



**BABARIA INSTITUTE OF ENGINEERING AND TECHNOLOGY
VARNAMA, VADODARA.**

**AFFILIATED WITH: GUJARAT TECHNOLOGICAL UNIVERSITY.
CHANDKHEDA, AHMEDABAD. .**

REPORT ON:

VISIT TO RAILWAY STAFF COLLEGE, PRATAPNAGAR, VADODARA.

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Introduction

On 23rd Jan 2016 students of 6th SEM civil engineering department of BITS edu campus had there site visit on Railway staff College for the fifth time. The National Academy of Indian Railways or Railway staff college, is the management training institute for the officers of the Indian Railways. The college trains newly appointed officers, senior managers and executives. The college also trains officers of other Group Asservices of the Government of India. The college is housed in Pratap Vilas Palace, Vadodara.

College synopsis

The College is spread over an area of 55acres. The college was established in the year 1930 at Dehradun but later on it was shifted to Vadodara. The college is built amidst lush green surroundings. The designing of the college has been planned by C.F. Stevens.

The Visit

We reached Railway Staff College by 11:00 a.m. Thereafter, by 11:15 am with warm welcome the Supervisor of the Railway staff college, Mr. Ajay Bhatia gave us a brief introduction about Model room of NAIR. Students had divided in 2 batches. Then Er.Nitin Kulkarni took us to their model room where we could see all the designs of Indian railway from its establishment. Engineer had explained each and everything about functioning of railway from its structure to working. He also told that the first train had run between Bombay and Thane on 16 April, 1853 in 14 carriage long train drawn by 3 locomotives named sultan, Sindh and sahib.it was around 21 miles in length and took approximately 45 minutes. He had explained the functions of the different signals, switches, Rails, fishplate, Telegram, etc. Components of the Indian Railway also. He had also explained the different types of crossings V-crossing, Diamond crossing etc.these crossing have to rail components Tongue rail and stock rail. In rails, flange is provided which sets with the rail in such a way that, accident due to derailment is minimum. He had also explained the latest technology of Indian railway.it was very helpful to get the technical knowledge about the railway functions.

At last we made acquainted with the latest system on which the railway in India works. It is a panel interlocking system which is thoroughly an electronic system. The station master gets

all the necessary information about the trains from the panel itself. Due to panel interlocking system number of rail accidents has decreased. This system is supplied with 24 volt in olden days.to change the direction of locomotives turn table rails were used. The latest electric locomotives run at high speed and consume 25KN AC.

The session was conclude by Mr. Kulkarni inspiring us to set high goals and endeavor to achieve them. The overall review of students was very positive. Everyone was impressed by learning something out of books and experiencing practically the components of Indian railway.

Components of Indian railway:

1.Signals:

Railway signaling is a system usTrains cannot collide with each other if they are not permitted to occupy the same section of track at the same time, so railway lines are divided into sections known as blocks. In normal circumstances, only one train is permitted in each block at a time. This principle forms the basis of most railway safety systems.

Types:

A.Block Signaling:

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B.Colored light signals:

On most modern railways, colour light signals have largely replaced mechanical ones. Colour light signals have the advantage of displaying the same aspects by night as by day, and require less maintenance than mechanical signals.



2.Fish plate:

A **fishplate, splice bar** or **joint bar** is a metal bar that is bolted to the ends of two rails to join them together in a track the name is derived from *fish*, a wooden bar with a curved profile used to strengthen a ship's mast.

The top and bottom edges are tapered inwards so the device wedges itself between the top and bottom of the rail when it is bolted into place. In rail transport modelling, a fishplate is often a small copper or nickel silver plate that slips onto both rails to provide the functions of



maintaining alignment and electrical continuity.

3. Locomotive Engine:

The three main categories of locomotives are often subdivided in their usage in transport operations.

There are passenger locomotives, freight locomotives and switcher (or shunting) locomotives. These categories determine the locomotive's combination of physical size, starting tractive effort and maximum permitted speed. Passenger locomotives develop less starting tractive effort but are able to operate at the high speeds demanded by passenger schedules. Mixed traffic locomotives are built to provide elements of both requirements. They do not develop as much starting tractive effort as a freight unit but are able to haul heavier trains than a passenger engine.



4. Railroad switch:

A **railroad switch, turnout or points** is a mechanical installation enabling railway trains to be guided from one track to another, such as at a railway junction or where a spur or siding branches off.

The switch consists of the pair of linked tapering rails, known as *points*, lying between the diverging outer rails (the *stock rails*). These points can be moved laterally into one of two



positions to direct a train coming from the point blades toward the straight path or the diverging path. A train moving from the narrow end toward the point blades is said to be executing a *facing-point movement*.

Pictures of model room:





