

A Study Exposure Visit Report

National Symposium on Chemical Engineering for Rural Development



8th - 9th March 2014

Venue: IIT Bombay, Mumbai

Submitted by

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(6th Sem., FOE-ES)

Under the guidance of

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Submitted to

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Introduction:

AZeotropy is one of India's largest Chemical Engineering Symposiums. AZeotropy began in 2007 and the fact that it is standing high on such a big platform today, attracting huge audience fills our hearts with pride. AZeotropy is an excellent opportunity to generate and disseminate knowledge and information among students from all over India. It is also a public event designed to increase awareness about Chemical Engineering.

The 6th Semester students of B.E. Environmental Science and Engineering, Dept. of Environmental Science and Engineering, Faculty of Engineering, Marwadi Education Foundations' Group of Institutions, Rajkot; have participated into the same.

Technical, Workshop Events:

Wide spectrum of events, including Lecture Series, Panel Discussion, Informal Talks, Workshops and Exhibition.



The poster for AZeotropy 2014 Competitions is set against a dark, textured background. At the top left, it features the logos of IIT Bombay & ChEA, with the text 'presents AZeotropy 8th-9th March 2014'. To the right, the word 'COMPETITIONS' is written in large, bold, white letters. Below this, several competition categories are listed with brief descriptions: RUSRILLE (rural development case study), INDUSTRIAL DESIGN PROBLEM (real industrial challenges), CHEM-O-PHILIA (national level quiz), CHEM-E-CAR (designing a car from on-board reactions), CHEMICAL DISASTER INVESTIGATION (analyzing past disasters), CHEMPACT (economic solutions to daily life), CIPHER (cryptic hunt), and BASF ONLINE QUIZ (visiting chemical plants). Contact information for Vipul Gupta and Chintan Shah is provided. A dark box at the bottom right states 'Prize money worth ₹ 3.5 lakhs'. The bottom of the poster features a row of logos for various partners: COMSOL, FENIX, TATA CHEMICALS LIMITED, MONARCH, ION EXCHANGE, BASF, print se.com, twenty15, and KNOW TEST.

AZeotropy 2014 College Fest Theme: Chemical Engineering for Rural Development

Day 1: (8th march, 2014)

10:00-12:00 AM: **Session 1**

Topic: IDP (Industrial Design Problem-2)

In this event, one of designing problem was given by them which is related to “**purification of oily waste water at low economic cost with the membrane technologies**”. Miss. Krishna Dave and Miss. Shraddha Soni prepared the topic and provide a solution and design which can treat the oily waste water efficiently and can meet with the standard discharge value, under the guidance of Prof. Varun kr. Agarwal.

02:00-04:00 PM: **Session 2**

Topic: “LATEX”

In the afternoon, Miss. Krishna Dave and Mr. Nitin Butani, Mr. Khodidas Keraliya have attended the session on “LATEX”. LATEX is a document preparation system and document markup language. It is a high-quality typesetting system; it includes features designed for the production of technical and scientific documentation. The typesetting system offers programmable desktop publishing features and extensive facilities for automating most aspects of typesetting. It is most often used for medium-to-large technical or scientific documents but it can be used for almost any form of publishing.



05:00-09:00 PM: **Research Exposure**

Visit to Environmental Geotech Lab

With reference to Dr. Chintan Pathak; we went to meet Prof. D.N. Singh, Professor, Environmental Geotech Lab to get an exposure of research and learning in the field of Environment. Dr. Singh and his research team have introduced and demonstrated various research activities conducted by them at IIT Bombay. They have also provided specialized learning and interactive session amongst his research students and MEFGI team. The research team of IITB was very much respectful and guided us for wide variety of research opportunities for pursuing Ph.D. The discussion was very nice as they have shared their current and past experience of masters and work experience of industry. The MEFGI team could learn various research instruments like Centrifuge modelling; Geometrical characterization; Industrial waste disposal and utilization; Porous media characterization etc kind of advanced instruments.



Atomic Absorption Spectrophotometer



DO, EC, pH Meter



Advanced BOD Incubator and DO meter



Centrifuge modelling Instrument



Interaction of MEFGI team with research team, Environment Geotech Lab, IIT Bombay

Day 2: (9th March, 2014)

10:00-12:00 AM: **Session 1**

Topic: Conversion of Plastic Waste to Fuel Energy [Industrial Design Problem(IDP-1)]

Miss. Anjali Lathigara and Mr. Nikhil Lotia presented their research work on the topic of **CONVERSION OF PLASTIC WASTE TO FUEL ENERGY** under the guidance of Prof. Varun kr. Agarwal.

02:00-04:00 PM: **Session 2**

Topic: ASPEN PLUS

Miss. Anjali Lathigara and Miss. Shraddha Soni attended a workshop of ASPEN PLUS. ASPEN PLUS is a comprehensive chemical process modelling system used by the world's leading chemical organisations and industries to design and improve their process plant.

ASPEN Plus solves the critical engineering and operating problems that arise throughout the lifecycle of a chemical process, such as designing a new process, troubleshooting a process unit or optimizing operations of a full process.

ASPEN PLUS allows you to create your own process model, starting with the flow sheet, then specifying the chemical components and operating conditions. With thermodynamic data, realistic operating conditions and the rigorous Aspen Plus equipment models, we can simulate actual plant behaviour.

Major Learnings:

The research team of MEFGI could learn in-depth understanding on wide variety of environmental management approach to evaluate the environmental impacts associated by sensitization through natural resources consumption as well as pollution control technologies to wastes released into the environment. Following discussion, practical sessions and interaction have created a holistic understanding of the team of Dept. of Env. Sci. and Engg.,

MEFGI:

- There is an ever increasing need for information to guide environmental decision.
- Research should be realistic, holistic and comprehensive.
- Research in technological advancement provides business decision support in the context of sustainable consumption and production of natural resources.
- Sensitization in prospective assessments for policy making, is an effective tool to support multiple types of sustainability to the environment.

Acknowledgement:

It was a pleasure to interact with Prof. D.N. Singh and his research team. His vision and frankness towards students has motivated our outlook. The team would like to thank Prof. Varun Kr. Agarwal for his valuable guidance in implement research ideas and present the work at IIT Bombay. The team would also like to thank Dr. Chintan Pathak for providing an opportunity to interact, learn and sensitization towards research at Environmental Geotech Division, IIT Bombay. Finally, the team would like to thank the Marwadi Education Foundation for continuous support and motivation.