**Lesson Plan Form**

**Course Title: Digital and Satellite Communication**

**Course Code: ETE-452**

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| **Title:** Propagation Effects and Their Impact on Satellite –Earth Links | | | **Ref. No:** ETE 452/17 | |
| **Target Population:** 25 | | | **Duration :** 90 minutes | |
| **Aims/Rationale:** After completing this lessons students are able to understand the different kind of propagation effects and their impact on Satellite Earth Links. | | | | |
| **Learning Outcomes:** At the end of the session participant will be able to :   1. Understand Rain and Ice Effects. 2. Learn how to predict of Rain Attenuation. 3. Propagation Impairment Countermeasures. | | | | |
| **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**  Rain and Ice effects.  Charactering rain and Rain Climate Maps.  Rain drop Distributions.  **Section-B**  Prediction of Rain attenuation.  Calculation of Long-Term statics for NGSO systems.  ITU-R Long term Frequency scaling of rain attenuation.  **Section-C**  Propagation Impairment Countermeasures.  Attenuation, Power Control, Signal Processing, Diversity, and Depolarization. | 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 |
| E**quipment & aids:** Optional | | | | |