

GOVERNMENT POLYTECHNIC AHMEDABAD

VISIT REPORT

**DATE: 06 MAY 2023, SATURDAY
PLACE: NATIONAL ACADEMY OF
INDIAN RAILWAYS, VADODARA**

SEMESTER: 4

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YEAR: 2023

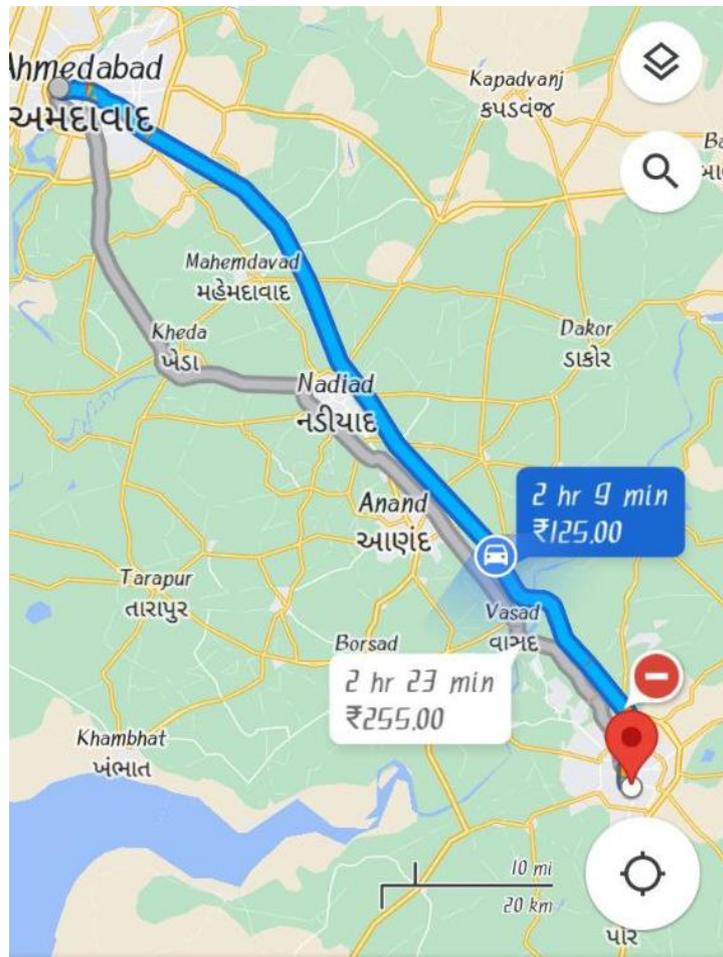
NATIONAL ACADEMY OF INDIAN RAILWAYS, VADODARA

The National Academy of Indian Railways is the alma mater for the Officers of the Indian Railways. It is situated in a sprawling campus of 55 acres of the Pratap Vilas Palace at Lalbagh, Vadodara. It provides training to all levels of Indian Railway officers, from probationers to General Managers.



The academy was founded in 1930 at Dehradun and then shifted to its present regal sylvan surroundings at Vadodara, in 1952. It is housed in the Pratap Vilas Palace (built in 1914 AD) surrounded by lush green lawns and designed by C.F. Stevens in the renaissance style. The property comprising of 55 acres of garden and wooded land, enlivened by the calls of peacocks and migratory birds, was purchased from the Gaikwads (erstwhile rulers) of Vadodara.

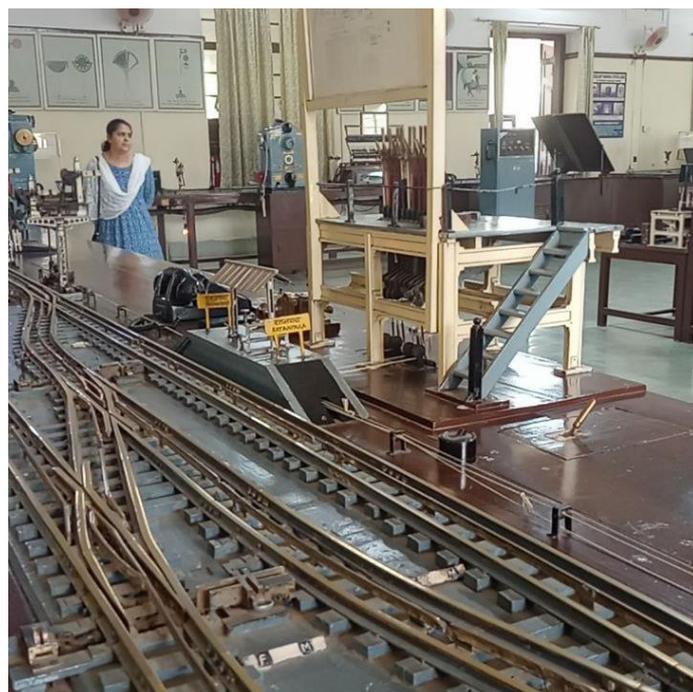
It is located in vadodra, Gujrat. Which is approx. 120 km far away from our college. We went there through bus.



The objective of this technical visit was to understand the overall functioning of the railway system i.e. various types of crossing, signalling systems, etc. Other things that we learned includes the evolution history of railways, neale's ball token instrument, old signalling system of Indian railways, auxiliary warning system, automatic block signalling, models of steam engine, electric locomotive and other trains in use like bullet train, toy train, passenger train, local train, express train, bkc coach, ifc coach, etc.



We visited the model room facility of NAIR, Vadodara which houses the largest working prototype of railway system in Gujarat. We have learned several operations of various components of the railway operation system (ROS) through the aforementioned working prototype of ROS such as route relay interlocking, train activated warnings at level crossing, etc.



History of Indian railway

The **first railway** service in India started on **16 April 1853** when the first train was flagged off. From Mumbai (Mumbai) to Thane, covering a distance of 34 kilometers with 14 coaches and 400 passengers.



Mumbai to Thane single railway track in 1853.

The Naele's Ball Token Instrument.

It is an electro mechanical instrument provided at each station on single line Railway sections. It ensures safety in train operations by dispensing tokens which are handed over to train drivers as authority to enter a block section. The tokens are spherical steel balls, which are issued in such a manner that only one token can be issued for one direction at a time after ensuring that previous train has already cleared the section and there is no other train between the stations. Each station has one search instrument for each direction, which are electrically connected to similar instruments provided at the adjoining stations on either side.



Railway Signal

A **railway signal** is a visual display device that conveys instructions or provides warning of instructions regarding the driver's authority to proceed.^[1] The driver interprets the signal's indication and acts accordingly. Typically, a signal might inform the driver of the speed at which the train may safely proceed or it may instruct the driver to stop.



Signalling system

The Old Signalling System of Indian Railways, particularly manual signals used in Indian railways shown in given figures below. Mechanical railway signalling installations rely on ratchet frames folder operation to interlock the signals, track lock and add points to allow the safe operation of trains in the area of the signal control. This lever is operated by the signal man.



Auto change signal.

The most interesting part of the visit was being able to go in the model room and see the growth of India railway from the beginning.

