

Report on Flipped Classroom Session: Polynuclear Hydrocarbons and Heterocyclic Compounds

Course: CHEM 301, BSc 3rd Year

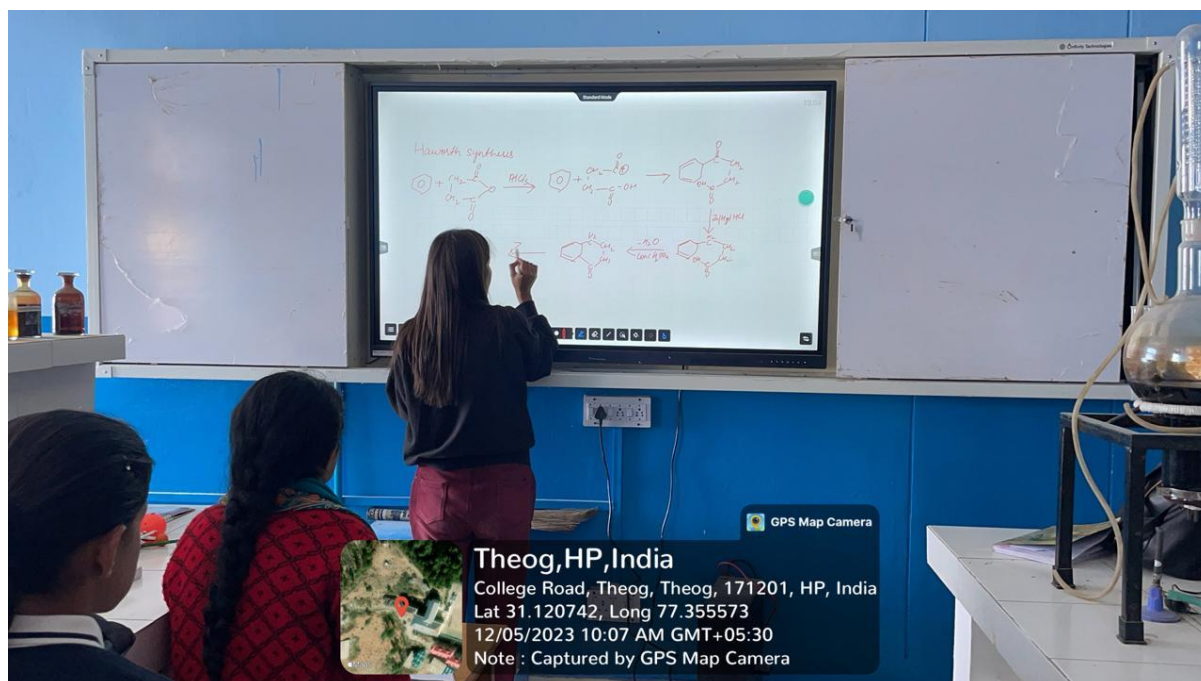
Instructor: Dr. Vikas Nathan

Location: Classroom

Date: November, December 2023

1. Introduction

The flipped classroom session aimed to enhance the understanding of polynuclear hydrocarbons and heterocyclic compounds among BSc 3rd-year students. This instructional approach reversed the traditional learning environment, with students reviewing theoretical content at home and utilizing classroom time for practical application and peer presentations.



2. Pre-Class Preparation

Prior to the session, students were assigned the following preparatory materials:

- **Videos:** Short lectures on the structure, properties, and reactions of polynuclear hydrocarbons and heterocyclic compounds.
- **Readings:** Selected chapters from the textbook on polynuclear hydrocarbons and heterocyclic compounds, including key concepts and recent advancements.
- **Interactive Modules:** Online quizzes and flashcards to reinforce learning and assess comprehension.

