



RAMCO INSTITUTE OF TECHNOLOGY

Approved by AICTE, New Delhi & Affiliated to Anna University
Accredited by NAAC & An ISO 9001:2015 Certified Institution
NBA Accredited UG Programs: CSE, EEE, ECE and MECH

Department of Civil Engineering

Academic Year 2024– 2025 (Even Semester)

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

Course Code & Title: CE3401 & Applied Hydraulic Engineering

Name of the Faculty member (s): Mrs. B.BHARANI BAANU

Innovative Practice Description

- Unit / Topic: Unit V / Pumps & Turbines

- Course Outcome: CO4 & CO5

- Topic Learning Outcome: TLO16

- Activity Chosen: Theory to Practical

- Justification:

- In order to complement the theoretical study of turbines and pumps, students are provided with hands-on learning opportunities in the hydraulics laboratory, where the experimental setups are demonstrated for better understanding

- Time Allotted for the Activity: 15 minutes

- Details of the Implementation:

Theory and practice are inseparable aspects of learning; a clear understanding of concepts enables their effective application, which in turn strengthens practical competence..

- CO – PO / PSO mapping:

CO	PO1	PO2	PO9	PSO4
CO 4 & 5	3	3	1	3

(1 – Low 2 – Moderate 3 – High)

- PO / PSO mapped:

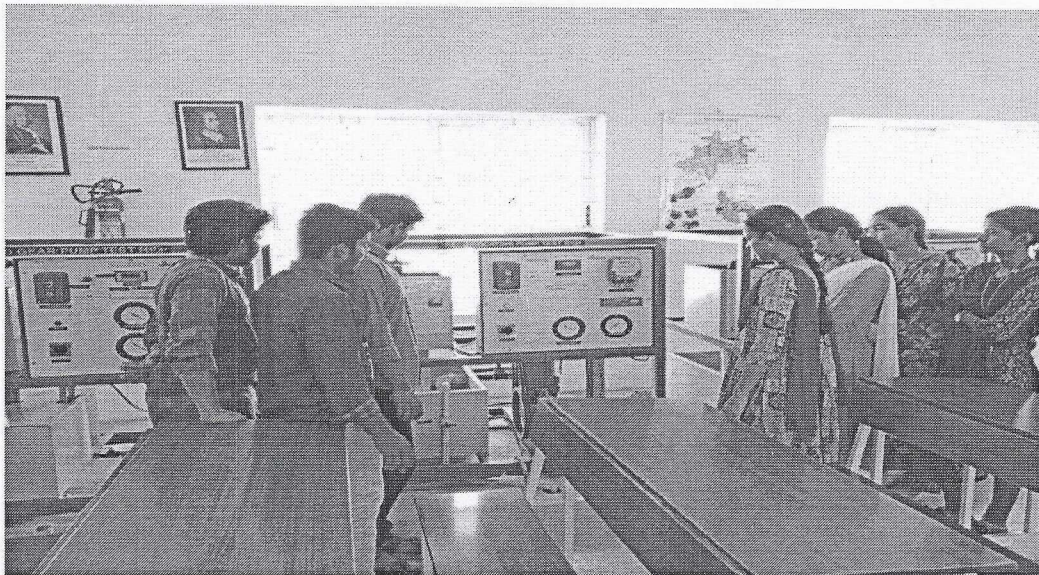
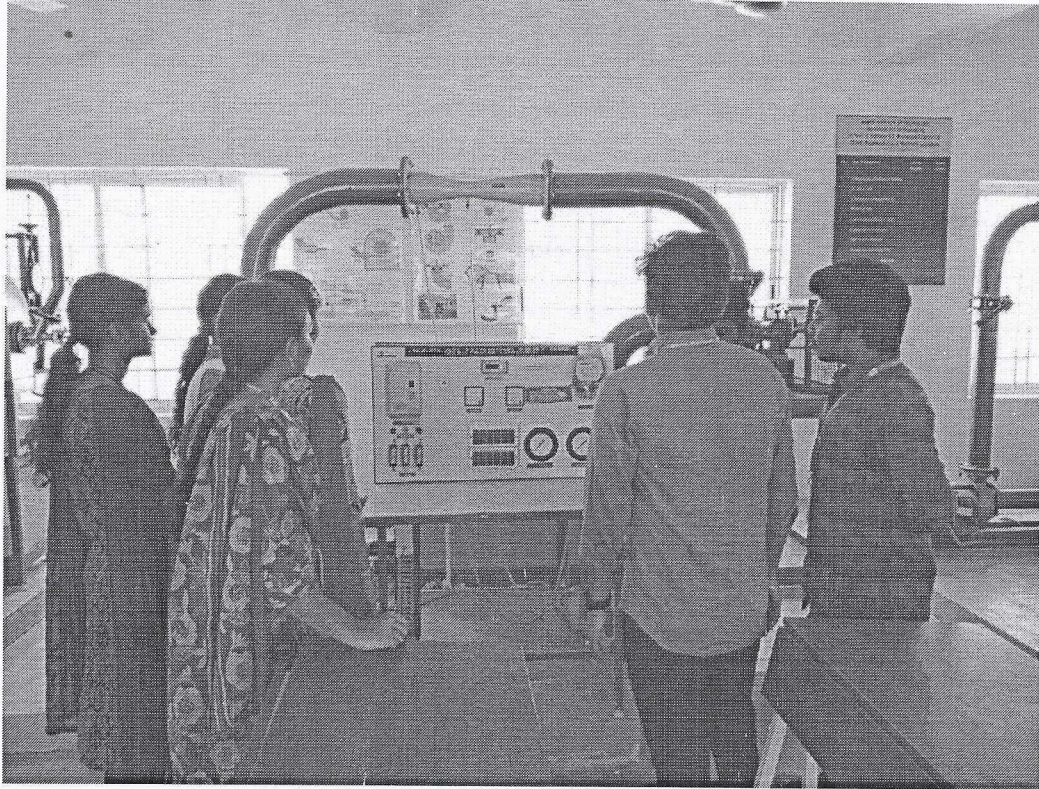
Innovative practice	PO1	PO2	PO9	PSO4
	3	3	1	3
Justification for correlation	To solve the problem the student will apply the mathematical, science and engineering fundamentals	Derive the formula using mathematics, natural science and engineering science to calculate the performance parameters	The tutorial hours are conducted by the concept of peer learning at that time the student's individual and team work is improved	Calculate the performance parameters of different types of Pumps



