

**MEDICAL UNIVERSITY – PLOVDIV
FACULTY OF DENTAL MEDICINE**

SYLLABUS

IN

HYGIENE AND EPIDEMIOLOGY

Approved by the Department Council on 05 July 2021 Protocol № 8

Confirmed by the Faculty Council on 23 July 2021 Protocol № 5

HYGIENE AND EPIDEMIOLOGY
Syllabus

Discipline	Final exam/ semester	Academic hours				Academic hours in years and semesters	
		Total	Lectures	Practices	ECTS	3 rd year	
Hygiene and Epidemiology	VIII					V th sem.	VI th sem.
		60	30	30	3.6	1/1	1/1

DISCIPLINE:

Hygiene and Epidemiology

TYPE OF DISCIPLINE ACCORDING TO THE UNIFORM STATE REQUIREMENTS:

Mandatory

LEVEL OF QUALIFICATION:

Master degree /M/

FORMS OF TRAINING:

Lecture and practical courses (practical and laboratory classes, seminars)

YEAR OF TRAINING:

4th year

DURATION OF TRAINING:

VIIth and VIIIth semesters

ACADEMIC HOURS:

30 academic hours of lecture courses and 30 academic hours of practical courses

TECHNICAL EQUIPMENT APPLIED IN THE TRAINING:

Audiovisual equipment, laboratory equipment, different tools and technical devices for demonstration and performance of the application of modern methods in Hygiene and Epidemiology

FORMS OF EVALUATION:

Ongoing evaluation, tests, oral examinations

EVALUATION CRITERIA:

Average annual grade

ASPECTS OF EVALUATION CRITERIA:

The exam grade, the grades from the ongoing monitoring

SEMESTER EXAM:

Yes (written and oral exam)

STATE EXAM:

No

LECTURER:

Academic rank lecturer from the departments

DEPARTMENTS:

“Hygiene” and “Epidemiology and Disaster medicine”

ANNOTATION

The programme of Hygiene allows students to acquire knowledge and skills in the basic concepts of hygiene as a preventive medical science. The aim of the programme is the application of hygiene theoretical knowledge and practical ability in the dental practice.

The programme of Epidemiology allows students to acquire knowledge in the epidemiology of infectious diseases as a general medical science and the state of the present stage; methodology and methods of the epidemiology of infectious diseases and their application in the study of mass, socially significant diseases; causes, conditions and mechanisms for the occurrence and spread of infectious diseases; parasitic systems and social systems in the theory of the epidemic process; primary and secondary driving forces of the epidemic process; elimination and eradication of infectious diseases; disinfection, disinsection and deratization; immune prophylaxis; epidemiological characteristics, prevention, surveillance and control of infectious diseases; epidemiology, prevention and control of nosocomial infections.

BASIC AIMS OF THE DISCIPLINE

Main course tasks include:

- knowledge of actual problems and effects (positive and negative) of some factors (air, water, food) on human health;
- knowledge of prophylactic measures against the negative effects of the factors of vital environment (living, working, educational et al. environment);
- knowledge of nutritional prevention programmes against some non-communicable diseases with social importance;
- knowledge of healthy lifestyle including the system of measures for prevention and improvement of human health so that active longevity can be ensured;
- measures for safety and health factors at work and education;
- theoretical knowledge about the causes of occurrence, development and termination of the epidemic process in various infectious diseases;
- theoretical knowledge about the driving forces of the epidemic process - source of infection, mechanisms and factors of transmission of infectious diseases, susceptibility of the population and immunity, social and natural factors;

- the main methods for epidemiological research and practical skills for the application of some of them;
- theoretical knowledge and practical skills for the applied effective means and methods for control of infectious diseases, as well as effective prophylactic measures for limitation, elimination and eradication of infectious diseases in medical and dental practice.

EXPECTED RESULTS

At the end of course dental medical students must have the following knowledge and skills:

- theoretical knowledge and practical ability in the field of Hygiene about health aspects of the vital environmental factors;
- dental medical students must know the basic and actual contaminants in air, water, soil, food products and their health consequences;
- active participation in the prophylactic measures against the negative effects of the factors of vital environment;
- application of acquired knowledge in the field of principles of healthy lifestyle;
- application of acquired prophylactic knowledge in the dental medical practice in relation to the role of negative environmental factors effects on the appearance and development of diseases;
- application of acquired knowledge in the field of nutritional prevention programmes against some non-communicable diseases with social importance;
- application of prophylactic measures for workers exposed to different occupational hazards;
- knowing the actual health problems among children and adolescents helps to apply the hygiene requirements to their education and professional orientation;
- take an epidemiological history of various infectious diseases;
- conduct an epidemiological study in epidemic outbreaks of airborne and intestinal infections;
- prepare a plan for disinfection in the dental offices and wards;
- be familiar with the means of immune prophylaxis.

