



**MYSORE DIOCESAN EDUCATIONAL SOCIETY
ST. PHILOMENA'S COLLEGE (AUTONOMOUS), MYSORE
Affiliated to University of Mysore**

**A REPORT ON INSTITUTIONAL VISIT TO MANIPAL ACADEMY OF
HIGHER EDUCATION**

Preamble: The institutional visit to Manipal Academy of Higher Education (MAHE) was organized as part of our academic enrichment program to provide students with firsthand exposure to advanced educational and research environments. MAHE, a globally recognized institution of higher learning, is renowned for its excellence in education, innovation, and multidisciplinary research across various fields including health sciences, pharmacy, engineering, and humanities.

The purpose of this visit was to bridge theoretical knowledge with practical understanding by observing modern laboratories, research facilities, and academic practices followed at MAHE. The visit offered valuable insights into the functioning of departments such as Pharmacology, Anatomy, and Pharmaceutical Sciences, enabling students to gain a deeper appreciation of the integration between science, research, and education.

a. Museum Of Anatomy And Pathology

Introduction:

The Manipal Anatomy and Pathology Museum (MAP), located within the Kasturba Medical College (KMC) campus under the Manipal Academy of Higher Education (MAHE), is one of the largest and most well-maintained museums of its kind in Asia. It serves as a valuable educational resource for students of medicine, pharmacy, nursing, and allied health sciences.

The museum houses an extensive collection of over 3,000 specimens, including human organs, tissues, bones, and models that illustrate both normal anatomy and pathological conditions. Each exhibit is carefully preserved and displayed to help students visually understand the structure, function, and disease processes of the human body. MAP provides an interactive learning environment where theoretical knowledge from textbooks is reinforced through direct observation of real specimens. The museum also highlights various methods of specimen preparation, plastination, and preservation, giving visitors insight into scientific techniques used in medical education.

29 students with faculty members visited the museum on 25th september, 2025.

HISTORY: The Manipal Museum of Anatomy and Pathology (MAP) stands as one of the most remarkable centers of medical learning in India and Asia. Its origins trace back to 1967, when it was founded under the visionary leadership of Dr. P. V. G. Menon, the then Professor and Head of the Department of Anatomy at Kasturba Medical College (KMC), Manipal. His aim was to create an educational space that would allow students to visualize, understand, and appreciate the human body beyond textbook descriptions.

Initially, the museum started with a modest collection of human anatomical specimens prepared by faculty and students from cadaveric dissections. Over time, it expanded through contributions from clinicians, hospitals, and medical researchers, gradually evolving into a multidisciplinary repository that combined anatomy, pathology, and medical history.

By the late 1970s and 1980s, the museum's collection had grown substantially, featuring both normal and pathological specimens preserved using advanced embalming and plastination techniques. During this period, the Pathology Section was introduced, transforming the museum from a purely anatomical collection into an integrated Museum of Anatomy and Pathology — a pioneering concept in India.

VISION: The museum's vision remains true to Dr. Menon's founding philosophy — to promote medical understanding through observation and preservation, bridging the gap between academic study and clinical practice. Its continuous evolution underlines MAHE's commitment to innovation, education, and the preservation of scientific heritage

Objectives:

1. To understand the structural organization of the human body through preserved anatomical specimens.
2. To observe and study the morphological changes in organs affected by various diseases.
3. To bridge the gap between theoretical learning and practical understanding of anatomy and pathology.
4. To learn about modern methods of specimen preparation and preservation.

Sections and Collections:

The museum is divided into several sections, each offering unique insights into human anatomy and pathology:

➤ **Anatomy Section:**

The museum's Anatomy Section features a vast array of human anatomical specimens, carefully preserved and categorized according to body systems — skeletal, muscular, nervous, cardiovascular, respiratory, digestive, reproductive, and urogenital.

- Human Skeletons and Disarticulated Bones: Displayed for osteological study and comparison.
- Gross Anatomical Specimens: Whole organs and body sections that demonstrate structural organization and interrelationships between organs.
- Dissected and Plastinated Models: These allow a detailed 3D understanding of human anatomy and are valuable for both teaching and self-directed learning.
- Developmental Anatomy Displays: Fetal specimens showing stages of human embryonic and prenatal growth

➤ **•Pathology Section:** The Pathology Section of MAP presents diseased and abnormal organs, offering a real-world perspective on pathological changes due to infection, malignancy, trauma, and metabolic disorders.

