**Lesson Plan Form**

|  |  |
| --- | --- |
| Title: **IIR filter design.** | Ref. No: **ETE 321/19** |
| Target Population: **25** | Duration : **90 minutes** |
| Aims/Rationale: **The aim of the course is to make students familiar with several types of the modern digital filters, and to teach them how to design the digital filter.** |
| **Learning Outcomes: At the end of the session participant will be able to :**1. **Understand the basic concepts about Design Filter and mathematical representation and its properties.**
2. **Design IIR Filter by Approximation of Derivatives.**
3. **Design IIR Filter by Impulse Invariance.**
4. **Determine the characteristics of commonly used Analog Filters.**
 |
| **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** | **15 minutes** |
| Development:Section-A: **Basic theory of Digital Theory and mathematical function.****Design IIR Filter by Approximation of Derivatives.**Section-B**Design IIR Filter by Impulse Invariance.****IIR Filter Design by the Bilinear Transformation.** Section-C**Characteristics of commonly used Analog Filters**.**Some Examples of Digital Filter Designs Based on Bilinear Transformation.** | **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** |