

Industrial Visit – Northern Chennai Thermal Power Station

Date: 11th February 2020
Place: Ennore

The Industrial Visit was organized by Loyola-ICAM College of Engineering and Technology for 3rd year Mechanical students (MECH-A). There were 55 students in total who attended the Industrial Visit. The students left the college premises by 0845 hours in their college buses, accompanied by Mr. Ezhil Ruban (Assistant Professor) & Mr. James Deepak (Assistant Professor). They reached the NCTPS facility at 1030 hours. Students were given set of instructions that was to be followed during the entire period of their stay. Instructors from NCTPS split the group into 2 batches. The first batch was allotted time slots between 1100 hours to 1200 hours, followed by the second batch of students between 1200 hours to 1300 hours. The students of the respective batches were detailed of the following:

- Source of the coal from the nearby harbor for the plant.
- The storage facility generally called as Bunker that contained the coal for burning purpose.
- Pulverizer – Reduces the size of the coal from 100mm to 70 microns in order to obtain higher efficiency.
- After its powdered it is sent to fire-tube boiler that combusts the coals and converts the water into steam. The boiler pressure is (173-183) bar. The water is obtained from sea and circulated with super-heaters and condensers. Boiler efficiency is estimated at 80%. Coal used is Bituminous generally called as Indian Coal, which is ideal in all properties considering the efficiency.
- The boiler is fed with Main Driver Boiler Pump that pumps water to the boiler at 80 bars, the pump is fed with 12 MW (consumes 5% of productions).
- For the backup purpose, we have Turbine Drive Boiler pump that is for stand-by.
- Turbine section is split up into 3 stages- High pressure, Intermediate and Low pressure turbine. High pressure turbine gets steam at 183 bars from the boiler. At final stages Low pressure turbine gets 45 bars. There is generator coupled to the turbine with exciter to generate the required voltage difference.
- The process is controlled by the GRID, monitored by engineers

- Based on the requirement of power, the amount of coal that must be burnt and load applied are determined.
- Thermal insulation consists of single casing in terms generator and turbine.
- Glass wool is generally used for thermal insulation of pipes.
- Moreover, the startup time for the entire plant from its shut down is around 8 hours, and hot start up takes upto 4-5 hours depending on the environmental conditions.

These were the various features that put forward for both the batches.

The Industrial Visit came to an end with a photograph of the entire group.

