

<b>SEMESTER</b> <i>Sixth</i>	<b>DEPARTMENT</b> <i>Control Engineering</i>	<b>COURSE TITLE</b> <i>Analog Communications</i>
<b>COURSE CODE</b> <i>ET505</i>	<b>HOURS</b> 3 <b>UNITS</b> 3	<b>COURSE SPECIFICATIONS</b> <i>Theoretical Content</i>
<b>1. Communication Systems and Noise Parameters:</b> <ul style="list-style-type: none"> <li>➤ Introduction to a communication system and its components.</li> <li>➤ The concept of noise.</li> <li>➤ Types of noise: internal and external noise.</li> <li>➤ Concept of Noise Figure (NF) and signal to noise ratio (SNR).</li> <li>➤ Noise parameters in communication systems.</li> </ul>		
<b>2. AM and FM Parameters:</b> <ul style="list-style-type: none"> <li>➤ Introduction to modulation.</li> <li>➤ AM modulation.</li> <li>➤ Process of AM signal generation.</li> <li>➤ Square law modulation.</li> <li>➤ Switching modulation.</li> <li>➤ Generation of DSBSC and SSBSC.</li> <li>➤ Calculation of modulation index.</li> <li>➤ Relationship between bandwidth and Modulation index.</li> <li>➤ Principles of demodulation.</li> </ul>		
<b>3. FM and PM:</b> <ul style="list-style-type: none"> <li>➤ FM modulation.</li> <li>➤ FM signal generation.</li> <li>➤ FM demodulation.</li> <li>➤ Process of phase modulation and demodulation.</li> <li>➤ Difference between FM and PM.</li> </ul>		
<b>4. Frequency Division Multiplexing (FDM):</b> <ul style="list-style-type: none"> <li>➤ Introduction to Multiplexing.</li> <li>➤ The necessity of Multiplexing.</li> </ul>		

- Multiplexing and Modulation.
- Principles of FDM and its applications in analog systems.
- Recovering multiplexed signals (Demultiplexing).

**5. FM Receiver and Digital Radio Systems:**

- The principle of operation of the super heterodyne receiver.
- Definition of: Selectivity, Image frequency, Sensitivity, AGC and AFC.
- Super heterodyne Receiver Circuits.
- FM receiver circuits.
- Digital Radio Systems.

**References:**

1. George Kennedy, Bernard Davis, *Electronic Communication Systems*, McGraw hill.
2. Paul H. Young, *Electronic Communications Techniques*, Prentice Hall.