

MEDICAL UNIVERSITY – PLOVDIV
FACULTY OF MEDICINE

PROGRAMME

OF

HYGIENE AND ECOLOGY

Accepted by the Departmental Council on 01 July 2020 Protocol № 26

Approved by the Faculty Council on 08 July 2020 Protocol № 5

HYGIENE AND ECOLOGY CURRICULUM

Science	Examination	Academic hours				Academic hours by years and semesters	
	Semester	Total	Lectures	Practicals	Credits	III course	
						V	VI
Hygiene and Ecology	VI	120	60	60	6,3	2/2	2/2

COURSE NAME:

Hygiene and Ecology

TYPE OF COURSE ACCORDING TO THE UNIFORM STATE REQUIREMENTS:

Mandatory

LEVEL OF EDUCATION:

Master degree /M/

FORM OF EDUCATION:

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

SEMESTERS OF EDUCATION:

Vth and VIth semesters

AUDITORIUM CLASSES:

60 academic hours of lecture courses and 60 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

FORMS OF EVALUATION AND CONTROL:

Ongoing evaluation, tests, oral examinations, colloquia on different hygiene sections

FINAL EVALUATION:

Average annual grade

SCORE ASSESSMENT:

The exam grade, the grades from the colloquia and ongoing monitoring

SEMESTER EXAMINATION:

Yes (written and oral examination)

STATE EXAMINATION:

Yes (written and oral examination as a part of the state exam of Hygiene, Epidemiology, Infectious diseases and Social medicine)

LEADING LECTURER:

Academic rank lecturer from the Department of Hygiene

DEPARTMENT:

“Hygiene”

ANNOTATION

The programme of Hygiene and Ecology 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 clinical medical practice.

COURSE TASKS

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.

EXPECTED COMPETENCIES

At the end of course 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;
- 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 clinical 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.

LECTURE COURSE SYLLABUS

LECTURE № 1 – 2 acad. hours

HYGIENE AS A MAIN PROPHYLACTIC MEDICAL SCIENCE – SUBJECT, AIM, TASKS, BRANCHES, METHODS. CURRENT HYGIENE ENVIRONMENTAL ISSUES.

1. Introduction to Hygiene and Ecology.
2. Historical review of the development of Hygiene as a science.
3. Main branches and methods of Hygiene.
4. Environmental health service in Bulgaria – basic functions and activities.

LECTURE № 2 – 2 acad. hours

HYGIENE REQUIREMENTS TO DRINKING WATER QUALITY.

1. Importance of Water as a major element of the biosphere.
2. World water sources.
3. Waterborne diseases.
4. Hygiene requirements to drinking water quality.

LECTURE № 3 – 2 acad. hours

HEALTH REQUIREMENTS TO WATER SUPPLY. WATER PURIFICATION AND DISINFECTION.

1. Water supply sources.
2. Systems of Water distribution.
3. Water purification and disinfection.
4. Water pollution.
5. Health protection of Water supplies.

LECTURE № 4 – 2 acad. hours

ATMOSPHERE. AIR COMPOSITION. HYGIENE CHARACTERISTIC OF PHYSICAL FACTORS OF THE ATMOSPHERE.

1. Atmosphere – definition, zones of atmosphere.
2. Air composition.
3. Hygiene characteristic of Physical factors of the Atmosphere – meteorological and heliomagnetic factors.
4. Sun radiation – UV, visible and infrared radiation.

LECTURE № 5 – 2 acad. hours

HYGIENE CHARACTERISTIC OF PHYSICAL FACTORS OF THE ATMOSPHERE.

1. Meteorological factors – Atmospheric pressure, Air temperature, Humidity, Air velocity, Air ionization.
2. Factors, coming from the cosmos – Sun and Electromagnetic radiation.
3. Effects of the physical factors of the atmosphere on the man's organism.

