

AMENDMENTS AND CHANGES TO THE CURRICULUM IN THE EDUCATIONAL DISCIPLINE
«RADIATION MEDICINE AND ECOLOGY»
for the specialty 7-07-0911-01 «General Medicine»
for 2026/2027 academic year

Amendments and changes	Basis/Reason
Use in the educational process as the basic (main) literature: 1. Radiation medicine : textbook for foreign students of higher education institutions in medical specialties / A. N. Stozharov [et al.]; edited by A. N. Stozharov. – Minsk: Novoe znanie, 2020. – 205 p.	Department meeting (protocol # 10 of 28 May 2026)
Changes have been introduced into the Thematic Plan and into the Educational Discipline Curricular Chart (attachment #1 and #2)	Department meeting (protocol # 10 of 28 May 2026)
Form of practical skills control for practical skills «6. Assessment of the level of pollution in the atmospheric air», «8. Assessment of the level of pollution in drinking water», «11. Assessment of the electromagnetic environment in the room», «14. Evaluation of the ambient dose equivalent rate of roentgen and gamma radiation» and «17. Measurement of an individual equivalent dose» add the words «checking laboratory measurement protocols»	Department meeting (protocol # 10 of 28 May 2026)

The curriculum is revised and approved at the department meeting of the department of Radiation Medicine and Ecology (protocol # 10 of 28 May 2026)

Head of the department
of Radiation Medicine and Ecology

A.R. Avetisov



APPROVED

Dean of the Medical Faculty for International Students

O.S. Ishutin



THEMATIC PLAN

Section (topic) name	Number of class hours	
	lectures (incl. SSIW)	laboratory
1. Ecological Medicine	9	34
1.1. Fundamentals of environmental medicine. Environmental factors	1,5	2
1.2. Effect of physical factors on the human body and health		6
1.3. Effect of chemical factors on the human body and health	1,5	2
1.4. Effect of biological factors on the human body and health		2
1.5. Heredity and environment		2
1.6. Environmental and medical consequences of air pollution	1,5	4
1.7. Environmental and medical consequences of hydrosphere pollution		4
1.8. Effect of the state of the lithosphere and the quality of food on population health	1,5	4
1.9. Medical aspects of the influence of the indoor environment on human health	1,5	4
1.10. Monitoring the environment and public health	1,5	2
1.11. Regulatory legal framework for environmental protection		2
2. Radiation Medicine	12	34
2.1. Effects of ionizing radiation	3	6
2.2. Public exposure of humans. Background radiation levels	1,5	4
2.3. Chernobyl Accident		4
2.4. Biomedical consequences of irradiation. Radiosensitivity	1,5	2
2.5. Deterministic and stochastic effects of radiation	1,5	4
2.6. Radiation injuries to humans	1,5	4
2.7. Radiation safety	1,5	4
2.8. Reduction in radiation burden on population	1,5	6
Total hours	21	68

ACADEMIC DISCIPLINE CURRICULAR CHART

Section, topic #	Section (topic) name	Number of hours		Supervised student work	Literature	Practical skills	Form of control	
		lectures	laboratory				of practical skills	of current / intermediate assessment
	4th semester							
	Ecological Medicine	6	-	3				
1.1.	Basics of environmental medicine. Environmental factors. Effect of physical factors on the human body and health	1,5	-	-	8			
1.2.								
1.3.-1.5.	Effect of chemical factors on the human body and health. Effect of biological factors on the human body and health. Heredity and environment	-	-	1,5	8			Interviews, preparation and presentation of abstracts
1.6.	Environmental and medical consequences of air pollution. Environmental and medical consequences of hydrosphere pollution	1,5	-	-	8			
1.7.								
1.8.	Effect of the state of the lithosphere and the quality of food on population health	1,5	-	-	8			
1.9.	Medical aspects of the influence of the indoor environment on human health	-	-	1,5	8			Interviews, preparation and presentation of abstracts