LECTURES

LECTURE № 1 – 1 acad. hour

Hygiene as a main prophylactic medical science – subject, aim, tasks, branches, methods. Current hygiene environmental issues. Environmental health service in Bulgaria – basic functions and activities.

LECTURE № 2 – 2 acad. hours

Hygiene of atmosphere. Chemical and physical factors of the atmosphere. Air pollution – sources, health effects. Prevention of air pollution.

LECTURE № 3 – 2 acad. hours

Hygiene of water and water supply sources. Hygiene requirements to drinking water quality. Water pollution, water purification and disinfection. Health protection of water supplies.

LECTURE № 4 – 2 acad. hours

Hygiene of soil. Soil structure, characteristic and content. Soil pollution – health effects. Disposal of Wastes.

LECTURE № 5 – 2 acad. hours

Food, nutrition and health. Nutrition of different population`s groups. Foodborne diseases as a result of biological and chemical food contamination. Prevention.

LECTURE № 6 – 2 acad. hours

Alimentary prevention of noncommunicable diseases – obesity, diabetes mellitus, gout, osteoporosis, cardiovascular and cancer diseases, dental caries.

LECTURE № 7 – 2 acad. hours

Hygiene requirements to hospitals and dental clinics.

Current issues in childhood and adolescent hygiene. Age, morphological and physiological peculiarities among children and adolescents. Growth and developmental age periods. Acceleration.

LECTURE № 8 – 2 acad. hours

Current issues in occupational medicine. Changes in the body during work. Occupational hazards. Occupational medicine issues in dental practice.

LECTURE № 9 – 2 acad. hours

Object, theory and methods of the epidemiology of infectious diseases and of the epidemiology of non-infectious mass diseases. Theory of the epidemic process.

LECTURE № 10 – 2 acad. hours

Primary and secondary driving forces of the epidemic process.

LECTURE № 11 – 2 acad. hours

General epidemiologic characteristic of the important for the dental practice air-borne infections (meningococcal infection, scarlet fever, influenza, mumps and others).

LECTURE № 12 – 2 acad. hours

Epidemiology of viral hepatitis A, B, C, D, E.

LECTURE № 13 – 2 acad. hours

Risk of infections in dental practice. Measures for prevention and control (standard and universal prophylactic measures).

LECTURE № 14 – 2 acad. hours

Epidemiology of HIV/AIDS and CCHF.

LECTURE № 15 – 3 acad. hours

Epidemiology of intestinal diseases (salmonellosis, shigellosis, cholera, poliomyelitis, enteroviral infections).

PRACTICES

PRACTICAL № 1 – 2 acad. hours

Microclimate – definition, components, methods for hygiene investigation and evaluation, health importance. Methods for complex microclimate evaluation.

PRACTICAL № 2 – 2 acad. hours

Air pollutants assessment. Methods for sample collection – absorption and grab sampling. Determination of dust, lead and mercury aerosols, CO and CO₂. Health risk and prevention in occupational environment.

PRACTICAL № 3 – 2 acad. hours

Health control of water supplies and drinking water – preliminary and current. Water sampling for chemical and microbiological analysis of drinking water. Analysis of drinking water – organoleptic, physical and chemical indices. Microbiological analysis of drinking water. Methods for purification and disinfection of water.

PRACTICAL № 4 – 2 acad. hours

Test on Community Hygiene

Assessment of personal nutrition. Nutritional status – main indices and methods for assessment. Methods for determination of daily energy expenditure. Determination of personal nutritional requirements.

PRACTICAL № 5 – 2 acad. hours

Prevention of foodborne diseases as a result of biological and chemical food contamination. Duties of medical specialist in the case of foodborne disease outbreak.

PRACTICAL № 6 – 2 acad. hours

Test on Hygiene of Nutrition

Methods for control and evaluation of child and adolescents' growth and development.

PRACTICAL № 7 – 2 acad. hours

Work capacity and fatigue – physiological and psychophysiological methods for assessment. Occupational medicine issues in dental practice.

