MEDICAL UNIVERSITY – PLOVDIV

FACULTY OF PHARMACY

SYLLABUS

IN

HYGIENE AND ECOLOGY

Approved by the Department Council on 22.10.2024, Protocol № 11

Confirmed by the Faculty Council on 13.11.2024, Protocol № 09

HYGIENE AND ECOLOGY

Curriculum

Discipline	Final exam/ semester	According to the Faculty of Pharmacy curriculum of MU-Plovdiv Academic hours				ECTS	Academic hours in semester			
							Vth semester		…… semester	
		Aauditorium	Lectures	Practices	Non-auditorium		L	P	L	P
Hygiene and Ecology	**V**	**45**	**30**	**15**	**45**	**3**	**2**	**1**		

DISCIPLINE:
Hygiene and Ecology

TYPE OF DISCIPLINE ACCORDING TO THE UNIFORM STATE REQUIREMENTS:
Mandatory

LEVEL OF QUALIFICATION:
Master degree **/M/**

FORMS OF TRAINING:
Lecture and practical courses (practical exercises/seminars)

YEAR OF TRAINING:
3rd year

DURATION OF TRAINING:
1 semester – Vth semester

ACADEMIC HOURS:
30 lecture hours and 15 practical exercise hours

TEACHING EQUIPMENT:
Audiovisual equipment, laboratory equipment, measurement equipment.

FORMS OF EVALUATION:
Oral and written evaluation (test, colloquium) during the semester and final semester exam at the end of the course

EVALUATION CRITERIA:
Final grade based on the final semester examination and performance during the semester

ASPECTS OF EVALUATION CRITERIA:
Final exam grade, performance during the semester

SEMESTER EXAM:
Yes

STATE EXAM:
No

LECTURER:
Habilitated reader from the Department of Hygiene

DEPARTMENT:
“Hygiene”

ANNOTATION

The course in Hygiene is aligned with the priority goals of the university: development of personal qualities of students, encouraging initiative, creating habits of permanent self-education and the ability to learn on their own, acquisition of key competencies and skills.

The course is part of the compulsory subject “Hygiene and Ecology” studied in the third year of training in "Pharmacy". It is a discipline with a preventive focus on the impact of factors of the living and working environments and lifestyle on human health.

The curriculum is in accordance with the general biomedical knowledge set in the qualification characteristics for the specialty.

BASIC AIMS OF THE DISCIPLINE

Specific objectives of the course are for students to acquire knowledge and skills in the following areas:

- Health legislation and organization of the state health control and health protection activities;
- Impact of the living and working environments on population health;
- Basics of a healthy lifestyle;
- Introduction to the study of nutrition and nutrition in different population groups and through the life cycle
- General requirements for healthcare facilities, requirements for pharmacies and pharmaceutical enterprises, work-related health in pharmacies and the pharmaceutical industry
- Determinants of child and adolescent growth and development

EXPECTED RESULTS

At the end of training, the students will:

- Know the legal basis of organization of the state health control and health protection activities;
- Understand the impact of the living and working environments on population health;
- Know the basics of a healthy lifestyle;
- Know the basic principles of the study of nutrition and nutrition in different population groups and through the life cycle

- Know and apply the general requirements for healthcare facilities, requirements for pharmacies and pharmaceutical enterprises, work-related health in pharmacies and the pharmaceutical industry
- Understand the determinants of child and adolescent growth and development

LECTURES

LECTURE № 1 – 2 acad. hours
Primary, secondary, and tertiary prevention. Aims and scope of hygiene. Basic terminology. State health control and public health protection.

LECTURE № 2 – 2 acad. hours
Composition and structure of the atmosphere. Climate, weather conditions, and health. Air pollution and health.

LECTURE № 3 – 2 acad. hours
Drinking water sources and supplies. Water pollution and health. Drinking water quality guidelines, criteria, and standards. Drinking water safeguard zones.

LECTURE № 4 – 2 acad. hours
Soil pollution and waste management.

LECTURE № 5 – 2 acad. hours
Urban environment, housing conditions, and health. Environmental noise pollution – definition, emission sources, epidemiology, health effects, and mitigation.

LECTURE № 6 – 2 acad. hours
Introduction to the study of nutrition. Macro- and micronutrients. Dietary reference values. Adequate diet guidelines. Principles of diet therapy.

LECTURE № 7 – 2 acad. hours
Nutrition in different population groups and through the life cycle.

LECTURE № 8 – 2 acad. hours
Food and nutrition-related diseases – Biological and chemical contamination, prevention of foodborne diseases.

LECTURE № 9 – 2 acad. hours
Food and nutrition-related diseases – Food hypersensitivity, drug-nutrient interactions.

LECTURE № 10 – 2 acad. hours
Dietary prevention of noncommunicable diseases.

LECTURE № 11 – 2 acad. hours
Occupational medicine – aims and scope. Work-related burden of disease and injury. Prevention of work-related health loss.

LECTURE № 12 – 2 acad. hours

Physiological changes in the body during work. Work capacity, fatigue, and exhaustion – definition, determinants, and prevention.

LECTURE № 13 – 2 acad. hours

Psychosocial, ergonomic, chemical, and physical risk factors in pharmacies and the pharmaceutical industry – epidemiology, health effects, and prevention.

LECTURE № 14 – 2 acad. hours

General requirements for healthcare facilities. Requirements for pharmacies and pharmaceutical enterprises.

