

Department of Physics

2024-25

Excursion Report

An Excursion activity was organized at Department of Physics, Dr. Patangrao Kadam Mahavidyalaya, Ramanandnagar (Burli) on **05/02/2025** and **06/02/2025** respectively. The route chosen for trip was Ramanandnagar-Mahabaleshwar-Pratapgad-Raigad-Mahabaleshwar-Satara- Ramanandnagar. The visit to Raigad Fort, the historical capital of Chhatrapati Shivaji Maharaj, provided fascinating insights into the application of physics in ancient architecture, defense strategies, and natural phenomena. The fort is built on a hilltop, utilizing principles of stability and force distribution. The massive stone walls and strategic positioning showcase concepts of **center of gravity** and **load-bearing structures** to resist enemy attacks and natural erosion. The fort's design enhances sound travel. Locations like the **Nagarkhana** amplify sound waves, demonstrating the principles of **echo and resonance** in acoustics. The **Raigad Ropeway** is another marvel that provides easier path to reach top of Raigad it operates using an **aerial cable system with two parallel steel cables**: a **track cable** for support and a **haulage cable** for movement. An **electric motor** at the upper station drives the gondola via pulleys. Safety features include **automatic brakes, backup power, and stability mechanisms**.

Raigad Fort is not just a historical marvel but a testament to the effective use of physics in architecture, defense, and natural adaptation. The tour was an enriching experience from both historical and scientific perspectives. Futher students enjoyed scenic views at Pratapgad and Mahabaleshwar on their way back to Ramanandnagar.

Beneficiaries

A total 18 Students & 4 faculty participated in excursion activity.

Program Outcomes

1. The trip demonstrated applied physics, mechanical efficiency, structural stability, energy conservation, load dynamics, acoustics of building structures used in building of Raigad fort.



B.Sc II and B.Sc III Students at Raigad in first Image and at Pratapgad in the later picture during 2024-25 excursion activity.