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- Images / Screenshot of the practice:





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- **Reflective Critique:**

- ❖ ***Feedback of practice from students and other stakeholders:***

The practical sessions on **Kaplan Turbines** and **Reciprocating Pumps** were found to be highly beneficial by the students, as they provided a clear linkage between theoretical concepts and real-time applications. Students expressed that the experimental demonstrations enhanced their understanding of turbine efficiency, pump performance, and operating characteristics. They also had the hands-on exposure to instrumentation, measurement techniques, and performance analysis.

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

i. This activity was instrumental in bridging the gap between theoretical instruction and practical application, thereby enhancing students' experiential learning."

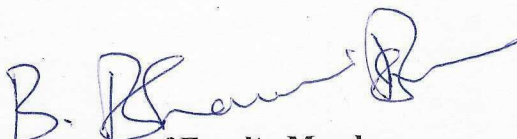
ii. Through this exercise, students were able to identify the components and understand the working principle of the reciprocating pump.

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

Although the activity was initially scheduled for 15 minutes, it extended to over 25 minutes, as additional explanation was necessary to ensure students clearly understood the working principle of the reciprocating pump and Kaplan turbine.

References:

- ❖ Jain.A.K., "Fluid Mechanics" (Including Hydraulic Machines), Khanna Publishers, Twelfth Edition, 2016.
- ❖ https://www.youtube.com/watch?v=fHLkZV2_Cb4
<https://www.youtube.com/watch?v=XK6RF8CZ9-I>


Signature of Faculty Member


HOD