



**MANGALORE UNIVERSITY**  
**MSc Medical Physics**

**MPP 458: Medical Physics Practical-V (4hr in a week)**

**Objective:**

To provide practical knowledge on interaction of ionising radiation with matter, their properties and to familiarise absorption of different kinds of radiations with different materials.

**Outcomes:**

Students will be able to:

- Design experiments to study and understand the radiation absorption properties, absorption coefficients and shielding of ionising radiations,
- Calibrate equipment used for diagnosis and therapy using ionising radiations.
- Prepare treatment planning using ionising radiations,
- Distinguish different kinds of radiations.

**List of experiments:**

1. Determination of half-value thickness (HVT) and linear attenuation coefficient ( $\mu$ )
2. Cross calibration of a therapy level dosimeter against calibrated ion chamber
3. Teletherapy manual treatment planning procedures for open field for various beam combination, beam modifier and inhomogeneity correction
4. Study of timer linearity of radiotherapy equipments – Telecobalt HDRBT
5. Characteristics of a radiographic film and image
6. To study the absorption of radiation by solvents and to determine the counting errors originating from sample geometry.
7. To determine absorption coefficients of biological tissues with  $\beta$  and  $\gamma$  radioactive sources of different energies.
8. To study the change in activity of a sample consisting of two independently decaying radioisotopes.

**Additional experiments may be added**