3. Class Session Overview

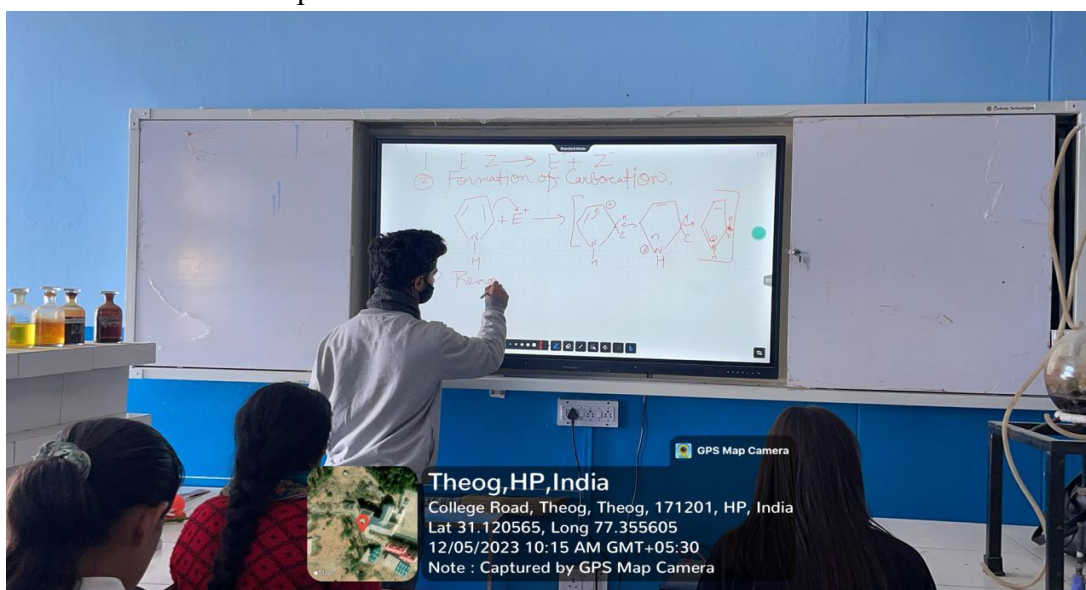
Objective: To apply knowledge through student presentations and discussions on polynuclear hydrocarbons and heterocyclic compounds.

Activities:

1. **Student Presentations:**

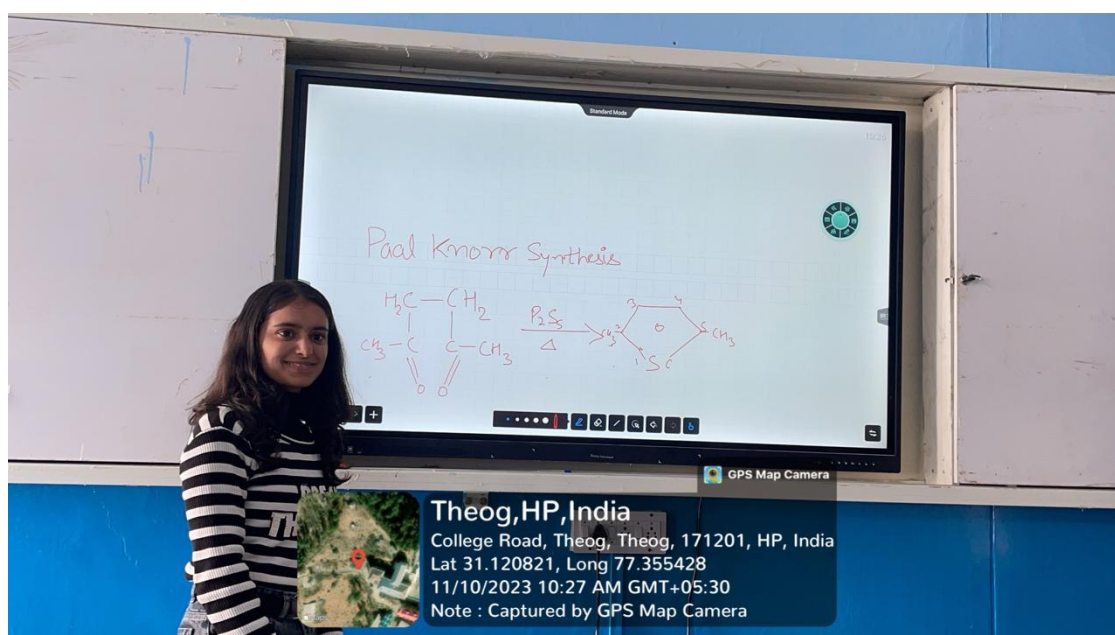
○ **Polynuclear Hydrocarbons:**

- Students presented on various types of polynuclear hydrocarbons, including their structure, synthesis, and applications.
- Key topics included the chemistry of anthracene, phenanthrene and naphthalene



