

**Course Code – 213302**  
**Principles of Communication**

| Credit Points        | Teaching Hrs/Week  | Practical Hrs/Week  |          |
|----------------------|--|---|----------|
| <b>4</b>             | <b>3</b>   | <b>2</b>  |          |
| <b>Objective</b>     | <ul style="list-style-type: none"> <li>● Necessity of Modulation.</li> <li>● Analog Communication.</li> <li>● Basic AM and FM circuits.</li> <li>● Study of Transceivers.</li> <li>● Advantages of Digital Communication over Analog Communication.</li> <li>● Electronic Telephony, Facsimile.</li> </ul> |   |          |
| <b>Prerequisites</b> | None   |   |          |
|                      |  |   |          |
| Unit                 | Topic Name   | Details   | Hrs      |
| <b>1</b>             | <b>Introduction To Electronic Communication</b>  | The importance of communication, elements of Communication System, Types of Electronic Communication, Survey of Communication Application, Electromagnetic Spectrum and its applications, Need for modulation. Introduction to Fourier – Fourier Series, Fourier Transform and Properties of Fourier Transform. | <b>7</b> |
| <b>2</b>             | <b>Amplitude Modulation</b>  | Amplitude Modulation principles, Modulation index and Percentage of Modulation, Derivation of an AM equation, Amplitude Modulation Power Distribution, Double Sideband -SC and Single Sideband-SC Communication.  | <b>6</b> |
| <b>3</b>             | <b>Angle Modulation</b>  | Basic principles of FM and PM, Mathematical representation of FM and PM, Modulation index and sidebands, Noise suppression effects of FM, FM generation methods, circuits, NBFM and WBFM, Comparison – AM, FM, PM.  | <b>6</b> |
| <b>4</b>             | <b>Transmitters and Communication Receivers</b>  | Transmitter fundamentals, Carrier Generators, AM Transmitters, SSB Transmitter, FM Transmitter, The Super heterodyne Receiver, Frequency conversion,  | <b>7</b> |

|          |                                   |   |          |
|----------|-----------------------------------|---|----------|
|          |                                   | Intermediate frequency and image frequency, Performance parameter for receiver such as Sensitivity, Selectivity, Fidelity, image frequency rejection etc., AM detectors – Simple diode detector, practical diode detector, DSBSC and SSBSC detectors, FM detectors – Phase discriminator, ratio-detector. |          |
| <b>5</b> | <b>Digital Communication</b>      | Digital Communication Concepts, Modems, Pulse Amplitude Modulation, Pulse Width Modulation, Pulse Position Modulation, Pulse Code Modulation.   | <b>5</b> |
| <b>6</b> | <b>Multiplexing and Telephony</b> | Introduction, Frequency Division Multiplexing, Time Division Multiplexing, Telephones - The Telephone System, Facsimile.  | <b>5</b> |

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|------------------------|--|
| <b>Text Books</b>      | 1. Louis E Frenzel, 'Principles of Electronic Communication Systems', TMH Publication, Third Edition                                     |
| <b>Reference Books</b> | 1. Kennedy & Devis, 'Electronic Communication', TMH Publication<br>2. Dennis Roddy & Coolen, 'Electronic Communication', PHI Publication |

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|----------------------------------|----------------------------|-----------------|
| <b><u>Examination Scheme</u></b> | <b>Internal Assessment</b> | <b>30 marks</b> |
|                                  | <b>Term Work</b>           | <b>25 marks</b> |
|                                  | <b>Final Theory Paper</b>  | <b>45 marks</b> |