Academic year 2024-25
Innovation in Teaching and Learning

Date: 31/03/2025

Title of Activity: Flipped Classroom

Semester: II
Subject: Elective Physics (Physics of Measurements and Sensors)
Course Code: BSC2023
Division/ Branch: A, B, C (COMPS)
Date: 11/03/2025, 17/03/2025 & 21/03/2025
Conducted by: Asst. Prof. Dr. Vivek Singh

Objective of Activity:

- **To encourage student-cantered learning by enabling learners to take ownership of foundational concepts through self-preparation and peer teaching.**
- **To enhance communication, collaboration, and presentation skills by allowing students to choose their preferred mode of delivery and engage in group-based knowledge sharing.**

Method of Activity: The flipped classroom approach was effectively utilized as part of an innovative teaching and learning strategy. In this method, the conventional classroom model was reversed to encourage active participation and independent learning. Students were assigned foundational topics such as the *Concept of Heat*, *Temperature Measurement*, *Factors for Selection of a Thermometer*, *Temperature Range and Comparison of Various Thermometers*, and an *Introduction to Nanotechnology and Basic Properties of Nanomaterials*. Prior to the sessions, students were provided with a curated list of reference books and lecture notes to prepare themselves. Each group, comprising three students, selected a mode of presentation that best suited their comfort and strengths - ranging from traditional board explanations to PowerPoint presentations. During the classroom sessions, each group was allotted

12minutes for their presentation followed by a 3-minute discussion. This interactive and student-led format not only enhanced subject comprehension but also fostered communication skills, teamwork, and confidence among the learners.

Resources of Activity:

1. Lecture Notes & Presentations

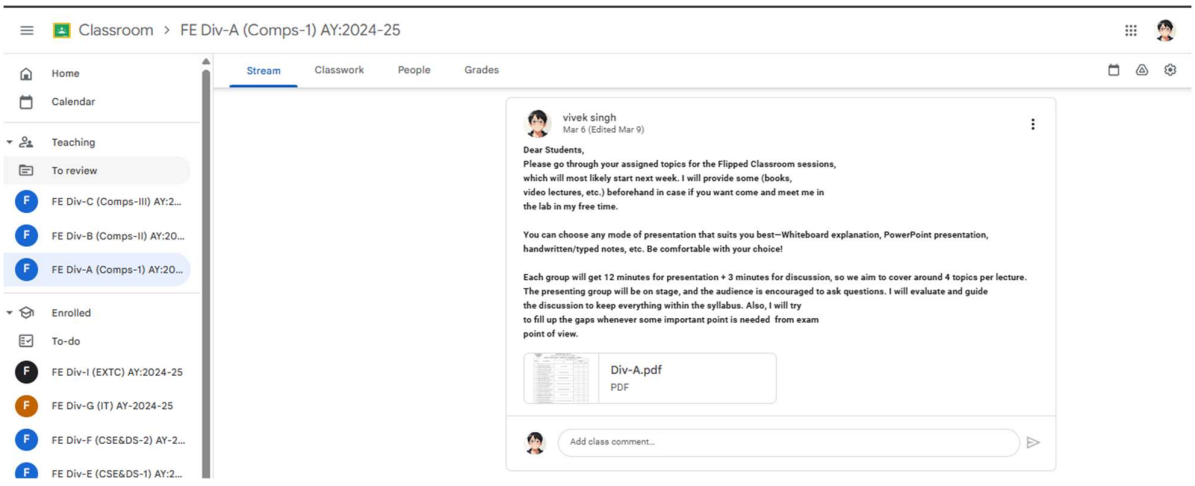
- https://github.com/vkrsingh/AppliedPhysics_VCET/tree/main/AP_Course_FE_2024-2025_SEM-II/Lec-Notes/Mod-5

- https://github.com/vkrsingh/AppliedPhysics_VCET/tree/main/AP_Course_FE_2024-2025_SEM-II/Lec-Notes/Mod-6