LECTURE № 6 – 2 acad. hours

CLIMATE AND WEATHER. DISEASES DEPENDENT ON METEOROLOGICAL FACTORS. ACCLIMATIZATION.

1. Climate. Diseases dependent on sharp changes of meteorological factors.
2. Weather. Acclimatization.
3. Chemical factors of the Atmosphere – composition, characteristic and importance.

LECTURE № 7 – 2 acad. hours

AIR POLLUTION. HEALTH EFFECTS OF AIR POLLUTION AND PREVENTION.

1. Air quality. Air pollutants and their effects.
2. Winter and Summer Smog – characteristic and health importance.
3. Prevention of Air pollution.

LECTURE № 8 – 2 acad. hours

HYGIENE OF SOIL. DISPOSAL OF WASTES.

1. Soil structure and characteristic.
2. Chemical content and Soil pollution.
3. Microorganisms and protozoa in the Soil.
4. Disposal of Wastes – methods.
5. Disposal of Solid Wastes.
6. Disposal of Liquid Wastes.

LECTURE № 9 – 2 acad. hours

HYGIENE CHARACTERISTICS OF LIVING CONDITIONS IN THE AREAS. URBANIZATION.

1. Hygiene requirements to the Planning and Building in the areas.
2. Urbanization.
3. Urban greening and public health.

LECTURE № 10 – 2 acad. hours

HYGIENE CHARACTERISTICS OF NOISE “POLLUTON” IN URBAN AREAS. HYGIENE CHARACTERISTICS OF THE HOUSING CONDITIONS.

1. Noise in urban areas – definition, sources, health effects, prevention and control.
2. Hygiene characteristics of the Housing conditions.
3. Health effects related to hygiene conditions of the houses.

LECTURE № 11 – 2 acad. hours

HOSPITAL HYGIENE. COMMON HYGIENE REQUIREMENTS TO HOSPITALS.

1. Common hygiene requirements to Clinics and Medical centers.
2. Common hygiene requirements to the territory and planning of Hospitals.
3. Disposal of Hospital wastes.

LECTURE № 12 – 2 acad. hours

HYGIENE REQUIREMENTS TO THE SPECIAL HOSPITALS (CLINICS) WITH HIGH EPIDEMIOLOGICAL RISK.

1. Hygiene requirements to the Operating theatre (room).
2. Hygiene requirements to the Infectious diseases hospitals (clinics) and those for treatment of tuberculosis.
3. Hygiene requirements to the Children's hospitals (clinics).
4. Hygiene requirements to the Hospitals (clinics) for delivery and gynaecological diseases.
5. Hygiene requirements to the Psychiatric hospitals.
6. Hygiene requirements to the Clinical pathology clinics.

LECTURE № 13 – 2 acad. hours

IONIZING RADIATION. SOURCES AND BIOLOGICAL EFFECTS OF IONIZING RADIATION. OCCUPATIONAL AND MEDICAL EXPOSURE.

1. Main terms and radiation units.
2. Sources of Ionizing radiation. Occupational and Medical exposure.
3. Biological effects of Ionizing radiation.

LECTURE № 14 – 2 acad. hours

MAIN PRINCIPLES OF IONIZING RADIATION PROTECTION.

1. Main principles of protection.
2. Risk and control of Ionizing radiation (Ionizing radiation monitoring)
3. Practical measures for Ionizing radiation protection.

LECTURE № 15 – 2 acad. hours

PERSONAL HYGIENE. PRINCIPLES OF HEALTHY LIFESTYLE.

1. Healthy lifestyle.
2. Conditioning and physical activity as the elements of the Healthy lifestyle.
3. Personal Hygiene.
4. Hygiene characteristics of Washing means.
5. Hygiene characteristics of Dress materials and Shoes.

LECTURE № 16 – 2 acad. hours

HYGIENE OF NUTRITION. NUTRIENTS – PHYSIOLOGICAL IMPORTANCE, SOURCES AND NEEDS.

