

D. Y. Patil College of Engineering and Technology, Kasaba Bawada, Kolhapur

School of Architecture

Activity Report: Innovation in Teaching and

Tower of Balance – Structural Stability Challenge

Name of activity	Tower of Balance – Structural Stability Challenge
Course	Basics of Structural Engineering for Architecture -I
Year	F.Y. B. Arch.
Academic Year	2025-2026
Date	03/11/2025
Category	Curricular
Name of resource person/s	-
Designation of resource person/s	-
Faculty coordinator/s	Prof. Gouri Ajay Mhetar
No. of beneficiaries	Div. A – 41, Div. B – 40, Total 81
Class & Division	F. Y. B. Arch. Div. A & B
CO mapped	C107.1., C107.2, C107.3, C107.5
PO mapped	PO1, PO2, PO4, PO7, PO9, PO3, PO10
PO gap identified as per previous year	PO3, PO10
PSO mapped	PSO 2

Brief description of the activity

A hands-on learning activity titled “**Tower of Balance**” was conducted for First Year B.Arch. students to introduce fundamental concepts of structural engineering through experiential learning. Students worked in groups of 8–9 members and were provided with simple construction materials such as cardboard sheets, drinking straws, wooden skewers, modelling clay, masking tape, rulers, and measuring tapes. The objective was to design and construct the tallest possible free-standing tower capable of supporting a standard top load while maintaining stability. Students explored various structural forms and experimented with concepts such as base width, centre of gravity, mass distribution, triangulation, bracing, stiffness, and buckling resistance. After construction, each tower was tested for height, stability under vertical loading, and resistance to lateral forces using a fan. Students recorded observations, analysed failures, and discussed the influence of structural configuration on performance. The activity encouraged teamwork, creativity, problem-solving, and practical understanding of structural behaviour.

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Outcome of the activity:

1. Understand the relationship between structural form and stability.
2. Identify the importance of base dimensions and centre of gravity in free-standing structures.
3. Recognize the role of bracing and triangulation in resisting lateral loads and buckling.
4. Apply engineering principles to solve design challenges using limited resources.
5. Develop teamwork, communication, and decision-making skills.
6. Gain practical exposure to structural behaviour through testing and observation.
7. Appreciate the integration of engineering concepts in architectural design.



Tower Building activity Concept Discussion and load testing

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