

## **Visit to 220KV Grid Substation, Pappankalan-I, Dwarka**

Department of Electrical & Electronics Engineering organized an industrial visit to 220KV Grid Substation Pappankalan-I, Dwarka on 13<sup>th</sup> Sept 2015 for EEE 5th semester students. A total of 36 students attended the visit, accompanied by two teachers, Ms Nidhi Gupta and Ms Sapna Singh. The class was instructed by DTL officials on the working of the substation while taking a walk across the transformer yard.

The class was accommodated in the control room while they waited for the walk around the yard to start. Students observed the relays and other control mechanism that controlled the functioning of the substation. The class was split into two groups while taking the trip around the transformer yard.

All students were given a Single Line Diagram of the substation for reference. The instructors introduced the students to the construction and application of capacitor voltage transformer by showing them decommissioned parts. Various parts of the substation, such as the 220KV bus lines, 220/66KV 100MVA transformer, 66/11KV 20 MVA transformer, lightning arrestors, wave traps, earth isolators, circuit breakers etc were explained to the students while walking by the electrical equipment.

Students were explained how the power transformers are cooled with forced-air and forced-oil methods. RTD sensors are used to measure the temperature and PT-100 microcontroller is used to turn on the required cooling system. Several barrels of SF-6 insulating oil were kept in the yard for the isolation of a new transformer that is being set up. Types and working mechanisms of circuit breakers were introduced to class, along with the companies who manufacture those designs. The class was taught that the substation used bare conductor and ACR cables to carry electric power within the substation. The importance of graveling the yard and step potential was introduced to the student. The instructors answered all doubts of the students to conclusive results before concluding the walk. The class had access to drinking water at the control room.



Control Room Panels

