**Lesson Plan**

**Name of Faculty: Suresh Jindal**

**Discipline: Electronics & Comm. Egg.**

**Semester: 4th**

**Subject: CS**

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| **Week** |  | **Theory** | **Practical** | |
| **Lecture Day** | **Topic (Including Assignment/ Test)** | **Practical Day** | **Topic** |
| 1st | 1 | Classification of transmitters on the basis of modulation, service | 1 | Introduction to Communication lab |
| 2 | Classification of transmitters on the basis of frequency and power |
| 3 | Block diagram of AM transmitters and working of each stage |
| 2nd | 4 | Block diagram and working principles of reactance FET | 2 | To observe the waveforms at different stages of an AM low power transmitter |
| 5 | Block diagram and working principles of Armstrong FM transmitters |
| 6 | Assignment |
| 3rd | 7 | Principle and working with block diagram of super heterodyne AM receiver, | 3 | Revision |
| 8 | Function of each block and typical waveforms at input and output of each block |
| 9 | Performance characteristics of a radio receiver: sensitivity, |
| 4th | 10 | selectivity, | 4 | To observe the waveforms at different stages of a Radio Receiver |
| 11 | fidelity, S/N ratio |
| 12 | Class test |
| 5th | 13 | Image rejection ratio and their measurement procedure | 5 | Revision |
| 14 | Concepts of simple and delayed AGC |
| 15 | Block diagram of an FM receiver, function of each block |
| 6th | 16 | Assignment | 6 | To align AM broadcast radio receiver |
| 17 | Electromagnetic spectrum and its various ranges: VLF, LF, MF, HF, VHF, UHF, Microwave |
| 18 | Physical concept of radiation of electromagnetic energy from a dipole. |
| 7th | 19 | Concept of polarization of EM Waves | 7 | Revision |
| 20 | Definition and physical concepts of the terms used with antennas like point source |
| 21 | Gain directivity, aperture, effective area, radiation pattern |
| 8th | 22 | Beam width and radiation resistance, loss resistance. | 8 | To identify and study the various types of antennas used in different frequency ranges. |
| 23 | Types of antennas-brief description, characteristics and typical applications of half wave dipole |
| 24 | folded dipole, |
| 9th | 25 | Patch, loop Antenna | 09 | Revision |
| 26 | Ferrite rod, Yagi antenna |
| 27 | dish antenna |
| 10th | 28 | Assignment | 10 | To plot the radiation pattern of a directional and omni directional antenna |
| 29 | Basic idea about different modes of wave propagation and typical areas of application |
| 30 | Ground wave propagation and its characteristics |
| 11th | 31 | Space wave communication – line of sight propagation, standard atmosphere | 11 | Revision |
| 32 | Structure of standard atmosphere |
| 33 | sky wave propagation |
| 12th | 34 | Ionosphere and its layers. | 12 | To plot the variation of field strength of a radiated wave, with distance from a transmitting antenna |
| 35 | Explanation of terms - virtual height, critical frequency, skip distance, |
| 36 | Maximum usable frequency, multiple hop propagation. |
| 13th | 37 | Assignment | 13 | Revision |
| 38 | Class Test |
| 39 | Basic idea about satellite communication |
| 14th | 40 | Passive and active satellites | 14 | To study and rectify different faults in a broadcast radio receiver |
| 41 | Meaning of the terms; orbit, apogee, perigee |
| 42 | Geo-stationary satellite and its need |
| 15th | 43 | Block diagram and explanation of a satellite communication link. | 15 | Revision |
| 44 | Introduction to VSAT |
| 45 | VSAT and its features |
| 16th | 46 | Assignment | 16 | Revision |
| 47 | Class test |
| 48 | Revision |