

**D.Y.PATIL COLLEGE OF ENGINEERING AND TECHNOLOGY, KOLHAPUR**  
**SCHOOL OF ARCHITECTURE**  
**F.Y.B.ARCH**

**Subject: Basics of Structural Engineering for Architecture**  
**Tower of Balance – Student Handout**

A short, hands-on studio challenge: build the tallest possible free-standing tower using simple materials, then test its stability and learn why some designs succeed or fail.

**Learning Outcomes**

- Understand how base width, mass distribution, and center of gravity affect stability.
- Learn how bracing, triangulation, and material stiffness resist buckling.
- Design for lateral and vertical loads.

**Materials (Per Group 8-9 Students)**

- Cardboard sheets (A3 or larger) – 4–8 pcs
- Drinking straws – ~30
- Wooden skewers/sticks – ~20
- Modelling clay / plasticine – small lump
- Masking tape / cellotape – 1 roll (shareable)
- Scissors / craft knife (teacher only)
- Ruler, measuring tape, marker
- Optional: desk fan, small weights, meter stick

**Constraints & Rules**

- Only listed materials may be used.
- Base must be free-standing (no taping to floor).
- One standard top load (50 g clay ball) used for testing.
- Tower must stand 10 seconds unaided to qualify.

**Testing & Recording**

Record results below during the testing phase.

| Group | Height (cm) | Base W×D (cm) | Top Mass (g) | Fan Test Stage | Notes |
|-------|-------------|---------------|--------------|----------------|-------|
|       |             |               |              |                |       |

**Assessment Rubric (Total 30 pts)**

- Height achieved – 10 pts
- Stability under tests – 8 pts
- Material efficiency – 4 pts
- Teamwork & documentation – 4 pts
- Creativity / innovation – 4 pts