Department of Civil Engineering

Academic Year 2023– 2024 (Even Semester)

Degree, Semester & Branch: IV semester B.E Civil Engineering

Course Code & Title: CE3404 & Soil Mechanics

Name of the Faculty member (s): Mr.V. Ragavan

Innovative Practice Description

Unit / Topic: Unit I / Soil Phase Relationship

Course Outcome: CO1

- **Topic Learning Outcome:** TLO2 & 3
- **Activity Chosen: Four Corner Four Questions**
- **Justification:**

Soil Phase Relationship is a topic that involves the physical state and proportions of different components in a soil sample, including solids, water, and air. Before solving the soil relationship problems, want to assess the three phase relationships of soil involved in soil mechanics for better understanding level of the students that's why I have chosen for four corner four questions for the above topic.

- **Time Allotted for the Activity:** 10 minutes
- **Details of the Implementation:**

i. The Four Corner Four Questions is a very commonly used classroom assessment technique. It really does take about 10 minutes for listening and writing at the end of class.

ii. I asked all students to listen the Four Corner Four Questions and made them to write the answers for the questions within 10 minutes.

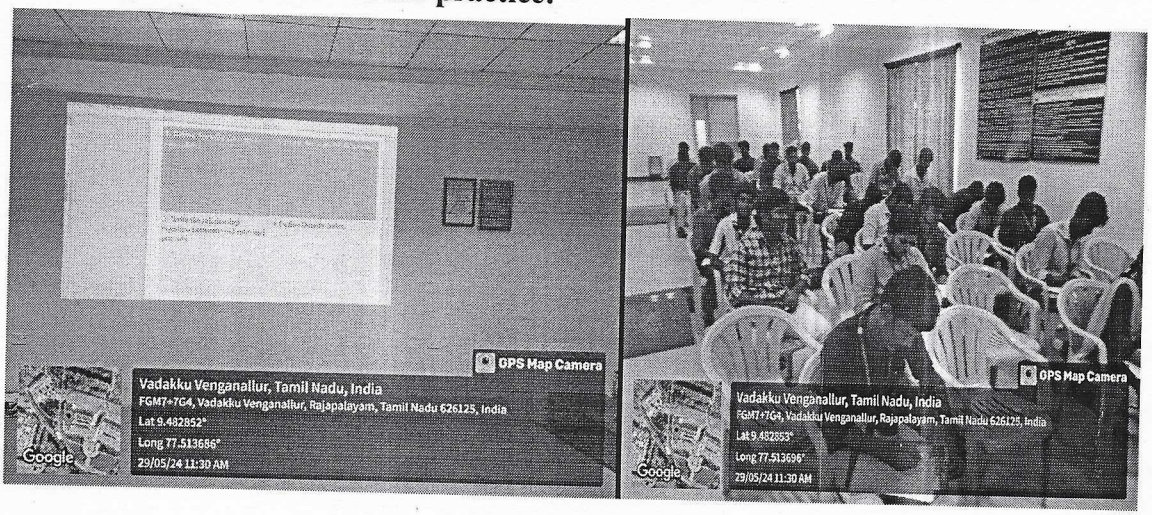
- **CO – PO / PSO mapping:**

CO	PO1	PO2	PO12	PSO4
CO1	3	2	2	2

- **PO / PSO mapped:**

Innovative practice	PO1	PO2	PO12	PSO4
Justification for correlation	Learn the basic principles and engineering laws with the knowledge of mathematics and engineering fundamentals.	They can identify Soil three phase relationship to solve complex engineering problems in soil mechanics.	They can Easily solved soil three phase relationships problems in competitive exams in Future.	Students can act as a design consultant in Geotechnical Related project.

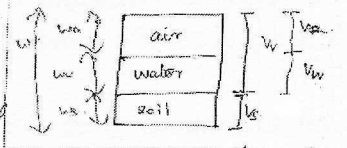
- **Images / Screenshot of the practice:**



Rajapalayam
Department of civil Engineering
Reg no : 963622103014
Sub code : CE3404
Sub Name : Soil Mechanics
Unit 1 - soil classification and compaction
Innovation Teaching Methodology : Four corner four Question

1) Specific gravity of soil solids
The specific gravity of soils is usually between 2.65-2.80. It is ratio of the mass of a unit volume of soil solids at a specific temperature to the mass of an equal volume of gas-free distilled water at the same temperature.

2) Draw three phase diagram



3) Relationship b/w void ratio and porosity
Porosity (n)
$n = \frac{V_v}{1+e}$ $e = \frac{n}{1-n}$

4) Define density index
density index is the ratio of the difference between the void ratio of a cohesionless soil in its loose state and existing natural states.

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- **Reflective Critique:**
  - ***Feedback of practice from students and other stakeholders:***
    The students felt easy to remember and understand the concepts in the given topic which will make them to solve the problems under this topic in Internal Assessment Test.
  - ***Benefit of the practice:*** (E.g.: Outcome attainment would have increased due to innovative practice over conventional practice)
    i. Four Corner Four Questions activities are an effective way of involving all students in class simultaneously.
    ii. It prompts students to reflect on the day's lesson and provides the instructor with useful feedback.

- ***Challenges faced in implementation:***
  Initially, I have planned the activity for 10 minutes but students have taken 15 minutes to solve the problem.

References:

- Punmia, B.C., "Soil Mechanics and Foundations", Laxmi Publications Pvt. Ltd. New Delhi, 2005.
- Murthy, V.N.S., "Soil Mechanics and Foundation Engineering", CBS Publishers Distribution Ltd., New Delhi. 2015

Signature of Faculty Member **HOD**