Organs Affected by Lifestyle Diseases: Such as cirrhotic livers, atherosclerotic arteries, emphysematous lungs, and renal stones.

- **Neoplastic Specimens:** Tumorous growths highlighting histopathological features.
 - **Congenital Abnormalities:** Specimens depicting developmental defects and genetic disorders.
- These exhibits help bridge the gap between normal and diseased anatomy, allowing a clearer understanding of clinical conditions..



- **Comparative Anatomy:** This section contains skeletal and organ specimens of animals, enabling comparison between human and non-human species.
 - Skeletons of Primates, Birds, and Reptiles showcase evolutionary and anatomical diversity.
 - Mounted Animal Organs demonstrate physiological adaptations among species. This comparative approach aids students in understanding evolutionary biology and structural-functional relationships.
- **Museum of Pharmacology:** This section displays specimens, charts, and models related to pharmacology, along with a section on the history of medicine.

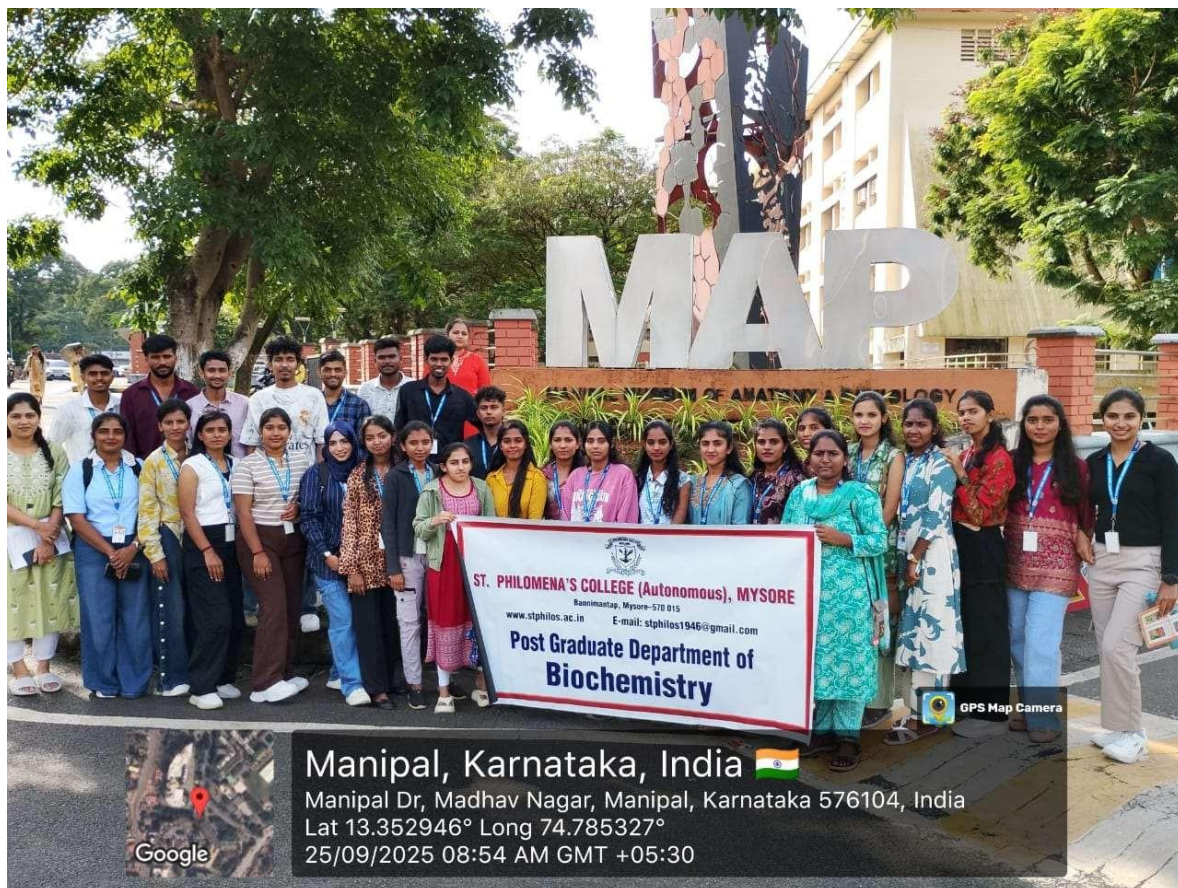
Museum of Forensic Medicine: MAP includes a Forensic Medicine Section displaying wax models, trauma-related specimens, and teratological anomalies.

