PHY 683 - Experimental Methods in Radiation Physics

Course Code & Number	Course Name	C.H.	Lec.	Lab.	Tut.
PHY 683	Experimental Methods in Radiation Physics	4	2	4	0

Syllabus

Hands-on exploration of concepts in Radiation Physics. Experiments including:

1. Determination of half-value thickness and linear attenuation coefficient of porous media.
2. Verification of inverse square law.
3. Determination of plateau and resolving time of a GM counter and its application in measurement of beta source activity.
4. Range of beta particles measurement.
5. Study of voltage and current characteristics of an ion chamber.
6. Statistics of radioactive counting.
7. Calibration check of survey instrument and pocket dosimeters.
8. Calibration TL phosphor & TLD reader and its use in dose distribution measurements.
9. Calibration of a TLD personnel monitoring badge, dose evaluation and risk estimate.
10. Characteristics of a flow counter and beta activity measurement.
11. Measurement of leakage/stray radiation.
12. Determination of percentage depth dose of high energy photon beams and electron beams.
13. Preparation and standardization of sealed sources/unsealed sources.
14. Study of linearity of dose monitoring system of linear accelerator.
15. Quality assurance test procedures of radiation physics.

References

- G.F. Knoll. Radiation Detection and Measurement, 4th Edition, John Wiley & Sons, 2012.
- G.R. Gilmore, Practical Gamma-ray Spectrometry, 2nd Edition, John Wiley & Sons, Ltd., 2008.