Lesson Plan 21

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Title**: **Chapter 16: Waves—I** | | **Ref. No**: Week 12,  Day 1 | | |
| **Target Group/Population**: B. Sc students (CS, EEE and IPE) | | **Duration**: 90 min | | |
| **Aims/Rationale**: To give the students basic concepts of reflections at a boundary, standing waves and resonance | | | | |
| **Learning Outcomes**: At the end of the session, the students will be able to understand and analyze above topics and apply those to solve related problems. | | | | |
| **Contents:** 16-7: Standing waves and resonance (reflections at a boundary, standing waves and resonance) | Method or  Technique | | Resource  or Aid | Time |
| **Introduction**:   * Welcome address * Rapport building * Review the main topics of last lecture * Importance/bridging the topic * Pre-assessment of student’s knowledge | Lecture QA | | WB  MMP | 15 min |
| **Development**:  1. Explain the reflections at a boundary.  2. Derive expressions for resonant frequencies of a stretched string of length L with fixed ends (sketch figures). | Lecture  Discussion QA  Problem Solving  2nd quiz | | WB  MMP | 60 min |
| **Conclusion**:   * Quick recap/summary * Feedback from the students * References * Forward planning |  | | WB  MMP | 15 min |
| Problems:  44. A 125 cm length of string has a mass 2.00 g and tension 7.00 N between fixed supports. (a) What is the wave speed for this string? (b) What is the lowest resonant frequency of this string?  85. A 120 cm length of string is stretched between fixed supports. What are the (a) longest, (b) second longest, and (c) third longest wavelength for waves traveling on the string if standing waves are to be set up? (d) Sketch those standing waves. | | | | |