- **Teratology Exhibits:** Rare congenital malformations such as anencephaly, conjoined twins, and limb deformities.
- **Forensic Models:** Educational wax models depicting injuries, poisoning, and pathological lesions .



Outcomes:

Overall, the visit was a great learning experience, allowing us to witness the complexity of anatomy and pathology.



Manipal College of Pharmaceutical Sciences (MCOPS)

**Institution Visited: Manipal College of Pharmaceutical Sciences (MCOPS),
Manipal Academy of Higher Education (MAHE), Manipal, Karnataka**

Date of Visit: 25 sept 2025

Time: 11:00 AM – 2:00 PM

1. Introduction

An educational departmental visit was organized to the Manipal College of Pharmaceutical Sciences (MCOPS), a constituent college of Manipal Academy of Higher Education (MAHE), which is recognized as one of India's premier institutions for pharmaceutical education and research.

MCOPS has consistently ranked among the top pharmacy institutions in the country and has a long tradition of excellence in teaching, research, and innovation. The institution is equipped with state-of-the-art laboratories, modern research facilities, and experienced faculty members who are actively engaged in research across various disciplines of pharmaceutical sciences.

The visit was intended to bridge the gap between theoretical classroom learning and practical understanding of pharmaceutical sciences by exposing students to real-time research and industrial practices.

2. Objectives of the Visit

The main objectives of the departmental visit were:

1. To gain insight into the structure and functioning of different departments within MCOPS.
2. To understand how modern instruments and techniques are applied in pharmaceutical research.
3. To observe experimental methods and analytical techniques used in drug development.
4. To interact with faculty members, Ph.D. scholars, and research scientists to understand their work and current projects.
5. To motivate students toward research and innovation in pharmaceutical sciences.
6. To learn about Good Laboratory Practices (GLP), safety protocols, and ethical research standards followed in MCOPS.

3. About the Institution



Manipal College of Pharmaceutical Sciences (MCOPS) was established in 1963 and is one of the earliest colleges under MAHE. The institution offers undergraduate, postgraduate, and doctoral programs in various branches of pharmaceutical sciences such as Pharmaceutics, Pharmacology, Pharmaceutical Chemistry, Pharmacognosy, Pharmaceutical Biotechnology, and Pharmacy Practice.

The college collaborates with several national and international research organizations and pharmaceutical industries, promoting an environment of innovation and discovery. MCOPS has advanced infrastructure including:

- Well-equipped laboratories
- Instrumentation centers
- Research wings for drug design and testing

- Animal experimentation facilities (as per CPCSEA guidelines)
- Herbal drug laboratories
- Clinical pharmacy practice labs

4. Departments Visited and Observations

a) Department of Pharmacology

Students observed experiments related to drug testing, animal models, and zebrafish assays used for behavioral and toxicity studies. The faculty explained how different drugs act on various physiological systems and how preclinical trials are carried out before clinical use. Students also learned about data recording, statistical analysis, and ethical guidelines for animal use in research.

b) Department of Pharmaceutics

This department focused on the formulation and development of dosage forms such as tablets, capsules, and topical preparations. Students observed machinery used in tablet coating, granulation, mixing, and dissolution testing. The importance of bioavailability, stability testing, and quality control in formulation design was highlighted.

c) Department of Pharmaceutical Chemistry

Here, students were introduced to analytical techniques used for drug identification and quantification. Instruments like HPLC (High-Performance Liquid Chromatography), UV-Visible Spectrophotometer, FTIR (Fourier-Transform Infrared Spectroscopy), and GC (Gas Chromatography) were demonstrated. The role of these instruments in purity testing, compound isolation, and chemical synthesis was explained in detail.

d) Department of Pharmacognosy

Students learned about the extraction, isolation, and characterization of natural compounds from medicinal plants. The department showcased the herbarium section and crude drug samples used for phytochemical analysis. Students were made aware of the importance of natural products and traditional medicine in modern drug discovery.

e) Department of Pharmaceutical Biotechnology

This section demonstrated cell culture techniques, microbial fermentation, and biotechnological applications in vaccine and enzyme production. The faculty discussed the development of recombinant proteins, biosimilars, and diagnostic kits.