PRACTICAL № 8 – 1 acad. hour

Discussion on problems of Hygiene.

PRACTICAL № 9 – 2 acad. hours

Disinfection and sterilization–methods and means.

PRACTICAL № 10 – 2 acad. hours

Decontamination of instruments and surfaces in dental practice.

PRACTICAL № 11 – 2 acad. hours

Immune prophylaxis – point of the matter, modes of bio-products, routes of application. Immunization calendar in Bulgaria. Recommended immunizations for the risk groups.

PRACTICAL № 12 – 2 acad. hours

Air-borne infections – measures for surveillance, prevention and control of scarlet fever, diphtheria, meningococcal infection, pertussis, measles, chickenpox, rubella and mumps.

PRACTICAL № 13 – 2 acad. hours

Intestinal infections - measures for surveillance, prevention and control of salmonellosis, shigellosis and coli-enteritis.

PRACTICAL № 14 – 2 acad. hours

Epidemiological surveillance and control of nosocomial infections.

PRACTICAL № 15 – 3 acad. hours

Water-borne infections in dental practice. Biofilm and its significance.

BIBLIOGRAPHY

1. 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
2. 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
3. Lecture and Practical Course in Hygiene.
4. Textbook on Epidemiology of Infectious Diseases (for students of dental medicine, pharmacy, health inspectors, nurses, midwives, laboratory technicians and other medical specialties) edited by Prof. Dr. J. Stoilova and Prof. Dr. N. Vatev. Plovdiv, Medical Publishing House "Raykov", 2015.
5. Epidemiology of infectious diseases (Textbook for medical students and specialists) edited by Prof. N. Ribarova. Sofia Simelpress Publishing House, 2011.
6. Viral and bacterial tropical diseases edited by N. Popivanova, Plovdiv 2000.
7. Infectious diseases and epidemiology edited by N. Popivanova and J. Stoilova, Plovdiv Medical Publishing House "Raykov", 2002.
8. Guide for practical seminars in the epidemiology of infectious diseases edited by J. Stoilova, Plovdiv Medical Publishing House "Raykov", 2011.
9. Clinical epidemiology edited by J. Stoilova, Plovdiv Medical Publishing House "Raykov", 2013.

CONSPECTUS IN HYGIENE AND EPIDEMIOLOGY**HYGIENE PART****Theoretical items**

1. Hygiene as a main prophylactic medical science – subject, aim, tasks, branches, methods. Current hygiene environmental issues.
2. Hygiene of atmosphere – importance, structure. Physical factors of the atmosphere. Climate and weather. Diseases dependent on meteorological factors. Acclimatization.
3. Air composition. Air pollutants (classification, sources) and their health effects. Winter and summer smog – characteristic and health importance. Prevention of air pollution.
4. Hygiene of water and water supplies. Importance of water as a major element of the biosphere. Hygiene requirements to drinking water quality.
5. Water supply sources and systems of water distribution. Water purification and disinfection. Water pollution. Health protection of water supplies.

6. Hygiene of soil. Soil structure, characteristic and content. Soil pollution. Disposal of solid and liquid wastes.
7. Personal hygiene. Healthy lifestyle.
8. Hospital hygiene. Hygiene requirements to hospitals. Hygiene requirements to the territory and planning of hospitals. Disposal of hospital wastes.
9. Hygiene requirements to dental clinics.
10. Hygiene of nutrition – subject, aim, tasks. Healthy nutrition – main principles
11. Nutrients – Proteins, fats and carbohydrates – physiological importance, sources and needs.
12. Vitamins and minerals – physiological importance, sources and needs.
13. Foods of animal origin – hygiene importance of milk and dairy products, eggs, meat, fish and their products.
14. Foods of vegetable origin – cereals, wheat, vegetables and fruit, pulses (legumes) and nuts, spices.
15. Functional foods and beverages. Role of the food in the prevention of dental caries.
16. Nutrition of different population`s groups.
17. Alimentary prevention of noncommunicable diseases – obesity, diabetes mellitus, gout, osteoporosis, cardiovascular and cancer diseases, dental caries.
18. Foodborne diseases as a result of biological and chemical food contamination. Prevention.
19. Occupational medicine – subject, aim, tasks. Changes in the body during work. Work capacity, fatigue and exhaustion. Prevention.
20. Physical hazards in workplace – industrial microclimate – hygiene characteristic and prevention.
21. Physical hazards in workplace – noise, ultrasound and infrasound, occupational vibrations – hygiene characteristic and prevention.
22. Dust and particulate – classification, composition, health effects and risk. Occupational prevention.
23. Chemical hazards in workplace – heavy metals, gases and vapours – hygiene characteristic and prevention.
24. Occupational medicine issues in dental practice. Occupational health risk. Prevention.
25. Childhood and adolescent hygiene. Age, morphological and physiological peculiarities among children and adolescents. Child and adolescent growth and development. Acceleration.
26. Physiological bases of school education. Hygiene requirements to daily regimen of children and adolescent. School fatigue and exhaustion – prevention.

