VIGNAN'S NIRULA
INSTITUTE OF TECHNOLOGY & SCIENCE FOR WOMEN
(Approved by AICTE, New Delhi & Affiliated to JNTU Kakinada)
Vignan Avenue, Peda Palakaluru, Guntur - 522009

Department of Information Technology

Innovative Teaching Practice

Faculty Name : Dr. V. Pavani, Mrs. B. Swathi Sri
Course Name : Operating Systems
Class : II B. Tech I Semester
Academic Year : 2022-2023
Title of the Topic : Mathematical Modeling and Analysis of IPC Mechanisms
Activity Name : Flipped Classroom

Objective of the Activity

The objective of the topic Mathematical Modeling and Analysis of IPC)Mechanisms is to develop a comprehensive understanding of how various IPC mechanisms can be represented and analyzed through mathematical models. The goal is to equip students with the tools to analyze performance, efficiency, and scalability of IPC systems.

Pre-Class Preparation:

- Provided online resources on IPC mechanisms (Semaphore, Mutual Exclusion, and Deadlock Prevention).
- Assigned practice problems related to mathematical models for IPC.
- **Problem:**
    1. Design a mathematical model for mutual exclusion using Peterson's algorithm for P1 and P2.
    2. **Semaphore Synchronization**

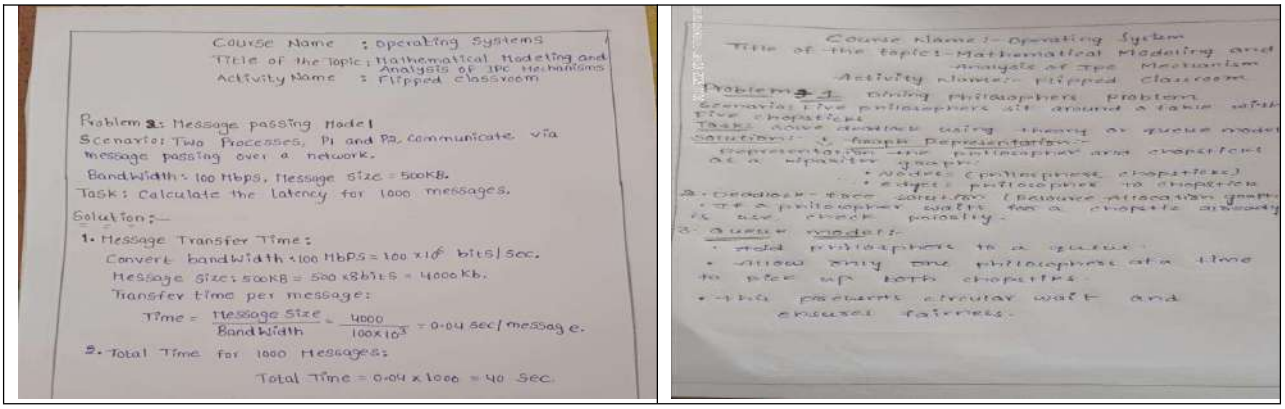
Pre-Class Assignment:

- Students study the materials and solve basic practice problems on IPC mathematical models.

In-Class Problem-Solving:

- Divided students into small groups to solve real-world IPC problems using mathematical models.

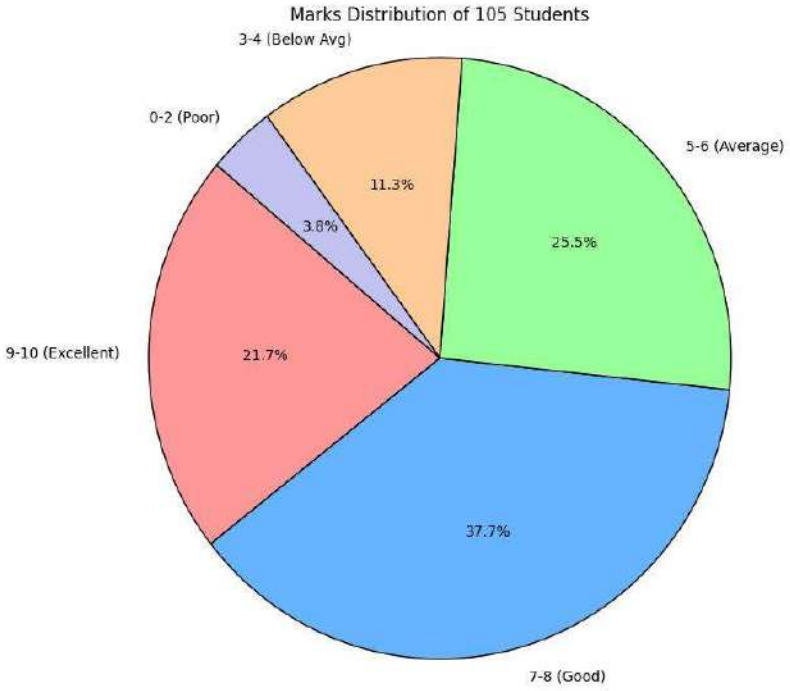
Screenshots of the Practice



Assessment Summary

Evaluated students based on their problem-solving approach, accuracy, and group collaboration.

Marks Range	Number of Students	Percentage
9-10 (Excellent)	23	21.90%
7-8 (Good)	40	38.10%
5-6 (Average)	27	25.71%
3-4 (Below Avg)	12	11.43%
0-2 (Poor)	4	3.81%
total	105	100%



Conclusion

The assessment results show that the flipped classroom approach effectively engaged students, with the majority achieving good to excellent scores.

Signature of the Faculty **Head of the Department**