1.10.	Monitoring the environment and public health. Regulatory legal framework for environmental protection	1,5	-	-	8			
1.11.	Laboratory lessons	-	34	-				
1.1.	Fundamentals of environmental medicine. Environmental factors. Environmentally dependent morbidity of the population. Lab.w.: «Human adaptation to environmental factors»	-	2	-	2, 3, 4, 8	Human adaptation to environmental factors	Account on laboratory work	Express-interview, electronic tests, reporting and defense of the essays
1.2.	Environmental factors. Effect of physical factors on the human body and health: the influence of the visible region of the solar spectrum and illumination on the human body. Lab.w.: Assessment of the risk of seasonal emotional disease»	-	2	-	4, 8	Assessment of the risk of seasonal emotional disease	Account on laboratory work	Express-interview, electronic tests, reporting and defense of the essays
1.2.	Effect of physical factors on the human body and health: human health effect of ultraviolet radiation (UVR). Lab.w.: «Evaluation of the type of skin sensitivity to UV radiation. Assessment of risk for skin malignancy»	-	2	-	4, 8	Evaluation of the type of skin sensitivity to UV radiation. Assessment of risk for skin malignancy	Solving situational problems*	Express-interview, electronic tests, reporting and defense of the essays
1.2.	Effect of physical factors on the human body and health: Geomagnetic factors. Weather sensitivity. Lab.w.: «Biological rhythms. Calculation of the daily rhythm of human temperature and pulse»	-	2	-	4, 8	Biological rhythms. Calculation of the daily rhythm of human temperature and pulse	Account on laboratory work	Express-interview, electronic tests, reporting and defense of the essays
1.3.	Effect of chemical factors on the human body and health. Lab.w.: «Epidemiological studies of the populations exposed to xenobiotics using the «case-control» method»	-	2	-	4, 8	Epidemiological studies of the populations exposed to xenobiotics	Account on laboratory work	Express-interview, electronic tests, reporting and defense of the essays
1.4.	Effect of biological factors on the human body and health	-	2	-	4, 8			Express-interview, reporting and defense of the essays

1.5.	Hereditry and environment. The role of genetic factors in the occurrence of environmentally dependent human pathology	-	2	-	4, 8			Express-interview, electronic tests, reporting and defense of the essays, colloquium*
1.6.	Environmental and medical consequences of air pollution. Factors and sources of air pollution. Global and local environmental consequences of air pollution. Lab.w.: «Assessment of ozone level in ambient air»	-	2	-	4, 8	Assessment of the level of pollution in the atmospheric air	Account on laboratory work	Express-interview, electronic tests, reporting and defense of the essays
1.6.	Environmental and medical consequences of air pollution. Medical consequences of air pollution. Acute and chronic effects of pollutants on the human body. Lab.w.: «Assessment of non-carcinogenic risks due to air pollution»	-	2	-	4, 8	Assessment of non-carcinogenic risks due to air pollution	Solving situational problems	Express-interview, electronic tests, reporting and defense of the essays
1.7.	Environmental and medical consequences of hydrosphere pollution. Factors and sources of hydrosphere pollution. Global and local environmental consequences of hydrosphere pollution	-	2	-	4, 8			Express-interview, electronic tests, reporting and defense of the essays
1.7.	Environmental and medical consequences of hydrosphere pollution. Medical consequences of hydrosphere pollution. Acute and chronic effects of pollutants on the human body. Lab.w.: «Quantitative estimation of sulfates level in drinking water»	-	2	-	4, 8	Assessment of the level of pollution in drinking water	Account on laboratory work	Express-interview, electronic tests, reporting and defense of the essays
1.8	Effect of the state of the lithosphere and the quality of food on population health. Factors and sources of lithosphere contamination. Migration of xenobiotics in the Biosphere	-	2	-	4, 8			Express-interview, electronic tests, reporting and defense of the essays
1.8.	Effect of the state of the lithosphere and the quality of food on population health. Characteristics of food products. Preventive practices addressing potential adverse effects of xenobiotics ingested with foods.	-	2	-	4, 8	Food composition assessment	Account on laboratory work	Express-interview, electronic tests, reporting and defense of the essays

	Lab.w.: «Food composition assessment»								of the essays, colloquium*
1.9.	Medical aspects of the influence of the indoor environment on human health. Ecological characteristics of the environment of residential and public premises. Lab.w.: «Assessment of the environmental cancer risk»	-	2	-	4, 6, 8	Assessment of the environmental cancer risk	Solving situational problems*	Express-interview, electronic tests, reporting and defense of the essays	
1.9.	Medical aspects of the influence of the indoor environment on human health. Non-ionizing electromagnetic radiation as a factor of the indoor environment. Lab.w.: «Assessment of the electromagnetic environment in the room»	-	2	-	4, 8	Assessment of the electromagnetic environment in the room	Account on laboratory work	Express-interview, electronic tests, reporting and defense of the essays	
1.10.	Monitoring of the environment and the health status of the population	-	2	-	8			Express-interview, electronic tests, reporting and defense of the essays	
1.11.	Regulatory and legal foundation of environment protection	-	2	-	8			Express-interview, electronic tests, reporting and defense of the essays. Credit*	
	5th semester								
	Lectures	9	-	3					
2.1.	Effects of ionizing radiation	1,5	-	1,5	1, 8			Interviews, preparation and presentation of abstracts	
2.2.	Public exposure of humans. Background radiation levels. Chernobyl Accident	1,5	-	-	1, 8				
2.4.	Biomedical consequences of irradiation. Radiosensitivity	1,5	-	-	1, 8				
2.5.	Radiation injuries to humans	1,5	-	-	1, 8				

