# COMMUNICATIONS THEORY LAB

| Course Code | 20EC3452 | Year | II | Semester | II |
|---|---|---|---|---|---|
| Course Category | Program Core | Branch | ECE | Course Type | Lab |
| Credits | 1.5 | L-T-P | 0-0-3 | Prerequisites | Nil |
| Continuous Internal Evaluation | 15 | Semester End Evaluation | 35 | Total Marks | 50 |

| Course Outcomes | |
|---|---|
| Upon successful completion of the course, the student will be able to | |
| **CO1** | Analyse different Concepts of Analog modulation techniques (L4) |
| **CO2** | Analyse different parameters of pulse modulation techniques (L4) |
| **CO3** | Simulate & validate various modulation and Demodulation Techniques (L5) |
| **CO4** | Simulate & validate various functional modules of a communication system (L5) |
| **CO5** | Make an effective report based on experiments. |

**Mapping of course outcomes with Program outcomes (CO/ PO/PSO Matrix)**

Note: 1- Weak correlation 2-Medium correlation 3-Strong correlation

* - Average value indicates course correlation strength with mapped PO

| Cos | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | | 3 | | | | | | | | | | | 3 | |
| CO2 | | 2 | | | | | | | | | | | 2 | |
| CO3 | | | | 3 | 3 | | | | | | | | 3 | |
| CO4 | | | | 2 | 2 | | | | | | | | 2 | |
| CO5 | | | | | | | | | 2 | 2 | | | | |
| Average* (Rounded to nearest integer) | | 3 | | 3 | 3 | | | | 2 | 2 | | | 3 | |

**Syllabus**

| Expt. No. | Contents | Mapped CO |
|---|---|---|
| I | Amplitude Modulation and Demodulation | CO1,CO5 |
| II | DSBSC Modulation and Demodulation | CO1,CO5 |
| III | Frequency modulation and Demodulation | CO1,CO5 |
| IV | Pre-emphasis and De-emphasis | CO1,CO5 |
| V | Spectral Analysis of AM and FM using Spectrum Analyzer | CO1,CO5 |
| VI | SSB Modulation and Demodulation using MATLAB | CO1,CO5 |
| VII | TDM and FDM using MATLAB | CO3, CO5 |
| VIII | PAM Signal Generation and Demodulation using MATLAB | CO2,CO3,CO5 |

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|---|---|---|
| IX | PPM Signal Generation and Demodulation using MATLAB | **CO2,CO3,CO5** |
| X | AGC Characteristics of Radio Receiver using MATLAB | **CO3,CO5** |
| XI | Phase Lock Loop and FM Demodulator using MATLAB | **CO4,CO5** |
| XII | Verification of Sampling Theorem using MATLAB | **CO4,CO5** |

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**Learning Resources**

**Text Books**

1. Introduction to Analog and Digital Communication System-Simon Haykin , John Wiley ,3rd Ed.,2009

2. Fundamentals of Communication Systems - John G. Proakis, M. Salehi, PEARSON, 2nd Ed., 2013

**Reference Books**

**1.** Principles of Communication Systems – H Taub & D. Schilling, Gautam Sahe, TMH, 3rd Ed.,2007

**2.** Analog and Digital Communication System-Sam Shanmugam, John Wiley and Sons,3rd Edition,2009

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