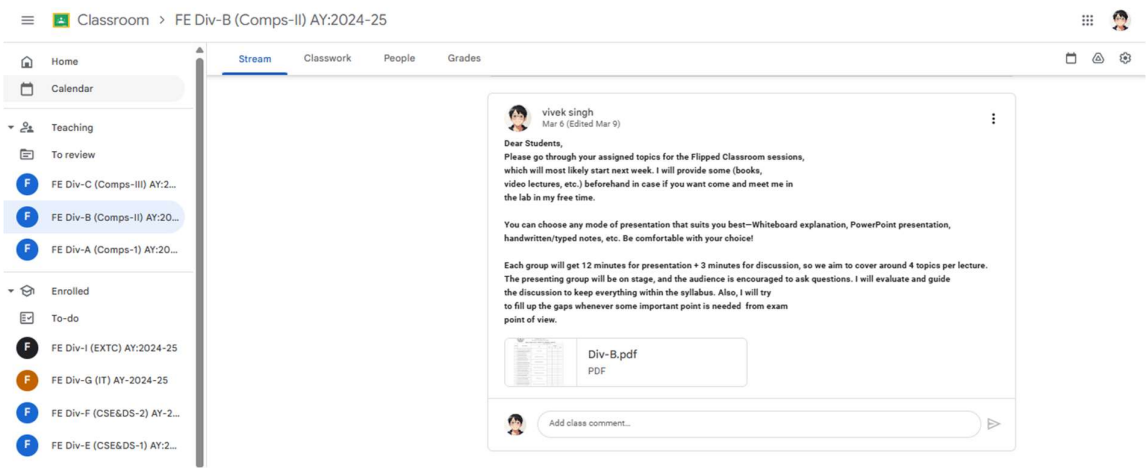
2. List of Reference Books

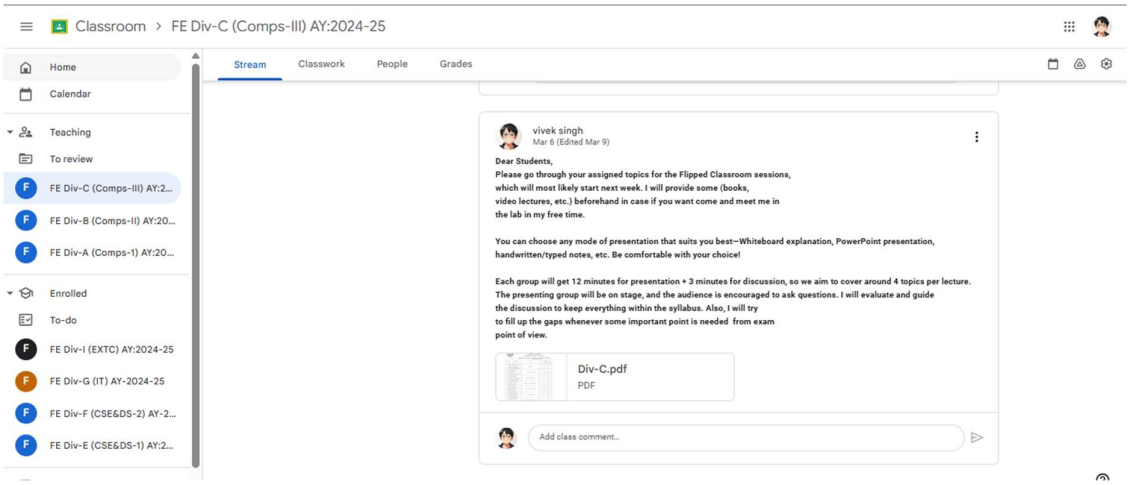
1. Sensors and Transducers by *D. Patranabis*.
2. Introduction to Nanotechnology *by Risal Singh and Shipra Gupta.*

Evidence of Activity:



Screenshot of the announcement on Google Classroom for the session





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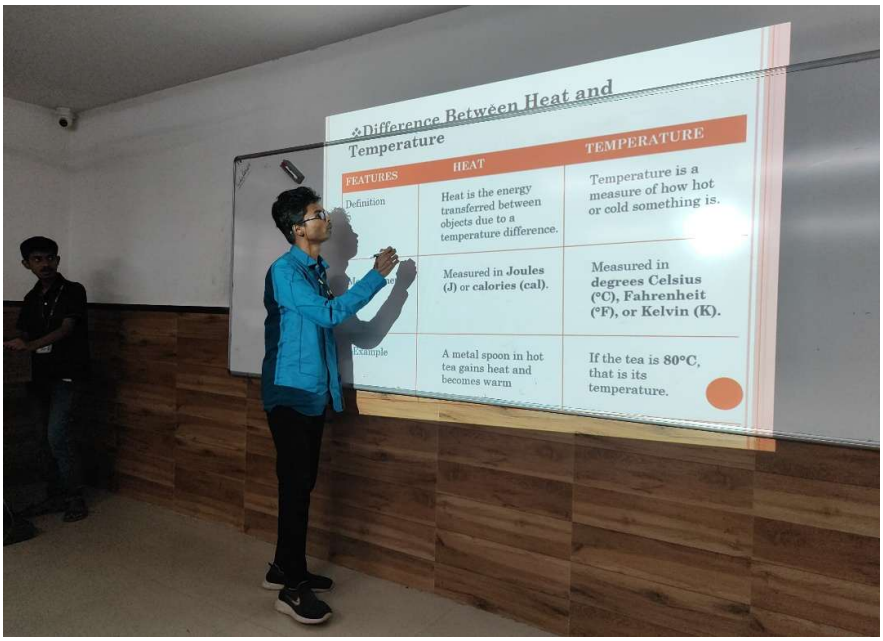

Photographs of students solving problems on the board and participating in discussions

Photographs of students solving problems on the board and participating in discussions

Outcome of Activity:

1. **Students demonstrated a deeper understanding of core concepts related to heat, temperature, and nanotechnology by actively engaging with study material and presenting it to peers.**
2. **The activity fostered essential soft skills such as teamwork, confidence in public speaking, and the ability to explain scientific concepts clearly, leading to improved academic and interpersonal competencies.**

Signature of Faculty

Dr. Vivek Singh

(Asst. Professor)