2.6.	Deterministic and stochastic effects of radiation	-	-	1,5	1, 8			Interviews, preparation and presentation of abstracts
2.7.	Radiation safety	1,5	-	-	1, 8			
2.8.	Reduction in radiation burden on population	1,5	-	-	1, 8			
	Laboratory lessons	-	34	-				
2.1.	Effects of ionizing radiation. Physical basis of the action of ionizing radiation. Laboratory work: «Calculation of the percentage of radionuclides after an accidental release»	-	2	-	1, 8	Calculation of the percentage of radionuclides after an accidental release	Solving situational problems	Express-interview, electronic tests, reporting and defense of the essays
2.1.	Effects of ionizing radiation. The effects of ionizing radiation on the biological objects. Laboratory work: «Calculation of the time required to achieve a given activity in environmental objects»	-	2	-	1, 5, 8	Calculation of the time required to achieve a given activity in environmental objects	Solving situational problems	Express-interview, electronic tests, reporting and defense of the essays
2.1.	Effects of ionizing radiation. Methods of ionizing radiation registration. Introduction to dosimetry	-	2	-	1, 5, 8			Express-interview, electronic tests, reporting and defense of the essays
2.2.	Public exposure of humans. Background radiation levels. Natural background radiation	-	2	-	1, 8			Interviews, electronic tests, reporting and defense of the essays
2.2.	Public exposure of humans. Background radiation levels. Technologically modified radiation background. Laboratory work: «Evaluation of the ambient dose equivalent rate of roentgen and gamma radiation by the MKC-6130A dosimeter-radiometer»	-	2	-	1, 8	Evaluation of the ambient dose equivalent rate of roentgen and gamma radiation	Account on laboratory work	Express-interview, electronic tests, reporting and defense of the essays
2.3.	Chernobyl accident. Radiation accidents: concept, stages of evolving. Formation of population radiation doses during and after a radiation accident. Laboratory work: «Evaluation of radioactive cesium incorporated in the human body»	-	2	-	1, 8	Evaluation of radioactive cesium incorporated in the human body	Account on laboratory work	Express-interview, electronic tests, reporting and defense of the essays

2.3.	Chernobyl accident. Characteristics of the mostly dose causing radionuclides. Radiation background in the Republic of Belarus nowadays. Medical consequences of the Chernobyl accident. Principles of protective measures. Laboratory work: «Comparative profile of the main groups radionuclides»	-	2	-	1, 8	Comparative profile of the main groups radionuclides	Account on laboratory work	Express-interview, electronic tests, reporting and defense of the essays
2.4.	Biomedical consequences of irradiation. Radiosensitivity	-	2	-	1, 5, 8			Express-interview, electronic tests, reporting and defense of the essays
2.5.	Deterministic and stochastic effects of radiation. Laboratory work: «Comparative profile of deterministic and stochastic effects of exposure»	-	2	-	1, 5, 8	Comparative profile of deterministic and stochastic effects of exposure	Account on laboratory work	Interviews, electronic tests, reporting and defense of the essays
2.5.	Deterministic and stochastic effects of radiation. Variants for dependence of stochastic effects in humans on received dose of low-dose range	-	2	-	1, 5, 8			Express-interview, electronic tests, reporting and defense of the essays, colloquium*
2.6.	Radiation injuries to humans. Acute radiation syndromes. Laboratory work: «Individual dosimetry. Measurement of an individual equivalent dose with a ДКC-AT3509A dosimeter»	-	2	-	1, 8	Measurement of an individual equivalent dose	Account on laboratory work	Express-interview, electronic tests, reporting and defense of the essays
2.6.	Radiation injuries to humans: dependence on the type and history of exposure; acute radiation sickness and chronic radiation sickness. Laboratory work: «Determination of the severity of acute radiation sickness (Human hemogram analysis)»	-	2	-	1, 8	Determination of the severity of acute radiation sickness	Solving situational problems	Express-interview, electronic tests, reporting and defense of the essays
2.7.	Radiation safety. Prescriptive legal foundation for radiation safety. Principles of radiation safety, practical application	-	2	-	1, 8			Express-interview, electronic tests,

