Report on
Industry Visit to
Bongaigaon Refinery

Session 2024-25

Arunima Sarma.
Head
Department of Chemistry
Morigaon College

Organized By
Department of Chemistry
Morigaon College
782105

Report on industry visit to Bongaigaon Refinery

Date: 12/09/2024

Venue: IOCL, Bongaigaon

Organized by: Department of Chemistry

Objective of the visit: An industry visit to a refinery offers undergraduate chemistry students a unique opportunity to bridge the gap between theoretical knowledge and practical applications. The primary objective of such a visit is to enhance students' understanding of industrial processes, particularly the large-scale chemical transformations involved in petroleum refining. By witnessing these processes firsthand, students gain insights into the production of essential fuels and petrochemicals, which deepens their appreciation for applied chemistry.

The visit aims to familiarize students with the operation of complex equipment such as distillation columns, catalytic reactors, and heat exchangers, as well as the role of quality control and safety protocols in maintaining operational efficiency. Exposure to real-world challenges in refining, including waste management, environmental compliance, and energy optimization, encourages critical thinking and problem-solving skills.

Furthermore, this experience provides students with an understanding of the interdisciplinary nature of the industry, highlighting the integration of chemistry, engineering, and environmental science. It also offers a glimpse into potential career paths, motivating students to explore opportunities in research, production, and sustainability within the chemical and petrochemical sectors. Overall, the visit serves as an invaluable educational tool, connecting classroom learning to practical industry practices.

No. of Participants: 16

Faculty members: 02

A visit to the Quality Control (QC) Laboratory at the IOCL Bongaigaon Refinery provides students with a firsthand understanding of the critical role of quality assurance in petroleum refining. This specialized facility is responsible for testing and ensuring that all refined products meet stringent industry and environmental standards before distribution.

Key Features of the QC Laboratory Visit:

1. **Introduction to Quality Control in Refining:**
    - Students are briefed on the importance of quality control in maintaining the reliability and safety of fuels such as petrol, diesel, kerosene, and LPG.
    - Emphasis is placed on the need for compliance with national and international specifications, such as those set by BIS, ASTM, and Euro standards.
2. **Laboratory Equipment and Techniques:**
    - Gas Chromatography (GC): Used for analyzing hydrocarbon composition and identifying impurities in petroleum products.

- High-Performance Liquid Chromatography (HPLC): Demonstrated for quality assessment of specialized products.
- Distillation Analyzers: Explained for evaluating boiling point ranges of fuels.
- Flash Point and Fire Point Testing: Used to determine the safety parameters of flammable products.
- Viscometers and Density Meters: Demonstrated for testing fuel consistency and physical properties.
- Sulfur Content Analysis: Showcased to measure compliance with low-sulfur fuel regulations.

3. **Testing and Certification:**
   - Live demonstrations of routine tests on samples, such as octane and cetane number determination for petrol and diesel, respectively.
   - Explanation of the certification process for refined products before market release.
   - Highlights on monitoring additives and contaminants.
4. **Environmental Monitoring:**
   - Students are introduced to tests for emissions, including sulfur dioxide (SO_2) and nitrogen oxides (NOx) in fuel.
   - Discussions on how the laboratory ensures environmental compliance for products to reduce pollution.
5. **Automation and Digital Integration:**
   - Overview of automated testing equipment and laboratory information management systems (LIMS) used for efficient sample tracking and data reporting.
6. **Interaction with Experts:**
   - Students interact with QC chemists and analysts who provide insights into the challenges and advancements in maintaining product quality and meeting regulatory standards.

Outcome:

1. Students can apply their theoretical knowledge to real-world scenarios, such as witnessing how a manufacturing process is managed.
2. Students can apply their theoretical knowledge to real-world scenarios, such as witnessing how a manufacturing process is managed.
3. Students can meet new people and build networks.

Photographs

NAAC ACCREDITED 'B' GRADE
অধ্যক্ষৰ কাৰ্যালয় : মৰিগাঁও মহাবিদ্যালয়
Permanently Affiliated to Gauhati University
Recognized by UGC under section 2(f) and 12(B) of UGC Act, 1956
OFFICE OF THE PRINCIPAL
MORIGAON COLLEGE
Morigaon: Assam
Estd. 1964

P.O. & Dist. Morigaon PIN 782105(Assam)
Ph. 03678/240268(O)
94354 79207(M)

From:
Dr. L.K. Barthakur, M.Sc.Ph.D
Principal, Morigaon College

Website: www.morigaoncollege.edu.in
E-mail-morigaoncollege@hotmail.com

No.MC/Misc/2024/492 Date: 30-08-2024

Dear Sir,

The following students along with faculty members of Morigaon College want to travel IOCL, Bongaigaon on 12-09-2024.

Name of the faculty member: 1. Dr. Swagata Baruah (Asst. Professor)

2. Dr. Rituraj Das (Asst. Professor)

List of Students:

S/N	Male Students	Age	S/N	Female Students	Age
1	Bishal Nath	20	1	Rimi Nath	20
2	Rahul Kr. Kakati	19	2	Prastuti Das	20
3	Punam Deka	19	3	Swastika Phangchung	20
4	Kaushik Kamal Nath	20	4	Sukanya Devi	20
5	Ibon Kumar Nath	21	5	Harsha Deka	20
6	Himangshu Bordoloi	19	6	Kuhi Bordoloi	20
7	Gulzar Hussain	21	7	Tamanna Nasrin	21
8	Musharaf Hussain	21			
9	Mustafizur Ahmed	20			

Dr. Lila Kanta Barthakur
Principal, Morigaon College
Morigaon, Assam 782105

Principal
MORIGAON COLLEGE

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9435479207(M)

From:
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Principal, Morigaon College

Website:www.morigaoncollege.edu.in
E-mail-morigaoncollege@hotmail.com.

No: MC/DBT(SC)/2024/484

Date: 23-08-2024

To,
The General Manager In- Charge (HR)
IOCL, Bongaigaon Refinery
Chirang

Subject: Request for Permission to Conduct an Industrial Visit on 12/09/2024

Dear Sir/Madam,

Greetings from Morigaon College.

I am writing to request your kind permission to allow a group of students from Chemistry Department of Morigaon College, to visit your esteemed refinery. We believe that this visit would provide our students with valuable insights into the practical aspects of the industry and enhance their understanding of the theoretical concepts they are learning in their coursework.

We propose the visit to take place on12/09/2024, and the group will consist of twenty students, accompanied by two faculty members. We understand the importance of safety and compliance in your industry, and we assure you that our students will be briefed on the necessary safety protocols before the visit.

Additionally, as our students and faculty members will be traveling from Morigaon, we kindly request that you provide accommodation for the group during our stay. We would greatly appreciate your assistance in arranging suitable lodging, either within the refinery premises or at a nearby location, for the duration of our visit.We are also open to any guidelines or restrictions you may have regarding the visit.

We hope this visit will be a valuable learning experience for our students and help strengthen the relationship between our institution and your esteemed organization.

Thank you for considering our request. We look forward to your positive response.

Yours sincerely,

23/08/24

Dr. Lilakanta Barthakur
Principal
Morigaon College
Morigaon, Assam