CONDITION MONITORING OF STRUCTURES LAB (Skill Oriented Lab Elective –V)

Course Code: 20CE11U1

L T P C 0 1 2 2

Pre-requisites: Strength of materials, Building Materials and Concrete technology, EarthquakeResistant Design of Structures.

Course Outcomes:

At the end of the course, the student will be able to:

CO1: Find the natural frequencies for a given structural model

CO2: Assess the existence of damage in a given beam

CO3: Determine the dynamic parameters for a given structures

CO4: Determine the compressive strength of concrete

CO5: Identify a damage in concrete specimen

LIST OF EXPERIMENTS:

- 1. Determine the natural frequency of simply supported steel beam using FFT analyzer
- 2. Determine the natural frequency of a cantilever steel beam using FFT analyzer
- 3. Determine the natural frequency for 3-storey shear building model
- 4. Determine the natural frequency for 2DOF system with springs in parallel
- 5. Determine the natural frequency for 2DOF system with springs in series
- 6. Damage detection in a truss structure
- 7. Determine the dynamic parameters in a building model.
- 8. Determination of compressive strength of concrete specimen using Rebound Hammer
- 9. Determination of compressive strength of concrete specimen using Ultrasonic Pulse Velocity
- 10. Determination of crack depth in RCC slab specimen using Ultrasonic Pulse Velocity
- 11. Determination of defect on concrete specimen using Ultrasonic Pulse Velocity
- 12. Determination of cover depth in RCC specimen using Profometer.
- 13. Determination of reinforcement diameter and spacing of reinforcement using Profometer.

REFERENCES:

1. Achintya Haldar, "Health assessment of Engineered structures, bridges, building and other infrastructures" World scientific publishing co. Pvt Ltd, 2013.

2. Helmut Wenzel and Dieter Pichler "Ambient Vibration Monitoring" John Wiley and sons Ltd, 2005.