

# **RADIATION MEDICINE**

Guidelines for the 2<sup>nd</sup> year students (Faculty for International Students)

## **LESSON №6: RADIATION INJURY OF THE HUMAN ORGANISM. DETERMINISTIC AND STOCHASTIC EFFECTS OF IRRADIATION**

**THE AIM:** to get acquainted with the medico-biological effects of radiation;  
to study the association of dose with the degree of severity of the clinical syndromes;  
to master the principle of working with alpha - and beta, gamma – spectrometer;  
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. The factors that determine the lesions of the body. The concept of "critical organ".
2. Characteristics of bone - marrow syndrome: pathogenesis, phases, causes of the organism death.
3. Characteristics of gastrointestinal syndrome: pathogenesis, causes of the organism death.
4. Characteristics of cerebral syndrome: pathogenesis, causes of the organism death.
5. Deterministic effects of irradiation: concept, types, dependence on the irradiation dose, period of development, characteristic effects, pathogenesis.
6. Stochastic effects of irradiation: concept, types, dependence on the radiation dose, period of development, characteristic effects, pathogenesis.
7. The concept of «small doses» of ionizing radiation. The effects of «small doses» of ionizing-radiation on the human body.

### **Laboratory (individual) work of students**

1. Get acquainted with the principle of work alpha - and beta - spectrometer MKC-AT1315.

### **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).
2. Radiation and Ecological Medicine: Electronic Educational and Methodological Complex. Access: <http://edu.grsmu.by/course/view.php?id=99>