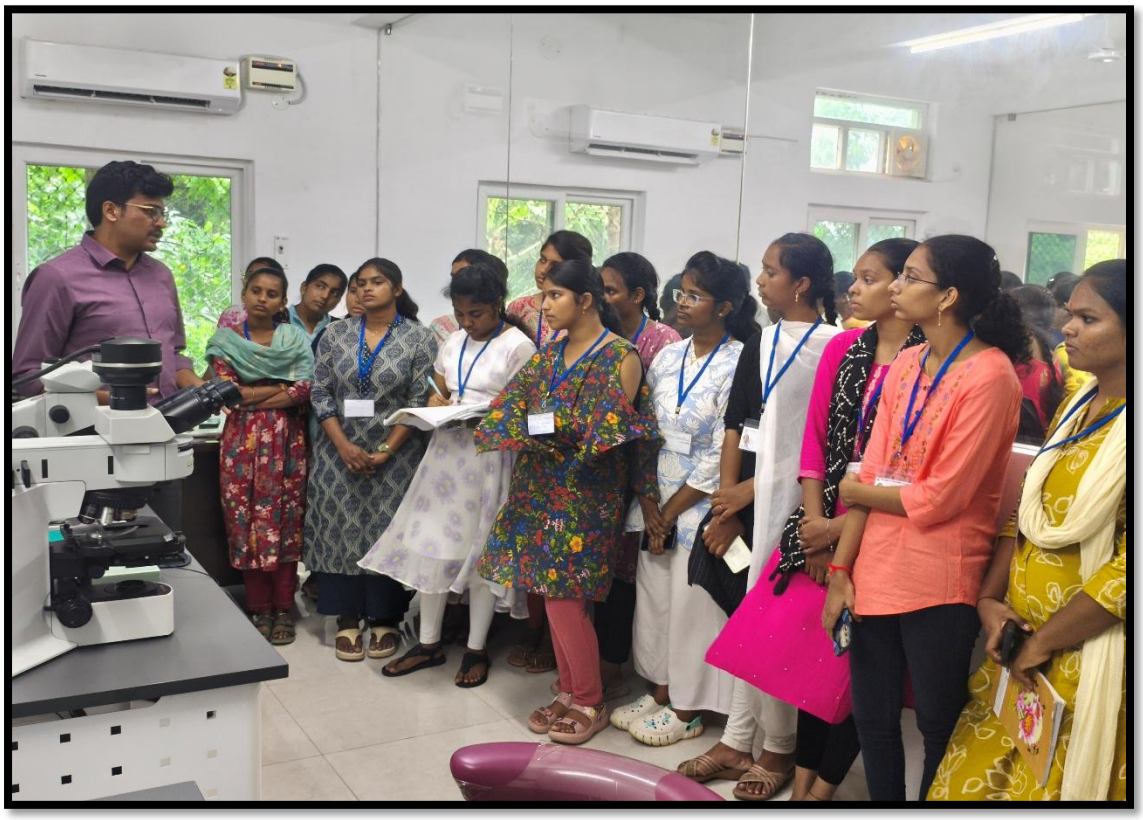
B.V. RAJU COLLEGE (A)