1. Hygiene of Nutrition – current issues and perspectives.
2. Nutrition as a biological and social process.
3. Nutrients – Macronutrients (Proteins, Fats and Carbohydrates) and Micronutrients (Vitamins and Minerals) – physiological importance, sources and needs.

LECTURE № 17 – 2 acad. hours

NUTRITION OF DIFFERENT POPULATION'S GROUPS. HEALTHY AND CURATIVE NUTRITION. ALTERNATIVE NUTRITION.

1. Healthy nutrition – principles. Bulgarian physiological norms of population's nutrition.

2. Nutrition of pregnant and lactating women.
3. Nutrition of children and schoolchildren.
4. Nutrition of people engaged in mental work. Nutrition in case of stress.
5. Nutrition in case of occupational hazards.
6. Nutrition of old people. Nutrition and osteoporosis.
7. Curative nutrition. Enteral and parenteral nutrition.
8. Alternative nutrition.

LECTURE № 18 – 2 acad. hours

FOODS – CLASSIFICATION, COMPOSITION, IMPORTANCE IN HUMAN NUTRITION.

1. Classification and hygiene evaluation of Foods.
2. Foods of animal origin.
3. Foods of vegetable origin.
4. Fats and Oils.
5. Beverages. Alcohol and Health.

LECTURE № 19 – 2 acad. hours

FOOD PROCESSING AND PRESERVATION.

1. Food processing.
2. Food preservation.
3. Functional foods and beverages.
4. Genetically modified foods.

LECTURE № 20 – 2 acad. hours

FOODBORNE DISEASES.

1. Foodborne diseases- definition, classification.
2. Foodborne diseases as a result of biological food contamination. Prevention.
3. Foodborne diseases as a result of chemical food contamination. Prevention.
4. Non-microbial food poisoning. Prevention.
5. Diseases in result of super sensitiveness (“food allergy”).
6. Interaction between Food and Drugs.
7. Diseases in result of irregularly nutrition.
8. Diseases because of non-balanced nutrition.

LECTURE № 21 – 2 acad. hours

HYGIENE REQUIREMENTS TO CATERING ESTABLISHMENTS. HACCP.

1. Hazard Analysis and Critical Control Point (HACCP).
2. Preliminary and current health control in Catering Establishments.
3. Hygiene requirements to Catering Establishments – building, food handling areas, equipment and utensils, food transport, delivery, storage, handling, cooking and cooked foods, washing up.
4. Requirements in personal appearance and health status of food handlers.

LECTURE № 22 – 2 acad. hours

CURRENT ISSUES IN OCCUPATIONAL HYGIENE (MEDICINE).

1. Occupational Hygiene (Medicine) – subject, aim, tasks, methods. Current issues.
2. Work physiology.
3. Changes in the body during work
4. Work activity forms. Modern work-related problems

LECTURE № 23 – 2 acad. hours

PHYSIOLOGY AND PSYCHOLOGY AT WORK. ERGONOMICS.

1. Work capacity.
2. Fatigue and Exhaustion.
3. Ergonomics – basic principles.
4. Ergonomics in the use of video display.
5. Psychology at work – professional stress.

LECTURE № 24 – 2 acad. hours

PHYSICAL HAZARDS IN WORKPLACE.

1. Occupational Noise, Ultrasound and Infrasound – definition, classification, sources, health effects, evaluation, prevention.
2. Occupational Vibrations – definition, classification, sources, health effects, evaluation, prevention.
3. Non-ionizing radiation – classification, sources, health effects, control measures.

LECTURE № 25 – 2 acad. hours

PHYSICAL HAZARDS AND DUST IN WORKPLACE.

1. Industrial microclimate (heat and cold) – definition, health effects, control measures.
2. Atmospheric pressure in workplace.
3. Dust and particulate – classification, composition, health effects and risk. Occupational prevention.

LECTURE № 26 – 2 acad. hours

CHEMICAL HAZARDS IN WORKPLACE.

