**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.
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| **Content** | **Method or Technique** | **Resource or Aid** | **Time** |
| **Introduction**: Welcome addressRapport buildingBridging topicLayout/ content outlineAttendancePre-assessment | LectureQ/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. | LectureDiscussionDoDo | W/BMMPVideo | 20 minutes25 minutes25 minutes |
| **Conclusion:**Recap main pointsFeedback & answerAssessment of LOsReferenceForward plan | LectureDiscussionQ/A |  | 10 minutes |
| **Equipment & aids:** Optional |