VISHNUPUR, BHIMAVARAM

DEPARTMENT OF LIFE SCIENCES

VISHNU
UNIVERSAL LEARNING

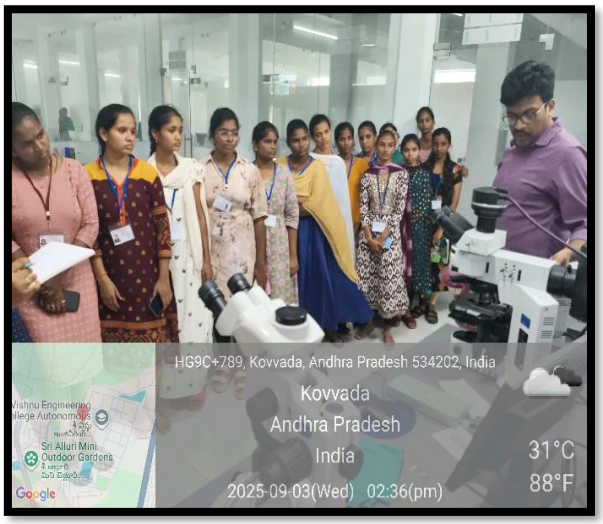


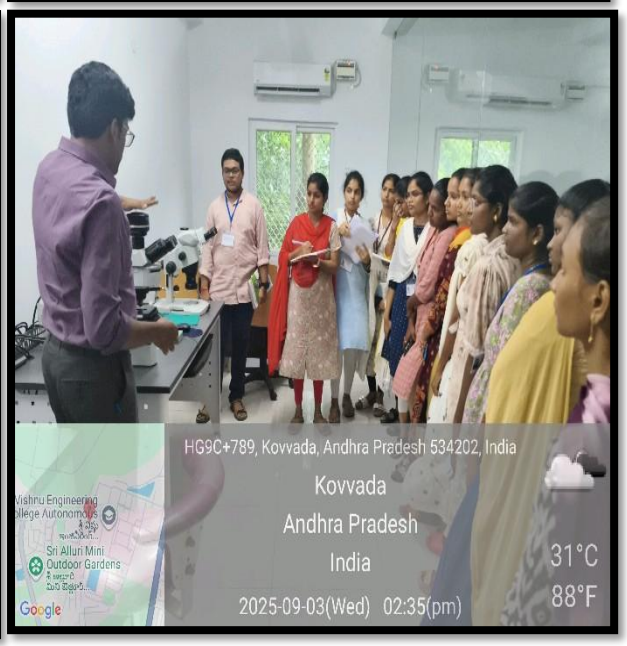
DENTAL VISIT 2025-2026

On03-09-2025 I year BSc life science students (microbiology, biochemistry, biotechnology) visited histopathology laboratory in Vishnu dental college. Students learn about various techniques like importance and working principle of high-resolution Stereo microscopes, biopsy procedure and staining techniques like fixation, processing usage of paraffin wax, role of haematoxylin and eosin and impregnation, role of microtome for section cutting process

STERIO MICROSCOPE & FLOUROSCENE MICROSCOPE

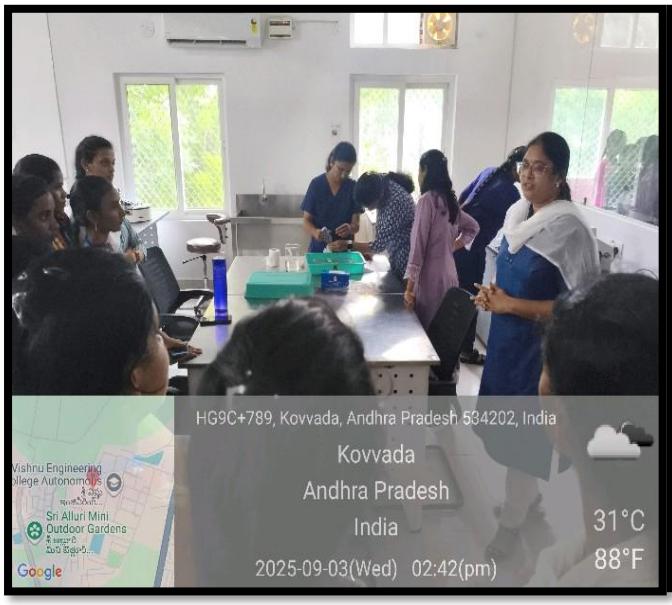
Dr. Karthik sir explained Research microscopes are used to identify cancer cells and other cellular structures. They can magnify up to 1000 times, allowing us to observe particles and fine details of cells. Stereo microscopes, on the other hand, are used to zoom and observe structures up to 110–120 times magnification but are not suitable for measuring details. Specialized microscopes such as fluorescence microscopes and bright field microscopes are also used; fluorescence microscopes use fluorescent bulbs lasting about 200 hours. Software connected to imaging systems helps measure gaps and analyse tissues more accurately.

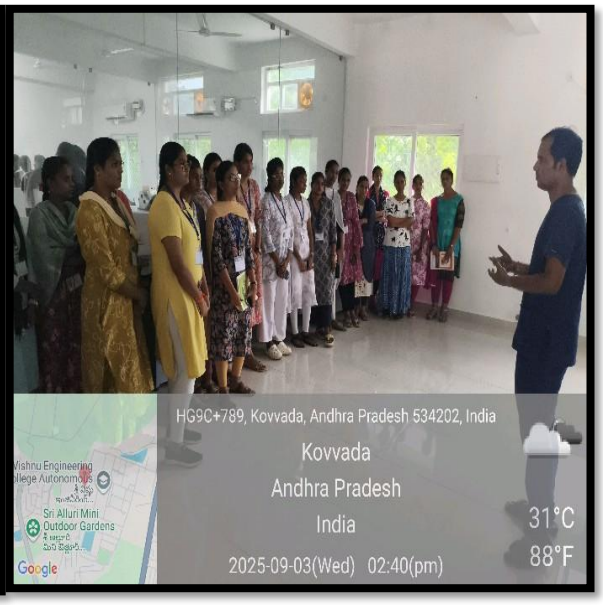




BIOPSY PROCESS

Biopsy is the process of taking a piece of tissue for examination. In microanatomy, tissues are cut into very thin slices (around 3 microns) so that they can be studied under a microscope. The cutting is done either manually, by adjusting the thickness, or with the help of a microtome, which can be manual or automatic. In automatic systems, all data is fed into the instrument. The tissue is usually preserved overnight in a fixative, filled with wax (embedding), cooled, and then cut into thin slices. These slices are placed in a water bath (to maintain temperature), transferred to slides, warmed, and then stained for study.





In immunohistochemistry labs, tissues are processed to identify specific proteins using antibodies. The steps include fixation, dehydration, embedding in paraffin wax, sectioning, and staining (commonly H&E staining). Tissue samples can be excisional (removal of the entire lesion) or incisional (removal of a small part). This helps in distinguishing between benign (non-harmful) and malignant (harmful) tumours. Formalin is commonly used to store tissues, as it helps preserve cellular integrity. The processing of tissue involves fixation, dehydration (removing water using alcohol), embedding, sectioning, and staining, which together allow for pathological diagnosis