7. Physics of radiation biology. Basic concepts of dosimetry. Biological effects of ionizing radiaton.

Kinds of ionizing radiation. Decay law. Background radiation. Basic concepts of dosimetry. Direct and indirect theories.

8. Radiation effects on the molecular, cellular and tissue levels.

Effects on DNA. Effects of radiation on the enzymes. Effects on cellular level. Fate of irradiated cells. Effects on tissue level: hematopoietic, reproductive, gastrointestinal, central nervous systems, eyes, skin.

9. Total body radiation syndromes. Radioprotectors.

Acute radiation syndromes (bone marrow, gastrointestinal, CNS). Phases. Hematological response. Treatment. Radioprotectors.

10. Radiotoxicology. Radiation dermatitis.

Models of internal dosimetry. Radioisotopes. Treatment of internal contamination. Iodine prophylaxis. Radiation dermatitis.

11. Late effects of radiation – somatic and genetic.

Carcinogenesis. Radon exposure. Genetic effects. Radiation damage of the fetus.

12. Nuclear radiation accidents. Protective actions after nuclear accidents.

Nuclear fuel cycle. Factors influencing morbidity and mortality. Potential health effects. Protective action after nuclear accident.

14. Pre-hospital care. Medical and rescue teams. Crush syndrome.

15. Disaster management. Advanced medical post. Triage.