RADIATION MEDICINE

Guidelines for the 2nd year students (Faculty for International Students)

LESSON № 4: NATURAL SOURCES OF IONIZING RADIATION. RADIATION BACKGROUND EXPOSURE OF THE EARTH

THE AIM: to get acquainted with the main natural sources of radiation;
to study the main reasons for the increase of human exposure through natural radiation sources;
to master the principle of work МКС-АТ 1125 to measure the exposure dose;
to perform laboratory work.

DURATION: 3.0 hours.

PLACE: student's workshop.

EQUIPMENT: methodical grant, tables, PowerPoint presentation, tasks according to the topic.

Required theoretical knowledge

1. Radiation background exposure of the Earth: its components and their contribution to the annual effective dose of radiation.
2. Natural background exposure of the Earth: its components and their contribution to the annual effective dose of radiation.
3. Radionuclides that form the main exposure on the organism: U-238, Th-232, Ra-226, Rn-222, Po - 210, Bi-210.
4. Radon, its sources and conditions of exposure.
5. Natural radionuclides which are not included in the radioactive series. The value of K-40 in the formation of exposure on the population in the Republic of Belarus.
6. Technologically changed background radiation.
7. Nuclear power development in the world. Characteristics of the main reactor types. Nuclear fuel cycle: concept, stages.
8. Contribution of medical sources of ionizing radiation to the formation of radiation doses for nationality of the Republic of Belarus.

Laboratory (individual) work of students

1. Get acquainted with the principle of work МКС-АТ 1125

Literature

Basic:

1. Radiation medicine : учебное пособие для иностранных студентов учреждений высшего образования : допущено Министерством образования Республики Беларусь / А.Н. Стожаров [и др.]; под ред. А.Н. Стожарова. – Минск: Новое знание, 2020. – 203 с.

Additional:

1. Мойсеёнок, Е.А. Лекции по радиационной медицине (в таблицах) = Lectures on Radiation Medicine (in tables): пособие для студентов факультета иностранных учащихся (на английском языке) [изд. на CD-дисках] / Мойсеёнок Е.А. – Электрон. текст. дан. и прогр. (объем 29 Мб). – Гродно: ГрГМУ, 2012. – 1 электрон. опт. диск (CD-ROM).