1. Chemical hazards – classification, toxic effects of hazardous substances.
2. Toxicology – toxicokinetics and toxicodynamics. Hazards, risks and risk assessment. Prevention of occupational diseases and poisoning.
3. Chemical hazards in workplace – toxic gases (chemical asphyxiants), heavy metals, organic solvents, pesticides.

LECTURE № 27 – 2 acad. hours

OCCUPATIONAL HYGIENE ISSUES IN HEALTHCARE.

1. Adverse factors of the work process.
2. Characteristic of work.
3. Hazards in workplace – physical, chemical, biological, ergonomics, psychosocial.
4. Morbidity among healthcare workers.
5. Prophylactic measures.

LECTURE № 28 – 2 acad. hours

CHILDHOOD AND ADOLESCENT HYGIENE. AGE PERIODS. GROWTH AND DEVELOPMENT OF CHILDREN. ACCELERATION. MORBIDITY AMONG CHILDREN AND ADOLESCENTS.

1. Age, morphological and physiological peculiarities among children and adolescents.
2. Growth and developmental age periods.
3. Growth and Development. Acceleration.
4. Characteristic of morbidity among children and adolescents.

LECTURE № 29 – 2 acad. hours

PHYSIOLOGICAL BASES OF SCHOOL EDUCATION. HYGIENE REQUIREMENTS TO DAILY REGIMEN OF CHILDREN AND ADOLESCENTS. PREVENTION OF SCHOOL FATIGUE AND EXHAUSTION. PHYSICAL CONDITIONING.

1. Physiological bases of school education.
2. Hygiene requirements to daily regimen of children and adolescent.
3. School fatigue and exhaustion – prevention.
4. Medical control on physical education.
5. Physical conditioning (training).

LECTURE № 30 – 2 acad. hours

HYGIENE OF WORK AND CAREER ORIENTATION IN SCHOOLS. HYGIENE REQUIREMENTS TO KINDERGARTENS AND SCHOOLS.

1. Hygiene of work and career orientation in schools.
2. Hygiene requirements to Crèches and Kindergartens.
3. Hygiene requirements to Schools.
4. Basic prophylactic tasks and activities of medical specialists in Kindergartens and Schools.

PRACTICAL COURSE SYLLABUS

PRACTICAL № 1 – 2 acad. hours

STATE HEALTH CONTROL - ORGANIZATION, STRUCTURE, PUBLIC HEALTH PROTECTION ACTIVITIES. REGIONAL HEALTH INSPECTION (RHI).

1. State Health Control – organization, structure, public health protection activities.
2. Regional Health Inspection (RHI) – structure and basic activities.
3. Hygiene norms and standards.
4. Laws, Ordinances and relative documents in the field of Hygiene.

PRACTICAL № 2 – 2 acad. hours

HEALTH CONTROL OF WATER SUPPLIES AND DRINKING WATER – PRELIMINARY AND CURRENT. WATER SAMPLING. ORGANOLEPTIC (AESTHETIC) AND PHYSICAL ANALYSIS OF DRINKING WATER.

1. Monitoring of drinking water.
2. Water sampling for chemical and microbiological analysis of drinking water.

3. Organoleptic (aesthetic) analysis of drinking water – determination of water color, odor, taste and turbidity.
4. Analysis of other (physical) drinking water parameters with indicative significance – determination of water hardness and water temperature.

PRACTICAL № 3 – 2 acad. hours

HYGIENIC MONITORING OF DRINKING WATER. CHEMICAL ANALYSIS OF DRINKING WATER.

1. Chemical analysis of drinking water – determination of pH, Oxidizability, Ammonia, Nitrite and Nitrate, Chloride and Sulphate.
2. Determination of Zinc and Copper in drinking water.
3. Results discussion. Health risk assessment.
4. Epidemiological methods for evaluation of water factor on public health.

