



# **DR. AMBEDKAR COLLEGE**

Deekshabhoomi, Nagpur

## **REPORT**

Academic visit to

**National Environmental Engineering Research Institute**

**(CSIR-NEERI)**

on

18<sup>th</sup> March 2019

**INTRODUCTION**

National Environmental Engineering Research Institute or NEERI (CSIR-NEERI) falls under the Ministry of Science and Technology of Central Government, India. It was established in Nagpur in 1958 with focus on water supply, sewage disposal, communicable diseases, Industrial pollution treatment and management. It is located at Nehru Marg, Vasant Nagar, Nagpur.

### **PURPOSE OF THE VISIT**

- To discuss with the Scientists on the research ideas pertaining to environmental and industrial pollution and their remedies.
- To understand the working of state of the art instruments being used to study research problems.
- To understand the opportunities available in NEERI for the students completing Post-graduation in Chemistry.
- To understand overall working of CSIR Laboratory.

The visit started with the introduction of CSIR-NEERI at the auditorium on 11.30 am. After that, in Room no. 23, Ms. Shruti from Water Treatment and Management Division (WTMD) provided the information of waste water management and water technology management.



**Introduction of NEERI at Auditorium**

She told about **17 parameters** used in waste water management, the pathological test and World Health Organization (WHO) and Bureau of Indian Standards (BIS) for minimum permissible and acceptable limit for water quality assessment. This division of NEERI has developed two technologies till now.

In the very same laboratory, Mr. Nikhil Gawande, one of the researchers working in the Water Treatment and Management Division (WTMD), provided information about **single beam spectrophotometer and UV/VIS double beam spectrophotometer** and explained the working of the two as well by taking water sample containing nitrate and sulphate. He showed students a report about the calibration curve of nitrate that was done on 13/2/19 in the laboratory.



**Mr. Nikhil Gawande explaining working of  
UV-Vis spectrophotometer in the WTMD**



**Ms. Shruti from (WTMD) explaining working of Ultra HPLC**

Information about the instruments present in Harit Sangrahalaya, goals and future opportunities in NEERI was provided by Dr. Prakash Kumbhare, Head and Principal Scientist, R&D Section, CSIR-NEERI..

List of the instruments present in Harit Sangrahalaya:

- Common effluent treatment plant
- Municipal solid waste plant
- Low cost automatic mechanical flusher
- Phytorid technology for sewage treatment
- Single pass photo catalytic reactor for de-colorization of textile effluents
- Solar electrode flouridation plant
- Iron removal plant
- Hydroplume –high rate secondary clarifier.



**Dr. Prakash Kumbhare explaining the working of NEERI**

Knowledge about imaging invisible and vacuum was provided by Ms. Rutuja in Material Synthesis Laboratory. The details and information was given near the particular instrument in the respective laboratory. Further, Mr Luv Gupta, Ms. Snehal Apturkar, Ms. Richa Jaiswal and Mr Sanket Banpurkar helped in gathering the information provided by the researchers and scientists working in NEERI.

### Air Pollution Division and Environmental Material Division

After 2 pm, students visited Air Pollution Division and Environmental Material Division (EMD) where Ms. Utkarsha Wankhede demonstrated the working principle, sampling and testing of various analytical and spectroscopic instruments.

List of some of the instruments are as follows:

1. Gas Chromatography-Mass Spectrophotometer (GC-MS) instrument
2. X Ray Diffractometer ( XRD) instrument
3. Ultra High Pressure Liquid Chromatography (Ultra HPLC) instrument
4. Blast furnace
5. Scanning Electron Microscope (SEM) analyzer
6. UV-Visible coupled Near Infra-Red spectrophotometer



**Ms. Shruti explaining working of UV-Vis coupled Near IR Spectrophotometer and XRD Analyser**

The Visit was organized by Dr Mrs Deepa Panhekar, Head and PG Coordinator, Dept. of Chemistry. Faculty members Dr C Agarwal and Mr Parag Panse accompanied students.