



Academic year 2024-25
Innovation in Teaching and Learning

Date: 25/11/2024

Title of Activity: Flipped Classroom

Semester: I

Subject: Applied Physics

Course Code: BSC102

Division/ Branch: E, F (CSE(DS)), G (IT) and I (EXTC)

Date: 11 to 15 /11/2024 & 18 to 22 /11/2024

Conducted by: Asst. Prof. Dr. Vivek Singh

Objective of Activity:

- **To promote active and self-directed learning by enabling students to engage with core theoretical content prior to classroom sessions.**
- **To develop analytical and problem-solving skills through collaborative discussions and numerical exercises during hands-on laboratory sessions.**

Method of Activity: The flipped classroom is an innovative teaching and learning method where the traditional teaching strategy is reversed, leveraging technology to enhance learning. Video lectures on topics such as *Interference in Thin Films*, *Gradient*, *Divergence*, *Curl*, and *Heisenberg's Uncertainty Principle* were shared with students prior to the class. Students were instructed to watch the videos and come prepared. During laboratory sessions, students worked on numerical problems related to these topics. At the end of each session, solutions and the underlying physics concepts were discussed collaboratively, fostering a deeper understanding.

Resources of Activity:

1. <https://www.youtube.com/watch?v=FDkSeCzDAUY>

2. <https://www.youtube.com/watch?v=dt9pLWusnxU>

Evidence of Activity:

The top screenshot shows a Google Classroom interface for the class "FE Div-E (CSE&DS-1) AY:2024-25". The left sidebar contains navigation options: Home, Calendar, Teaching, To review, and Archived classes. The main content area displays an announcement titled "Assignment No-02" by suraj vishwakarma on Nov 9, 2024. The announcement text states: "Dear students, Assignment test based on Numericals from module 3: Interference in thin film and module 4: Electrodynamics is scheduled in the next week from 11th November to 15th November. The assignment will be conducted during lab sessions only. There is a reference video link is provided. Go through the video before coming to the lab sessions." It includes two YouTube links: Module 3: <https://www.youtube.com/watch?v=FDkSeCzDAUY> and Module 4: <https://www.youtube.com/watch?v=dt9pLWusnxU>. A PDF titled "Assignment-02.pdf" is attached. Below the announcement, there is a "Class comments" section with an "Add class comment..." input field.

The bottom screenshot shows the same Google Classroom interface, but with the "Stream" tab selected. The left sidebar is identical. The main content area shows a stream of activity. At the top, there is an "Add class comment..." input field. Below it, a post by Vivek Kumar Singh on Nov 16, 2024, is visible. The post text says: "This is Assignment No. 04, which should be solved during the lab sessions. The numerical's are very easy. These topics will be discussed only in the lab sessions and will not be repeated in the lectures. Please come prepared and make the most of the lab time." A PDF titled "Assignment4.pdf" is attached to the post. Below the post, there is another "Add class comment..." input field.

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

Outcome of Activity: This method enhanced students' problem-solving skills and their grasp of theoretical concepts. It encouraged collaborative learning and active participation, leading to increased interaction in the classroom. Flipped learning thrives on three main pillars:

1. **Flexible Environment**
2. **Learning Culture**
3. **Intentional Content**

Signature of Faculty

A handwritten signature in black ink, appearing to read 'Vivek Singh', with a long horizontal stroke extending to the left.

Dr. Vivek Singh

(Asst. Professor)