5. Interaction with Faculty and Research Scholars

The visit included an interactive session with faculty members and research scholars. They shared their experiences in ongoing research areas such as:

- Drug delivery systems and nanotechnology
- Pharmacogenomics and molecular pharmacology
- Herbal and natural product research
- Clinical and hospital pharmacy practices

Students were encouraged to ask questions and were inspired to consider research and higher studies in pharmaceutical sciences. The interaction provided valuable guidance on academic opportunities, research funding, and project work possibilities.

6. INSTRUMENTS AND LABORATORIES



During our visit to the Manipal College of Pharmaceutical Sciences (MCOPS), Manipal Academy of Higher Education (MAHE), we observed several advanced and modern instruments used for teaching, research, and pharmaceutical analysis. These instruments play a crucial role in understanding drug formulation, analysis, pharmacological testing, and quality assurance.

Instruments Observed in the Pharmaceutics and Pharmaceutical Chemistry Laboratories:

1. Tablet Compression Machine – Used for preparing tablets and studying formulation parameters



2. Rotary Evaporator – For solvent removal and concentration of chemical solutions.
3. UV-Visible Spectrophotometer – To analyze the absorbance and concentration of drug samples.
4. High-Performance Liquid Chromatography (HPLC) – Used for separating, identifying, and quantifying compounds in a mixture.



5. Fourier Transform Infrared (FTIR) Spectrophotometer – Helps in identifying functional groups in chemical compounds.

6. Brookfield Viscometer – For measuring viscosity of pharmaceutical formulations.

7. Dissolution Testing Apparatus – To study the rate and extent of drug release from dosage forms.

8. Disintegration and Friability Test Apparatus – Used to check the mechanical strength and breakdown of tablets.





9. Laminar Air Flow Unit – For aseptic compounding and sterile preparations.

10. pH Meter and Conductivity Meter – To measure acidity/alkalinity and ionic strength of solutions.

Instruments Observed in the Pharmacology and Biotechnology Laboratories:

1. Animal Simulation Software – Used for studying pharmacological effects without using live animals.



2. Zebrafish Testing Setup – For drug screening and toxicity studies.
3. Centrifuge and Microscopes – For separating and observing biological samples.
4. Autoclave and Hot Air Oven – For sterilization and maintaining aseptic conditions.
5. Incubators and Shakers – Used for microbial culture growth and biochemical reactions.



CONCLUSION

The institutional visit to Manipal Academy of Higher Education (MAHE), along with its constituent centers — the Manipal Anatomy and Pathology (MAP) Museum and the Manipal College of Pharmaceutical Sciences (MCOPS) — was an enriching and insightful experience. The visit provided students with a comprehensive understanding of the integration of medical and pharmaceutical sciences within a multidisciplinary learning environment.

At MAHE, students witnessed an institution that embodies academic excellence, advanced research, and innovation in healthcare education. The exposure to its well-organized structure and research-driven environment broadened their perspective on higher education and professional growth.

The visit to the MAP Museum offered a unique opportunity to visually explore human anatomy and pathology. The vast collection of anatomical and pathological specimens deepened students' understanding of the human body, disease mechanisms, and the significance of pathology in medical and pharmaceutical studies.

The experience at MCOPS further enhanced this learning by connecting anatomy and pathology to pharmaceutical applications. Students observed modern laboratories, advanced instruments, and ongoing research in drug formulation, pharmacology, and biotechnology. The interaction with faculty and research scholars inspired them to pursue innovation, ethical research, and academic excellence in their future careers.

Overall, the combined visit to MAHE, MAP Museum, and MCOPS successfully bridged the gap between theoretical learning and practical exposure. It strengthened students' scientific curiosity, critical thinking, and appreciation for interdisciplinary collaboration in health sciences. The visit was truly motivating and has left a lasting impact on their academic and professional outlook.