**Lesson Plan Form**

**Course Title:** Digital and Satellite Communication

**Course Code:** ETE-452

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| **Title:** Modulation and Multiplexing techniques for satellite Links-   * Frequency Modulation | | | **Ref. No**: ETE 452/10 | |
| **Target** Population: 25 | | | **Duration:**90 minutes | |
| **Aims/Rationale:** After completing these lesson students are able to know about modulation and Multiplexing techniques for satellite communication. | | | | |
| **Learning Outcomes:** At the end of the session participant will be able to :   1. Understand the basic concept of Modulation and Multiplexing Techniques for satellite Communication. 2. Sketch, recognise and analyse the resulting waveforms for a sinusoidal carrier being frequency modulated by a single frequency audio signal. 3. Learn of Bandwidth of FM Signals. 4. Become familiar with Carson’s Rule. | | | | |
| **Content** | **Method or Technique** | **Resource or Aid** | | **Time** |
| **Introduction**: Welcome address  Rapport building  Bridging topic  Layout/ content outline  Attendance  Pre-assessment | Lecture  Q/A | W/B | | 10 minutes |
| **Development:**  **Section-A**  Frequency Modulation.  Waveform Equation for FM.  **Section-B**  Bandwidth of FM Signals: Carson’s Rule.  Baseband S/N Ration for FM Signals.  **Section-C**  Pre-emphasis and De-emphasis.  Sketch, recognise and analyse the resulting waveforms for a sinusoidal signal. | Lecture  Discussion  Do  Do | W/B  MMP  Video | | 20 minutes  25 minutes  25 minutes |
| **Conclusion:**  Recap main points  Feedback & answer  Assessment of LOs  Reference  Forward plan | Lecture  Discussion  Q/A |  | | 10 minutes |
| **Equipment & aids:** Optional | | | | |