

FLIPPED CLASSROOM

Introduction

The Flipped Classroom is an innovative teaching approach adopted in Petrochemical Technology to improve student engagement and understanding of complex petrochemical processes. In this method, students study learning materials such as videos, lecture notes, and process diagrams related to petrochemical industries before the class. The classroom time is then used for discussions, problem-solving, and analysis of petrochemical processes.



Objectives

- To enhance students' understanding of petroleum refining and petrochemical processes
- To promote active learning and student participation
- To improve analytical skills through process analysis and industrial case studies
- To encourage students to apply theoretical knowledge to real industrial petrochemical operations

Scope

The flipped classroom approach is applicable to courses in Petrochemical Technology, such as:

- Petroleum Refining Technology
- Petrochemical Process Technology
- Chemical Reaction Engineering
- Mass Transfer Operations
- Polymer Technology

Responsibilities

Head of the Department (HoD)

- Approves the implementation of flipped classroom activities.

Course Instructor

- Provides learning materials such as videos, articles, and notes related to petrochemical processes before the class.
- Guides students during classroom discussions and activities.

Students

- Study the assigned materials before attending class.
- Participate actively in discussions and problem-solving sessions.

Procedure

1. The instructor provides pre-class materials such as lecture notes, process flow diagrams, and videos related to petrochemical technologies.
2. Students review these materials before attending the class.
3. During the classroom session, the instructor conducts activities such as:
 - Discussion of petrochemical process flow diagrams
 - Analysis of industrial refining processes
 - Solving problems related to reaction engineering and process design
4. Students interact with the instructor and peers to clarify doubts and deepen their understanding.

Outcome

The flipped classroom method helps students:

- Gain a better understanding of complex petrochemical processes
- Improve critical thinking and problem-solving skills
- Apply theoretical knowledge to real industrial petrochemical applications