Practical items

1. State health control – organization, structure, public health protection activities.
2. Monitoring of air quality and noise pollution in community environment.
3. Microclimate – definition, parameters, methods for hygienic investigation and evaluation.
4. Methods for complex microclimate evaluation – subjective and physical methods
5. Methods for complex microclimate evaluation – physiological and integral methods.
6. Hygienic evaluation of lighting and ventilation in housing, public including hospital buildings.
7. Health control of water supplies and drinking water. Monitoring of drinking water – types.
8. Water sampling. Analysis of drinking water – organoleptic, physical and chemical.
9. Microbiological analysis of drinking water.
10. Purification and disinfection of drinking water. Disinfection of water on a small scale.

11. Principles of healthy nutrition. Assessment of personal nutrition and nutritional status.
12. Methods for determination of daily energy expenditure and personal nutritional requirements.
13. Prevention of foodborne diseases. Duties of medical specialist in the case of foodborne disease outbreak.
14. Methods for control and evaluation of child and adolescents' growth and development.
15. Physiological and psychophysiological methods for assessment of work capacity and fatigue.
16. Hygiene assessment and measurement of some physical hazards in workplace – noise and occupational vibrations. Prevention.
17. Hygiene assessment and measurement of some physical hazards in workplace – lighting.
18. Chemical hazards in workplace – methods for sampling and analysis. Carbon monoxide. Carbon dioxide.
19. Chemical hazards in workplace – heavy metals – lead and mercury aerosols.
20. Dust and particulate – occupational prevention

EPIDEMIOLOGY PART

1. Object, theory and methods of the epidemiology of infectious diseases and of the epidemiology of non-infectious mass diseases, relationship with the other medical sciences.
2. Epidemic process – definition, primary and secondary moving forces, center of the infection, forms of the epidemic process.
3. Source of the infection: diseased people – epidemiological importance of the different stages of the infectious disease and the different clinical forms (course).
4. Carriers – definition, forms of the carriage and epidemiological importance. The animals as a source of infection.
5. Mechanism of transmission – biological determination, phases, factors for transmission (air, soil, water, nutrition, objects from the environment), modes and routes for the transmission of the infections.
6. Susceptibility of the population – specific and non-specific factors. Immune prophylaxis – definition and forms of the immunity, kinds of the vaccines – characteristic and mode of application. National immune calendar – schemes and modes of application. Recommended vaccines.
7. Secondary moving forces of the epidemic process – the social and the natural factors. Alive vectors for the transmission of some infectious diseases.
8. Epidemiological study – aim, problems, stages providing, epidemiological analysis.
9. General prophylactic and basic anti-epidemic measures. Measures in the center of the infection.
10. Epidemiology of nosocomial infections.
11. Standard preventive measures for the prevention and control of the infections in the medical practice.
12. Disinfection and sterilization – definition, kinds and methods. Physical sterilization – dry sterilization, autoclaves. Chemical substances for disinfection by groups: chlorine-, iodine- and phenol-containing, aldehyde-, oxygen-, alcohol- containing and other. Cold sterilization.

13. Measures for the destruction of the insects – the need of them, methods and forms of implementation. Measures for the destruction of the rodents – the need of them, methods and forms of implementation.

Epidemiology of:

14. Salmonellosis.

15. Shigellosis.

16. Cholera.

17. Diphtheria.

18. Scarlet fever.

19. Measles.

20. Varicella.

21. Rubella.

22. Mumps.

23. Influenza.

24. Pertussis.

25. Meningococcal infection.

26. Poliomyelitis.

27. ECHO- and Coxsackie-viral infections.

28. Viral hepatitis – A and E.

29. Viral hepatitis – B, C and D.

30. Crimean-Congo hemorrhagic fever.

31. Tetanus.

32. Rabies.

33. Foot-and-mouth disease.

34. HIV/AIDS.

35. Legionellosis.