**Lesson Plan**

**Name of Faculty :** Sachin Dahiya, Assistant Professor

**Discipline :** ECE

**Semester :** 5th

**Subject :** **INTRODUCTION TO COMMUNICATION SYSTEM (ECE391L)**

**Lesson Plan Duration:** 15 weeks (From Aug 2018 to Dec. 2018)

Work Load (Lectutre/Practical) per week (in hours): Lectures: 04

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| Week | Theory | |
| Lecture Day | Topic (Including Assignment/Test) |
| 1st | 1 | Introduction to Communication Systems |
| 2 | The essentials of a Communication system, modes of Communication System |
| 3 | Medias of Communication |
| 4 | Classification of Signals |
| 2nd | 5 | Classification of Systems |
| 6 | Fourier Analysis of signals-1 |
| 7 | Fourier Analysis of Signals-2 |
| 8 | Modulation, Needs of Modulation, Types of Modulation |
| 3rd | 9 | Amplitude Modulation: Generation of AM waves-1 |
| 10 | Amplitude Modulation: Generation of AM waves-2 |
| 11 | Demodulation of AM wave |
| 12 | Modulation Index, Modulation Efficiency |
| 4th | 13 | DSBSC, Generation of DSBSC Waves |
| 14 | Coherent Detection of DSBSC Waves |
| 15 | Single Side Band Modulation, Generation of SSB waves |
| 16 | Demodulation of SSB waves |
| 5th | 17 | Vestigial Sideband Modulation (VSB)  Analog versus Digital Communication |
| 18 | Building Blocks of Digital Communication System |
| 19 | Basic definitions of Phase modulation (PM) & Frequency Modulation (FM), |
| 20 | Narrow Band Frequency Modulation, Wideband Frequency Modulation |
| 6th | 21 | Generation of FM by direct method, Indirect generation of FM |
| 22 | The Armstrong method, RC phase shift method |
| 23 | Comparison of AM, FM and PM |
| 24 | Uses of Pre-emphasis / de-emphasis in FM.  Assignment I |
| 7th |  | ...........................................Minor Test I................................. |
| 8th | 25 | Frequency Division Multiplexing (FDM) |
| 26 | Time Division Multiplexing (TDM) |
| 27 | Orthogonal Frequency Division Multiplexing (OFDM) |
| 28 | Frequency Division Multiple Access (FDMA) |
| 9th | 29 | Time division multiple access (TDMA) |
| 30 | Code Division Multiple Access |
| 31 | Orthogonal Frequency Division Multiple Access (OFDMA) |
| 32 | Multiple Input Multiple Output Orthogonal Frequency Division (MIMO-OFDM) |
| 10th | 33 | Massive MIMO-OFDM. |
| 34 | Introduction, Pulse Amplitude Modulation (PAM) |
| 35 | Pulse Time Modulation (PTM) |
| 36 | Pulse Width Modulation (PWM) |
| 11th | 37 | Pulse Position Modulation (PPM) |
| 38 | Digital Pulse Modulation: Introduction, Sampling theory |
| 39 | Pulse Code Modulation, |
| 40 | Differential Pulse Code Modulation (DPCM) |
| 12th | 41 | Delta Modulation (DM) |
| 42 | Amplitude Shift Key (ASK), |
| 43 | Frequency Shift Key (FSK) |
| 44 | Binary Phase Shift Key (BPSK), |
| 13th | 45 | Quadrature Phase Shift Key (QPSK) |
| 46 | M-ary PSK |
| 47 | Assignment-II |
| 48 | Problems and Solutions |
| 14th | ...........................................Minor Test II................................... | |
| 15th | 49 | Revision/Viva |
| 50 | Revision/Viva |
| 51 | Revision |
| 52 | Revision |