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**ELECTRONICS AND TELECOMMUNICATION  
DEPARTMENT**

**A REPORT ON  
STUDY VISIT TO  
GOVERNMENT MEDICAL  
COLLEGE & HOSPITAL  
2025**

**Biomedical Engineering**

**UNDER**

**PROF. DR. D. S. CHAUDHARI**

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# INTRODUCTION

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As of the Biomedical Engineering course, the students of the Electronics and Telecommunication Engineering Department, along with the HoD Prof. Dr. D. S. Chaudhari and Mrs. S. S. Thorat, visited the Government Medical College and Hospital, Nagpur. The visit was organized to provide the students with practical exposure to biomedical instruments used in the Radiology Department..

This interaction helped to understand not only the technical aspects of biomedical instruments but also the importance of safety, precision, and ethical considerations while handling patients. The visit provided with an eye-opening experience into how interdisciplinary knowledge—spanning engineering and medicine—works together to improve human health.

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# OBJECTIVES

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- To connect theoretical knowledge with real-world medical applications.
- Observing the working of advanced diagnostic machines such as MRI, Sonography, and X-Ray, and learning about the frequencies, ratings, and operating parameters used in diagnosis.
- Application of technologies in detecting tumours, arterial blockages, and tissue abnormalities.



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# DETAILS

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## 1. MRI (Magnetic Resonance Imaging)

- Operated with 1 time 128 slices.
- Uses different radio frequencies to obtain varying diagnostic results.
- Helps in detecting disabilities, tumours, and identifying blocked arteries in specific zones.
- Scan duration depends on the organ being studied:
  - Brain → ~1 minute
  - Liver / Pancreas → ~15-16 minutes

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## 2. Sonography (Ultrasound Imaging)

- Operates in the frequency range of 8-15 MHz.
- Uses the B-scan technique for imaging.
- Enables visualization of different tissue levels and detection of tumours.
- Supports biopsy procedures to determine the type of tumour.

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## 3. X-Ray Machine

- Demonstrated live on patients for diagnostic purposes.
- Staff explained the radiation ratings and frequencies used for different diagnostic needs.

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# OUTCOME

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- Students gained first-hand exposure to biomedical diagnostic instruments.
- Understood the technical aspects of MRI, Sonography, and X-Ray.
- Learned how biomedical engineering principles are applied in real-time medical diagnosis.

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# CONCLUSION

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The visit to the Government Medical College was a highly informative and enriching experience for the students. It provided valuable insights into the integration of electronics, telecommunication, and biomedical engineering in modern healthcare, thereby strengthening the practical knowledge gained in the classroom.



# INSIGHTS OF VISIT