Work-related health in pharmacies and the pharmaceutical industry. Occupational risk factors and prevention.

LECTURE № 15 – 2 acad. hours

Determinants of child and adolescent health and development. Neurocognitive development and academic performance.

PRACTICES

PRACTICAL № 1 – 2 acad. hours

Microclimate – definition, parameters, methods for hygienic investigation and evaluation. Methods for complex evaluation of thermal comfort.

PRACTICAL № 2 – 2 acad. hours

Assessment of indoor air quality. Sampling methods (absorption and grab sampling). Analysis of dust, lead and mercury aerosols, CO, and CO_2.

PRACTICAL № 3 – 2 acad. hours

Monitoring of drinking water quality. Water sampling. Analysis of drinking water – chemical, microbiological, and indicator parameters. Methods for water treatment.

PRACTICAL № 4 – 2 acad. hours

Assessment of dietary intake and nutritional status. Calculation of daily energy expenditure and personal nutritional requirements.

PRACTICAL № 5 – 2 acad. hours

Food quality control (e.g., dairy products and infant formulas) – basic principles and stages. Discussion of case studies on dietary prevention of noncommunicable diseases.

PRACTICAL № 6 – 2 acad. hours

Assessment of noise, vibration, illumination, and ventilation. Occupational standards.

PRACTICAL № 7 – 2 acad. hours

Physiological and neurocognitive approaches to the assessment of work capacity and fatigue. Work-related health in pharmacies and the pharmaceutical industry – student presentations.

PRACTICAL № 8 – 1 acad. hour

Colloquium on environmental and occupational health, and nutrition.

BIBLIOGRAPHY

1. Lecture materials on Hygiene, provided by the lead reader and other teachers
2. Hygiene and Medical Ecology. Textbook and Handbook for Pharmacy Students. Edited by Prof. Dr. P. Gatseva. Plovdiv: Лакс Бук; 2018. ISBN 978-619-189-099-6.
3. Hygiene and Medical Ecology – Textbook for Medical and Dental Students. Edited by P. Gatseva. Publishing House "Laxbook", Plovdiv 2016. ISBN: 978-619-189-042-2
4. Environmental Health – Hygiene. Edited by L. Ševčíková. Comenius University in Bratislava, Slovakia 2015. ISBN 978-80-223-3930-8

CONSPECTUS

LECTURE ESSAYS

1. Primary, secondary, and tertiary prevention. Aims and scope of hygiene. Basic terminology. State health control – organization, structure, public health protection activities.
2. Composition and structure of the atmosphere. Chemical, physical, and biological properties of the atmospheric air. Climate, weather conditions, and health.
3. Air pollution – types of pollutants, emission sources, epidemiology, health effects, and mitigation.
4. Drinking water sources and supplies. Drinking water quality guidelines, criteria, and standards.
5. Water pollution and health effects. Drinking water safeguard zones.
6. Soil pollution and health. Waste disposal and health effects of wastes.
7. Urban environment, housing conditions, and health.
8. Environmental noise pollution – definition, emission sources, epidemiology, health effects, and mitigation.
9. Adequate diet guidelines. Principles of diet therapy.
10. Macronutrients (protein, fat, and carbohydrates) – nature, classification, physiological functions, sources, and recommended intake.
11. Micronutrients (vitamins and minerals) – nature, classification, physiological functions, sources, and recommended intake.
12. Nutrition in different population groups and through the life cycle.
13. Food and nutrition-related diseases. Biological and chemical contamination. Prevention of foodborne diseases.
14. Food and nutrition-related diseases. Food hypersensitivity. Drug-nutrient interactions.
15. Dietary prevention of noncommunicable diseases (e.g., gastrointestinal, obesity and diabetes mellitus, cardiovascular, renal, osteoporosis, cancer, oral health).
16. Occupational medicine – aims and scope. Work-related burden of disease and injury. Prevention of work-related health loss.
17. Physiological changes in the body during work. Work capacity, fatigue, and exhaustion – definition, determinants, and prevention.
18. Psychosocial and ergonomic risk factors – epidemiology, health effects, and prevention.
19. Occupational exposure to chemicals – epidemiology, health effects, and prevention. Occupational exposure to particulate matter – epidemiology, health effects, and prevention.
20. Occupational physical exposures – epidemiology, health effects, and prevention.
21. Work-related health in pharmacies and the pharmaceutical industry. Occupational risk factors and prevention.

22. General requirements for healthcare facilities. Requirements for pharmacies and pharmaceutical enterprises.
23. Determinants of child and adolescent health. Neurocognitive development and academic performance.

PRACTICAL ESSAYS

24. Microclimate – definition, parameters, methods for hygienic investigation and evaluation.
25. Methods for complex evaluation of thermal comfort
26. Assessment of airborne occupational chemical contaminants, gases, and particulate matter.
27. Assessment of noise, vibration, illumination, and ventilation. Occupational standards.
28. Health control of water supplies and drinking water. Monitoring of drinking water quality. Water sampling. Analysis of drinking water quality.
29. Water treatment. Disinfection of water from local sources and distribution networks.
30. Assessment of dietary intake and nutritional status.
31. Methods for determination of daily energy expenditure and personal nutritional requirements.
32. Food quality control – basic principles and stages.
33. Physiological and neurocognitive approaches to the assessment of work capacity and fatigue.