Official Event Report: Department of MLT Workshop

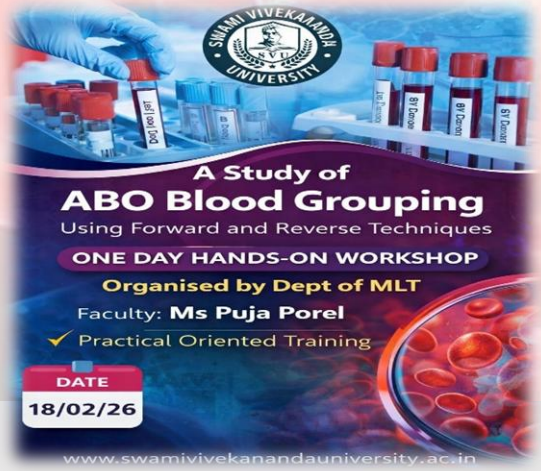
One-Day Hands-On Training Workshop on "A Study of ABO Blood Grouping Using Forward and Reverse Techniques"

Organized By: Department of Medical Laboratory Technology (MLT), Swami Vivekananda University
Date: 18th February 2026

Resource Person: Ms. Puja Porel (Faculty, Dept. of MLT)
Venue: Swami Vivekananda University Campus, Barrackpore

Event Summary

The Department of Medical Laboratory Technology (MLT) at Swami Vivekananda University successfully organized a specialized One-Day Hands-On Training Workshop titled "A Study of ABO Blood Grouping Using Forward and Reverse Techniques." Held on February 18, 2026, this event was meticulously designed to empower MLT students with advanced skills in Immunohematology.



Official Event Flyer of the One-Day Hands-On Workshop on ABO Blood Grouping

The primary objective of the workshop was to bridge the critical gap between theoretical knowledge of blood genetics and practical application in blood banking. By focusing on both Forward (Cell) Grouping and Reverse (Serum) Grouping, the session provided students with the essential know-how to ensure 100% accuracy in blood typing, which is vital for safe transfusions.

2. Inauguration & Theoretical Session

The session commenced with an in-depth theoretical lecture delivered by the resource person, Ms. Puja Porel. Utilizing the university's smart classroom facilities, Ms. Porel explained the biochemical basis of the ABO blood group system and Landsteiner's Law.

Key topics covered included:

- **Antigen-Antibody Reactions:** Understanding agglutination principles on the Red Blood Cell (RBC) surface.
- **Forward vs. Reverse:** The clinical necessity of performing "Reverse Grouping" to cross-check results and identify discrepancies.
- **Clinical Significance:** Prevention of hemolytic transfusion reactions and diagnosis of HDN (Hemolytic Disease of the Newborn).
-

Ms. Puja Porel explaining the principles of Forward and Reverse Grouping

3. Faculty Demonstration: Techniques & Safety

Following the theory session, the workshop transitioned to the laboratory. Ms. Puja Porel demonstrated the correct procedures for performing the tests under strict bio-safety conditions.

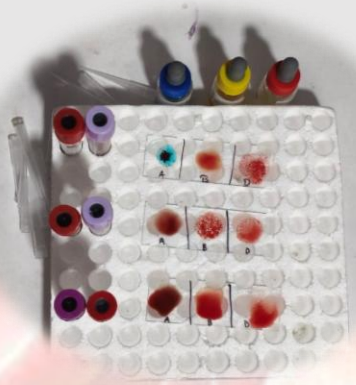
Resource Person Ms. Puja Porel demonstrating the preparation of Red Cell Suspension

She demonstrated the Tube Method (standard for blood banking) and the Slide Method, emphasizing:

- Preparation of a 5% Red Cell Suspension (RCS).
- Proper separation of serum for Reverse Grouping.
- Handling of antisera and biological samples with care.

4. Student Hands-On Participation

The core objective of the workshop was "learning by doing." Students were given the opportunity to handle blood samples personally. Under faculty supervision, they performed:



Visual observation of agglutination patterns on glass slides to determine ABO blood groups

- **Sample Processing:** Centrifuging blood samples to separate plasma/serum from red cells.
- **Forward Grouping:** Testing patient RBCs with Anti-A, Anti-B, and Anti-D antisera.
- **Reverse Grouping:** Testing patient serum against pooled A, B, and O cells to detect antibodies.

This segment allowed students to bridge the gap between textbook knowledge and real-world diagnostic procedures used in hospital blood banks.

A student is collecting blood to perform the test

5. Critical Analysis of Results & Interpretation

The workshop concluded with a rigorous evaluation of the experimental outcomes, where students actively engaged in interpreting the agglutination reactions.

- **Forward Grouping Observation:** Students observed clear agglutination (clumping) when the specific antigen on the RBC met its corresponding antibody in the reagent. This identified the antigen present (e.g., Clumping in Anti-A = A Group).
- **Reverse Grouping Findings:** Students examined the serum reaction. A positive reaction here confirmed the presence of the expected antibody (e.g., Anti-B antibody in Group A blood), serving as a vital cross-check.
- **Conclusion of Analysis:** The correlation between Forward and Reverse results confirmed the accuracy of the blood type. The clear visibility of agglutination in the tubes/slides validated the students' technique.

6. Conclusion

The One-Day Hands-On Training Workshop was a resounding success, marked by the enthusiastic and active participation of the MLT students. Beyond just a learning session, it served as a transformative platform for students to master the dual-technique approach of blood grouping.

Students and Faculty of the Dept. of MLT at the conclusion of the workshop

By personally performing both Forward and Reverse techniques, participants gained invaluable confidence in Immunohematology—skills that are indispensable for their future careers in medical diagnostics. The event concluded with a vibrant group photograph, capturing the collective academic spirit.