○ **Heterocyclic Compounds:**

- Presentations covered the different classes of heterocyclic compounds, such as pyridines, furans, and pyrrole



- Topics included their synthesis and chemical reactions

2. Discussion and Q&A:

- Following each presentation, there was a session for questions and discussions, allowing peers to delve deeper into the topics and clarify doubts.
- The instructor facilitated the discussion, providing additional insights and linking the presentation content to real-world applications.

3. Group Activities:

- Students were divided into small groups to work on case studies involving polynuclear hydrocarbons and heterocyclic compounds.
- Each group analyzed a given problem, discussed potential solutions, and presented their findings to the class.

4. Feedback and Reflection:

- The instructor provided feedback on the presentations, highlighting strengths and areas for improvement.
- Students reflected on the learning experience and provided feedback on the flipped classroom approach.

4. Outcomes and Observations

- **Student Engagement:** The flipped classroom approach significantly increased student engagement. Students were well-prepared for presentations, demonstrating a solid understanding of the topics.
- **Application of Knowledge:** In-class activities allowed students to apply theoretical knowledge practically, which enhanced their comprehension and problem-solving skills.
- **Peer Learning:** The presentations and discussions fostered a collaborative learning environment, where students learned from each other's research and insights.
- **Instructor Feedback:** The instructor observed that students were more active and involved in the learning process compared to traditional lecture-based sessions.
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5. Conclusion

The flipped classroom session successfully met its objectives by providing a platform for students to present, discuss, and apply their knowledge of polynuclear hydrocarbons and heterocyclic compounds. The approach facilitated deeper learning and active engagement, making complex topics more accessible and relevant.

List of Students who participated:

Department of Chemistry			
Government College Theog			
Attendance for Flipped Classroom Session			
Course: CHEM 301			
S. No	Name	Roll No	Univ Roll No
1	Krish Bansal	2005401008	2201080014
2	Sahil Sharma	2005401005	2201080019
3	Karan	2005401007	2201080025
4	Ashima	21310003	2211080011
5	Ashish	21310037	2211080012
6	Bhawna	21310012	2211080014
7	Deepika Sharma	21310018	2211080016
8	Mehak Sharma	21310035	2211080021
9	Nidhi Sharma	21310034	2211080022
10	Riya Bhardwaj	21310007	2211080025
11	Sumit	21310036	2211080028

Haworth synthesis

C=CC=O + CH2=CHCO2CH3 >>[MnCl2] C1=CC=C(C=C1)O
C=CC=O + CH2=CHCN >>[MnCl2] C1=CC=C(C=C1)O

Theog, HP, India
 College Road, Theog, Theog, 171201, HP, India
 Lat 31.120742, Long 77.355573
 12/05/2023 10:07 AM GMT+05:30
 Note : Captured by GPS Map Camera

1) Electrophilic Substitution reaction
 2) Generation of Electrophile
 3) Formation of Carbocation
 4) Forward of Proton

Theog, HP, India
 College Road, Theog, Theog, 171201, HP, India
 Lat 31.120706, Long 77.355901
 12/05/2023 10:17 AM GMT+05:30
 Note : Captured by GPS Map Camera

Friedel Craft Acylation

C1=CC=C(C=C1)O + (CC(=O)O)2O >>[BF3] C1=CC=C(C=C1)OC(=O)C

Furan 2-Acetylfuran

Theog, HP, India
 College Road, Theog, Theog, 171201, HP, India
 Lat 31.120500, Long 77.355414
 11/10/2023 10:31 AM GMT+05:30
 Note : Captured by GPS Map Camera

