Department of Civil Engineering
Academic Year 2024-2025 (Even Semester)
Degree, Semester & Branch: IV Semester B.E Civil Engineering
Course Code & Title: CE3402 & Strength of Materials
Name of the Faculty member (s): Mrs.A.Leema Margret

Innovative Practice Description

Unit / Topic: Unit I / Simple and Compound Stresses

- **Course Outcome:** CO1
- **Topic Learning Outcome:** TLO1, TLO3
- **Activity Chosen: Theory to Practice**
- **Justification:**

The stress–strain relationship, elastic constants, and material behavior under loading are taught in theory classes, so students are taken to the Strength of Materials Laboratory to observe the tensile test on a mild steel specimen.

- **Time Allotted for the Activity:** 15 minutes
- **Details of the Implementation:**

I took all the students to the Strength of Materials Laboratory and demonstrated the tensile test on a mild steel specimen using a Universal Testing Machine (UTM). I explained the procedure, specimen preparation, loading arrangement, and operation of the UTM. Students observed how the specimen undergoes deformation under gradually applied tensile load and identified the elastic limit, yield point, ultimate stress, and breaking point on the stress–strain curve. Through this activity, students clarified their doubts regarding material properties, test procedure, and interpretation of results, thereby correlating theoretical knowledge with practical understanding.

CO – PO / PSO mapping:

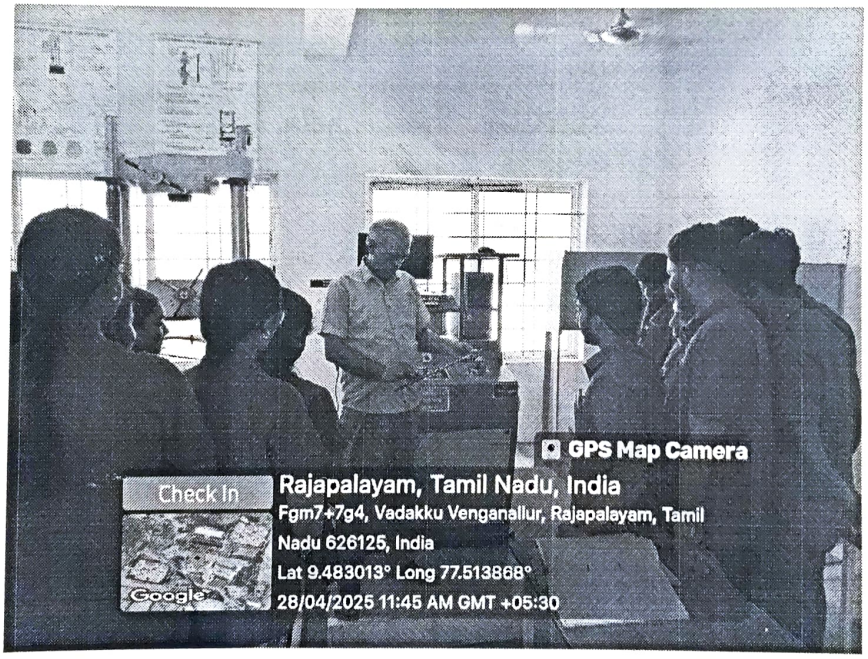
CO	PO1	PO2	PO12	PSO1
CO1	2	1	1	1

(1 – Low 2 – Moderate 3 – High)

- **PO / PSO mapped:**

Innovative practice	PO1	PO2	PO12	PSO1
Justification for correlation	Apply fundamental engineering science principles to interpret stress–strain behavior of mild steel from tensile testing	Execute tensile test procedures, analyze stress–strain results, and interpret material properties through systematic problem analysis	Recognize lifelong learning through experimental practices	Demonstrate and present tensile test results of mild steel effectively with clear interpretation

- **Images / Screenshot of the practice:**



- **Reflective Critique:**
  - ***Feedback of practice from students and other stakeholders:***

    According to student feedback, this method of teaching helped them understand the topic more clearly and made it easier for them to remember and recollect the concepts.

    Benefit of the practice: (E.g.: Outcome attainment would have increased due to innovative practice over conventional practice)

    This activity will help the students in recognizing the gap between oral

learning and practical experience.

- ***Challenges faced in implementation:***

  Nil

References:

1. Rajput R.K. "Strength of Materials (Mechanics of Solids)", S.Chand & company Ltd., New Delhi, 2018.
2. **https://sm-nitk.vlabs.ac.in/exp/tensile-test-mild-steel/**

Signature of Faculty Member **HOD**