## STRUCTURAL MECHANICS LAB

#### (Skill based lab Elective-IV)

#### Course Code: 20CE11S7

### L T P C 0 1 2 2

Pre-requisites: Structural Analysis
Course Outcomes:
At the end of the course, the student will be able to:
CO1: Evaluate the stiffness of a Frame (L2)
CO2: Evaluate the stiffness of a Two/three-hinged arch (L2)
CO3: Construct a 2D frame model (L3)
CO4: Construct a 2D Truss model (L3)
CO5: Construct a bridge model (L3)

### (Any 12 out of 14 experiments)

# LIST OF EXPERIMENTS: -

1. Stiffness evaluation of a Frame.

2. Stiffness evaluation of a three-hinged arch.

3. Deflection evaluation of a two-hinged arch.

4. Deflection evaluation of a 2D Truss.

5. Buckling behaviour of column with different end conditions.

(Using magnetic spring and boll models)

6. Construction of beam to study joint rotation.

7. Construction of 2D frame with different end conditions.

8. Construction of compound columns.

9. Construction of 3D frame with different end conditions.

10. Construction of column with different end conditions for buckling behaviour.

11. Construction of 3D building with bracing for lateral load resistance.

12. Construction of 3D building with the shear wall for lateral load resistance.

13. Construction of truss model.

14. Construction of Bridge model.

### **References:**

1. Mola Structural Models. https://molamodel.com/pages/about-us

2. S.S Bhavikatti S.S, "Analysis of Structures", (Vol. I & II), 6<sup>th</sup> Edition, Vikas Publications, 2009.

3. S.B. Junnarkar, "Mechanics of Structures", 10<sup>th</sup> Edition, Charotar Publishing House, Anand,

Gujrat,2000.

4. S.Ramamurtham, R. Narayan, "Theory of Structures", 9<sup>th</sup> Edition, Dhanapat Rai Publishing Company, 2010.

5. C.S.Reddy, "Structural Analysis", Tata McGraw Hill, New Delhi, 2008.

6. R.C. Hibbeler "Structural analysis" 6<sup>th</sup> Edition, Pearson Publications, 2012.