



Факултет по обществено здраве

Катедра „ХИГИЕНА“

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Faculty of Public Health

Department of HYGIENE

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EXAM CONSPECTUS IN HYGIENE AND ECOLOGY

FOR STUDENTS IN SPECIALTY “MEDICINE” 3th Year, VIth Semester

academic 2026/2027 year

THEORETICAL PART

1. Hygiene as a main prophylactic medical science – subject, aim, tasks, branches, methods.
2. Atmosphere – importance and structure. Air composition.
3. Hygiene characteristics of physical factors of the atmosphere.
4. Climate and weather. Meteorotropic effects and diseases. Acclimatization.
5. Air pollutants (classification, sources) and their health effects. Winter and summer smog – characteristic and health importance. Prevention of air pollution.
6. Importance of water for humans as a major element of the biosphere. Waterborne diseases.
7. Hygiene requirements to drinking water quality.
8. Hygiene requirements to water distribution – water supply sources and systems of water distribution. Drinking water safeguard zones.
9. Water purification and disinfection.
10. Hygiene of soil. Soil structure, physical characteristics, and chemical content. Microorganisms and protozoa in the soil. Soil pollution and health effects. Waste management.
11. Hygiene characteristics of living conditions in the areas. Hygiene requirements to the planning and building in the area. Urban greening and public health. Noise in urban areas – definition, sources, health effects, prevention, and control. Urbanization.
12. Hygiene characteristics of the housing conditions. Health effects related to hygiene conditions of the houses.
13. Hospital hygiene. General hygiene requirements to healthcare facilities. Hygienic standards for outpatient care facilities (primary and specialized ambulatory services).
14. Hygienic requirements for general hospitals: location, construction systems, planning, and main structural elements. Nosocomial (hospital-acquired) infections – epidemiology, prevention.
15. Hygienic and technical amenities, therapeutic-protective and anti-epidemic regime of healthcare and medical institutions. Collection and Disposal of Hospital Waste.
16. Hygiene requirements to hospitals (clinics) with high epidemiological risk – infectious diseases hospitals (clinics) and those for treatment of tuberculosis, children’s hospitals (clinics), psychiatric hospitals.
17. Hygiene requirements to hospitals (clinics) with high epidemiological risk – operating theatre (room), hospitals (clinics) for delivery and gynecological diseases.
18. Healthy lifestyle. Tempering (hardening) and physical activity as the elements of the healthy lifestyle.

19. Personal hygiene. Hygiene characteristics of washing means. Hygiene characteristics of dress materials and shoes.
20. Ionizing radiation – basic terminology, dose units.
21. Sources of ionizing radiation. Occupational and medical exposure.
22. Biological effects of ionizing radiation.
23. Risk and control of ionizing radiation (ionizing radiation monitoring). Main principles of protection.
24. Hygiene of nutrition. Proteins – physiological importance, sources and needs.
25. Fats – physiological importance, sources and needs.
26. Carbohydrates – physiological importance, sources and needs. Dietary fibre.
27. Vitamins – physiological importance, sources and needs.
28. Minerals – physiological importance, sources and needs.
29. Hygiene importance of milk and dairy products, eggs in human nutrition.
30. Hygiene importance of meat, fish and their products in human nutrition.
31. Foods of vegetable origin – cereals, wheat, pulses (legumes) and nuts.
32. Foods of vegetable origin – vegetables and fruit.
33. Sugar, sugar products and honey. Fats and oils. Alcohol. Beverages.
34. Functional foods. Genetically modified foods.
35. Food processing and preservation.
36. Healthy nutrition. Enteral and parenteral nutrition.
37. Principles of diet therapy.
38. Alternative nutrition.
39. Nutrition of pregnant and lactating women.
40. Nutrition of children.
41. Nutrition of schoolchildren.
42. Nutrition of people engaged in mental work.
43. Nutrition in sportsmen.
44. Nutrition in case of occupational hazards. Nutrition in case of stress.
45. Nutrition in elderly.
46. Diseases caused by biologically contaminated foods: Foodborne infections, toxo-infections, and intoxications. Mycotoxicoses. Prevention.
47. Diseases caused by chemically contaminated foods. Prevention.
48. Non-microbial food poisoning. Prevention.
49. Diseases caused by food intolerance and hypersensitivity (“food allergy”). Drug-nutrient interactions.
50. Diseases resulting from improper nutrition – disorders caused by malnutrition, partial undernutrition, overnutrition, and improper dietary regimen.
51. Dietary prevention of obesity.
52. Dietary prevention of cardiovascular diseases.
53. Dietary prevention of cancer.
54. Dietary prevention of diabetes.
55. Dietary prevention of gout.
56. Dietary prevention of osteoporosis.
57. Occupational hygiene (medicine) – subject, aim, tasks. Work activity forms. Occupational hazards.
58. Physiology of work. Changes in the body during work.
59. Work capacity, fatigue and exhaustion.
60. Ergonomics – basic principles. Ergonomics in the use of video display.

