Report on Industrial Visit To

"GMRT-Tata Institute of Fundamental Research (2018-2019)"

The Industrial visit was carried out at GMRT on 10th August, 2018 for SEM VII Electronics and Telecommunication Engineering Students. Prof. Adesh Hardas, Prof. Veena Gawde, Prof. Selvin Furtado, Prof. Priti Farkade along with 27 students visited GMRT.

The main objective of this visit was that, as a part of the Electronics and Telecommunication Engineering, the students need to know practical fundamentals, implementation, functionality, and mechanism of antennas as also to get the knowledge of the Radio Telescope, different components involved, hardware software co-design, etc.

The site for GMRT, about 10 km east of Narayangaon town on the Pune-Nasik highway, was selected after an extensive search in many parts of India, considering criteria such as low man-made radio noise, availability of good communication, vicinity of industrial, educational and other infrastructure and, a geographical latitude sufficiently north of the geomagnetic equator in order to have a reasonably quiet ionosphere and yet be able to observe a good part of the southern sky as well.

After reaching their students were guided by the staff member towards one of the big antennas. It was great to know that GMRT consists of 30 fully steerable gigantic parabolic dishes of 45m diameter each spread over distances of up to 25 km.

After introduction all students were shown the big antenna and were told about how it works and were guided about its various functionalities. The metre wavelength part of the radio spectrum has been particularly chosen for study with GMRT because man-made radio interference is considerably lower in this part of the spectrum in India. Fourteen of the thirty dishes are located more or less randomly in a compact central array in a region of about 1 sq. km. The remaining sixteen dishes are spread out along the 3 arms of an approximately ‘Y'-shaped configuration over a much larger region, with the longest interferometric baseline of about 25 km.

The GMRT is the largest radio telescope in the whole world and hence has great appeal in astrophysics research. Astronomers from all over the world regularly use this telescope to observe many different astronomical objects such as galaxies, pulsars, supernovae, and sun and solar winds.

The visit concluded with an interactive session for the students, where they got an opportunity to interact with the concerned authorities and gain more knowledge. It was a great learning experience for one and all.