One-Day Hands-On Training on Phlebotomy and Widal Test

Organised By: Department of Medical Laboratory Technology (MLT), Swami Vivekananda University

Date: February 27, 2026

Resource Person: Mr Soumadip Sur (Faculty, Dept. of MLT)

Nature of Event: Practical-Orientated Training

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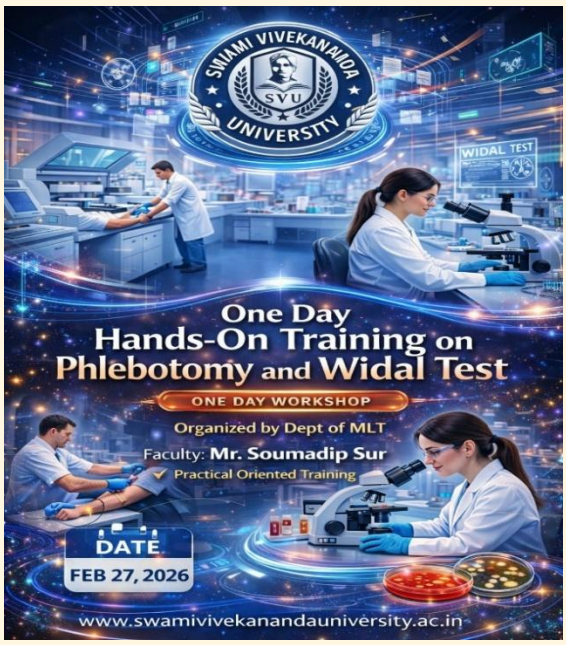
1. Introduction & Academic Objective

The Department of Medical Laboratory Technology (MLT) at Swami Vivekananda University successfully hosted a highly comprehensive "One-Day Hands-On Training on Phlebotomy and Widal Test" on February 27, 2026. Aligned with the university's vision of fostering industry-ready healthcare professionals, the primary objective of this intensive, practical-orientated training was to seamlessly bridge the critical gap between pre-analytical procedures (safe and sterile sample collection) and analytical procedures (precise serological testing).



Official Flyer for the One-Day Hands-On Training Workshop on Phlebotomy and the Widal Test

In the realm of clinical pathology, accurate phlebotomy serves as the absolute cornerstone of reliable diagnostics; even the slightest pre-analytical error—such as sample haemolysis or incorrect tube selection—can severely compromise subsequent test results. By mastering these sophisticated blood collection techniques, students ensure the optimal integrity of the clinical samples. Furthermore, the workshop focused heavily on the Widal test, which remains a vital, rapid, and widely used serological tool for diagnosing enteric (typhoid) fever in endemic regions. By integrating these two fundamental aspects, the session empowered students to understand and execute the complete diagnostic workflow—from the moment a patient sits in the phlebotomy chair to the final interpretation of antigen-antibody agglutination in the laboratory.

2. Session 1: The Art and Science of Phlebotomy

The workshop commenced with an expert-led session by **Mr Soumadip Sur**, focusing on the strict protocols of venous blood collection.

Enthusiastic MLT students with faculty member Mr Soumadip Sur during demonstration of the test procedure

- **Patient Preparation & Vein Selection:** Students were taught how to ensure patient comfort and correctly identify the median cubital, cephalic, and basilic veins using proper palpation techniques.
- **Aseptic Techniques & Equipment:** The faculty demonstrated the 'concentric circle' method for sanitising the puncture site. Detailed instructions were provided on the correct usage of evacuated tube systems (Vacutainers), standard syringes, and butterfly needles.

- **The "Order of Draw":** A crucial part of the lecture was explaining the standard "Order of Draw" to prevent cross-contamination of additives between blood collection tubes, a common source of pre-analytical error in laboratories.
- **Hands-On Venipuncture:** Under strict supervision, students donned their PPE and performed live venipuncture on training arms/volunteers. They practised correct tourniquet application (not exceeding one minute), maintaining the ideal 15-30° needle insertion angle, and proper post-puncture care.
- **Biomedical Waste Management:** The session concluded with rigorous training on the segregation of biomedical waste, specifically the safe disposal of sharps and needles in puncture-proof containers.

Mr Soumadip Sur guiding students through the precise steps of safe venipuncture and the correct 'Order of Draw'

3. Session 2: Serological Diagnosis via Widal Test

In the second half of the workshop, students transported the collected blood samples to the serology lab to perform the Widal test.

- **Sample Processing:** Students learned how to operate the centrifuge machine to separate high-quality, haemolysis-free serum from the clotted blood samples, which is essential for accurate serology.
- **Principle of Agglutination:** Mr Soumadip Sur explained the immunological principle behind the test—detecting the presence of specific antibodies in the patient's serum that

react against the 'O' (somatic) and 'H' (flagellar) antigens of *Salmonella enterica* serotype Typhi and Paratyphi.

- **Performing the Rapid Slide Method:** Students pipetted precise microlitre volumes of the separated serum onto designated circles on the glass test slides. They carefully added drops of the commercially prepared antigen suspensions (O, H, AH, BH) and used separate applicator sticks to mix them thoroughly.
- **Rocking and Observation:** The slides were gently rocked for exactly one minute. Students were trained to observe the macroscopic clumping (agglutination) under a proper light source.

MLT students performing the rapid slide agglutination method to detect Salmonella antibodies

4. Clinical Interpretation & Discussion

The practical session was followed by a critical clinical discussion. Students learned how to interpret the agglutination patterns. Mr Soumadip Sur explained the significance of antibody titres and discussed potential pitfalls such as cross-reactivity, the 'prozone phenomenon', and the importance of baseline titres in endemic areas.

5. Conclusion

The practical-orientated training was a resounding success. By independently executing the entire workflow—from safely drawing the blood to delivering a serological diagnosis—the MLT students gained immense confidence.

Enthusiastic MLT students with faculty member Mr Soumadip Sur at the successful conclusion of the workshop

This hands-on workshop perfectly aligned with Swami Vivekananda University's mission to produce highly skilled, industry-ready laboratory technologists who prioritise patient safety and diagnostic accuracy.

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