basic operational amplifier. The differential amplifier. The emitter coupled differential amplifier. Offset even  voltages and currents | 14th | Quiz No. 04 and Viva Voce |
| Continued |
| . Basic operational amplifier  applications, integrator and differentiator, summer, subtractor |
| 15th | Familiarization with  specifications and pin configuration of IC 741 | 15th | INTERNAL ASSESSMENT AND VIVA VOCE |
| Block diagram and operation  of 555 IC timer |
| **Test of Chapter No. 07** |
| 16th | Familiarization with  TEST | 16 | Test and revision |
| Revision |
| Revision |