



GOVERNMENT OF JAMMU & KASHMIR
SHER-I-KASHMIR INSTITUTE OF MEDICAL SCIENCES
SOURA SRINAGAR

**Syllabus for Assistant Professor Posts of
the Department of Nuclear Medicine,
SKIMS, SOURA.**

Syllabus for acquiring faculty position in Nuclear Medicine.

1. Instruments for Radiation detection and Measurement.
2. Health Physics Equations & Uses.
3. Nuclear Counting statistics & Calculations.
4. Radioactivity Measurement & Counting Statistics.
5. Calculation involved with Medical Decisions.
6. Tracer Kinetic Modeling.
7. Internal Radiation Dosimetry & Calculations.
8. Principles of Radiation Protection, Personnel Monitoring.
9. Area Monitoring (Personnel & Work Environment).
10. Radioactive Packages & Radioactive waste disposal.
11. Interaction of Radiation with Emphasis on biological System.
12. Cell Survival curves & Cellular Responses.
13. Effects on Nucleic Acids & Radiation Genetics (Hereditary Effects).
14. Whole body Effects of Ionizing Radiation (Embryo & Foetus).
15. Gamma Camera-Basic Principles & QC.
16. SPECT-Basic Principles.
17. Pulse Height Spectrometry.
18. PET- Physics & Basics Principles.
19. Molybdenum (Mo^{99}) Technetium ($\text{Tc}^{99\text{m}}$) Generator.
20. Germanium -68 (Ge^{68}), Gallium – 68 (Ga^{68}) Generator.
21. Strontium (Sr^{82}) Rubidium (Rb^{82}) Generator.
22. Strontium 90 (Sr^{90}) Yttrium 90 (Y^{90}) Generator.
23. Radium 224 (Ra^{224}) Lead 212 (212) Generator.
24. Cyclotron – Basics Principles & Physics.
25. General Physiochemical Properties of Radioactive Compounds.
26. Properties of Radiopharmaceuticals.
27. Radiolabelled Blood Cells & Receptor specific Radionuclide's .
28. Prepared Radiopharmaceuticals.
29. Positron Emitting Radionuclide's.
30. Criteria for the selection of Appropriate Radiopharmaceuticals.
31. In vivo kinetics of Radiopharmaceuticals & Design of Nuclear Pharma.
32. ICRP & AERB
33. Specific Nuclear Medicine Procedures, introduction.
34. Nuclear Oncology.
35. Nuclear Endocrinology.
36. Nuclear neurology.
37. Nuclear Nephrology.
38. Nuclear Cardiology.
39. Nuclear Gastroenterology
40. Skeletal Scintigraphy.

- 41 Radioiodine Therapy.
42. Lu – DOTATATE therapy.
43. Lu – PSMA Therapy.
44. Alpha Therapy
45. Theranostics.
46. TARE (Trans Arterial Radio embolizatio).
- 467 Artificial intelligence in Nuclear Medicine
48. Synovectomy (Therapeutic).
- 49 Palliation Therapy (Bone Pain)
50. Image Quality in Nuclear Medicine.
- 51 Computers in Nuclear Medicine Image Processing.
52. Tomographic Reconstruction in Nuclear Medicine.
53. SPECT (Recent Advances).
54. PET (Recent Advances).
55. PET MRI.