61. Physical hazards in the workplace – industrial microclimate.
62. Physical hazards in the workplace – atmospheric pressure.
63. Physical hazards in the workplace – noise.
64. Physical hazards in the workplace – occupational vibrations.
65. Physical hazards in the workplace – ultrasound and infrasound
66. Non-ionizing radiation in the workplace – ultraviolet radiation, infrared radiation,
67. Non-ionizing radiation in the workplace – radiofrequency radiation
68. Non-ionizing radiation in the workplace – extremely low frequency radiation and static fields.
69. Non-ionizing radiation in the workplace – lasers.
70. Dust and particulate – classification, composition, health effects and risk. Occupational prevention.
71. Chemical hazards in the workplace – classification, toxic effects of hazardous substances. Toxicology – toxicokinetics and toxicodynamics. Hazards, risks and risk assessment. Prevention of occupational diseases and poisoning.
72. Chemical hazards in the workplace – heavy metals. Occupational health risk. Prevention.
73. Chemical hazards in the workplace – toxic gases. Occupational health risk. Prevention.
74. Chemical hazards in the workplace – organic solvents. Occupational health risk. Prevention.
75. Chemical hazards in the workplace – pesticides. Occupational health risk. Prevention.
76. Occupational medicine issues in Healthcare.
77. Occupational medicine issues in Chemical industry.
78. Occupational medicine issues in Textile industry.
79. Occupational medicine issues in Mechanical engineering.
80. Occupational medicine issues in Metallurgy.
81. Occupational medicine issues in Agriculture.
82. Childhood and adolescent hygiene. Growth and developmental age periods. Characteristics of morbidity among children and adolescents.
83. Age, morphological and physiological peculiarities among children and adolescents.
84. Calendar (chronological) age. Biological age. Acceleration.
85. Physiological bases of school education.
86. Hygiene requirements to daily regimen of children and adolescents. Prevention of school fatigue and exhaustion.
87. Physiological bases of physical education. Medical control on physical education at school.
88. Hygiene requirements to vocational training for students.
89. Hygiene requirements to Crèches and Kindergartens.
90. Hygiene requirements to Schools.

PRACTICAL PART

91. State health control – organization, structure, public health protection activities. Regional health inspection (RHI).
92. Methods for hygienic investigation and evaluation of main physical factors of the air – air temperature and air humidity.
93. Methods for hygienic investigation and evaluation of main physical factors of the air – air velocity and IR radiation.
94. Subjective methods for complex microclimate evaluation.
95. Objective methods for complex microclimate evaluation — physical, physiological, and integral methods.
96. Air pollutants. Air sampling for gases and vapors. Monitoring of air pollution.
97. Analysis of CO and CO₂, SO₂ and NO₂ in air samples.

98. Analysis of lead aerosols and dust in air samples.
99. Methods for hygienic investigation of water supplies and drinking water. Water sampling for chemical and microbiological analysis. Monitoring of drinking water.
100. Organoleptic (aesthetic) and physical analysis of drinking water.
101. Chemical analysis of drinking water – pH-range, oxidizability, chloride, sulfate.
102. Chemical analysis of drinking water – ammonia, nitrite, nitrate.
103. Microbiological analysis of drinking water.
104. Purification of drinking water – experimental coagulation. Disinfection of drinking water – chlorination, principles, methods for determination the residual chlorine in drinking water. Disinfection of water on a small scale.
105. Hygienic evaluation of heating, illumination and ventilation in housing, public including hospital buildings.
106. Main principles and measures for protection against external exposure, enclosed devices, and open sources of radiation. Decontamination (deactivation).
107. Assessment of personal nutrition. Methods for determination of daily energy expenditure, personal nutritional requirements, and normal body weight.
108. Dietary assessment methods.
109. Nutritional status – main indices and methods for assessment.
110. Food health control – indicators, stages.
111. Hygiene evaluation of meat. Taking of the meat samples. Laboratory tests.
112. Hygiene evaluation of milk. Taking of the milk samples. Laboratory tests.
113. Hygiene evaluation of baby foods and canned foods.
114. Foodborne diseases – control and preventive measures. Duties of medical specialist in the case of foodborne disease outbreak.
115. Hygiene requirements to catering establishments.
116. Neurocognitive approaches to the assessment of work capacity and fatigue – investigation of the nervous system and analyzers.
117. Hygiene-toxicological evaluation of chemicals. Principles of hygiene norms of chemical substances. Main criteria for assessment.
118. Health control in the use of pesticides. Duties of medical specialist in the use of pesticides. Tests for the effects of organophosphorous and carbamate pesticide exposure.
119. Hygiene assessment and measurement of noise and occupational vibrations.
120. Methods for assessing the physical development of children and school students – anthropometry, indicators of physical capacity, and medical examination.

BIBLIOGRAPHY

1. Hygiene – Hygiene and Ecology volume I, edited by Prof. D. Tsvetkov. FLAT Ltd, 2019.
2. Hygiene –Occupational medicine volume II, edited by Prof. D. Tsvetkov. FLAT Ltd, 2019.
3. Hygiene and Medical Ecology (Textbook for medical and dental students) edited by Prof. P. Gatseva, Lax Book Plovdiv, 2016. ISBN: 978-619-189-042-2
4. Hygiene and Ecology (Handbook for practical exercises for medical students) edited by Assoc. Prof. P. Gatseva, Medical Publ. House VAP Plovdiv, 2011. ISBN: 978-954-8326-47-6
5. Lecture and Practical Course in Hygiene.

Prof. S. Harizanova MD, PhD

Head of the Department of Hygiene

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