

SPH 436: BIOMEDICAL & RADIOMETRICS LABORATORY

Coordinator

Dr H. K. Angeyo

ABOUT THE COURSE

This is a special course that runs through the year and consists of two sections. The first part consists of **Guided Study of the Literature, Technique and Data Analysis and Interpretation** (during which time the students do the experiments with the main objective to solve a simple problem in the **Applications of Radiation and/ Imaging Techniques**) for two weeks and submit an extended report (written in the form of a scientific paper) outlining the goal, methodology and results and discussion of the experiments, conceived around the technique/or related group of techniques. The emphasis will be on biomedical applications so the experiments can support SPH 434: Radiotherapeutic and Imaging Techniques. These reports (4 every semester) will be examinable out of **60** marks each.

The second part will be a guided study towards sitting an examination from **any 3** of the topics from which the experiments are drawn. Candidates will be required to answer **2 questions** of **20** marks each from among **3**. The lecturers in charge are responsible for referencing and planning of the experiments, setting the goals, deliverables, supervision and marking of the assigned laboratory. They will also discuss the topics with, and guide students on the aspects of report writing, scientific methods, data analysis and interpretation. Each topic lasts 18 hours of practical sessions for 2 weeks.

List of Laboratory Experiments

	Experiment	Department	Lecturer in Charge	Semester
1	XRF Spectrometry	INST	Ms R. Wabwile	1
2	NaI(Tl)-based Gamma Ray Spectrometry (SCA)	Physics	Ms R. Wabwile	1
3	HPGe-based Gamma Ray Spectrometry (MCA)	INST	Dr H. K. Angeyo	2
4	Nuclear Magnetic Resonance (NMR)	Chemistry	Dr H. K. Angeyo	2
5	Fourier Transform Infrared Spectroscopy	Chemistry	Dr A. Dehayen-Massop	2
6	Liquid Scintillation Counting	Chemistry	Dr H. K. Angeyo	2
7	Hydrogen Spectrum	Physics	Dr S. Mureramanzi	1
8	Image Processing	Physics	Dr K. A. Kaduki	2
9	Multispectral Imaging Microscopy	Physics	Dr K. A. Kaduki	1
10	Neutron Activation Analysis	INST	Ms R. Wabwile	2
11	Laser Induced Breakdown Spectrometry	Physics	Dr A. Dehayen-Massop	1
12	UV-VIS-NIR Spectrometry	Physics	Dr S. Mureramanzi	1
13	Monte Carlo Simulation using MCPN	Physics	Dr H. K. Angeyo	2
14	Nuclear Electronics	INST/Physics	Dr H. K. Angeyo	1
15	Detector Efficiency Calibration	INST/Physics	Ms R. Wabwile	2
16	Laser Raman Spectromicroscopy	Physics	Dr H. K. Angeyo	2