PRACTICAL № 4 – 2 acad. hours

MICROBIOLOGICAL ANALYSIS OF DRINKING WATER. PURIFICATION AND DISINFECTION OF WATER.

1. Microbiological analysis of drinking water.
2. Purification of water – experimental coagulation.
3. Disinfection of water. –
4. Chlorination – principles, methods for determination the residual chlorine in drinking water.
5. Purification of water on a small scale.

PRACTICAL № 5 – 2 acad. hours

HYGIENE INVESTIGATION OF PURIFYING STATION FOR DRINKING WATER (SITE VISIT).

PRACTICAL № 6 – 2 acad. hours

METHODS FOR AIR POLLUTION ANALYSIS. DETERMINATION OF CO₂, CO, SO₂, NO₂, LEAD AEROSOLS, DUST.

1. Air pollutants assessment. National system for air pollution monitoring.
2. Methods for sample collection – absorption and grab sampling.
3. Determination of CO, CO₂ and SO₂.
4. Determination of SO₂ and NO₂ in air samples.
5. Determination of Lead aerosols and Dust in environment and workplace.

PRACTICAL № 7 – 2 acad. hours

AIR QUALITY MONITORING (SITE VISIT).

PRACTICAL № 8 – 2 acad. hours

HYGIENE INVESTIGATION AND EVALUATION OF MICROCLIMATE FACTORS.

1. Microclimate – definition, components, health importance.

2. Methods for hygiene investigation and evaluation of air temperature, air humidity, air velocity and IR radiation.
3. Results discussion.

PRACTICAL № 9 – 2 acad. hours

METHODS FOR COMPLEX MICROCLIMATE EVALUATION.

1. Methods for complex microclimate evaluation: a) Subjective methods – Questionnaire method for determination a subjective thermal sensation according to the 7-bale scale of Bedford, Effective Temperature (ET) index, Corrected Effective Temperature (CET) index, Fanger’s comfort criteria for Predication of Thermal Comfort; b) Objective methods – Physical methods (Resulting Temperature (RT), Wet Bulb Globe Temperature (WBGT) index), Physiological methods (Pulse frequency, Blood pressure level, Vegetative Index of Kerdo, Average skin temperature, Average body temperature, Heat content of the body, Evaporative heat loss) and Integral methods (Heat Stress indices).
2. Complex microclimat evaluation using the appliance Thermal Comfort Date Logger.
3. Results discussion.

PRACTICAL № 10 – 2 acad. hours

HYGIENE EVALUATION OF HEATING, LIGHTING AND VENTILATION IN HOUSING, PUBLIC, INCLUDING HOSPITAL BUILDINGS.

1. Hygiene evaluation of Heating in housing, public including hospital buildings.
2. Hygiene evaluation of Ventilation – volume of adequate ventilation, actual volume of ventilation, ventilation rate.
3. Hygiene evaluation of Lighting – natural and artificial. Results discussion.

PRACTICAL № 11 – 2 acad. hours

HYGIENE INVESTIGATION OF HOSPITALS. HYGIENIC REQUIREMENTS TO SPECIAL HOSPITALS (CLINICS) WITH HIGH EPIDEMIOLOGICAL RISK. PREVENTION OF THE INTER-HOSPITAL INFECTIONS.

1. Hygiene requirements to special hospitals (clinics) with high epidemiological risk.
2. Hospital-acquired (nosocomial) infections – definition.
3. Control measures of nosocomial infections.
4. Prevention of nosocomial infections – principles. Discussion on the role of the physician in the prevention and control of hospital-acquired infections.

PRACTICAL № 12 – 2 acad. hours

COMMUNITY HYGIENE COLLOQUIUM.

1. Written (Test) examination
2. Oral examination.

PRACTICAL № 13 – 2 acad. hours

HYGIENIC INVESTIGATION OF SPORTS CENTER - SWIMMING POOL (SITE VISIT).

PRACTICAL № 14 – 2 acad. hours

MAIN PRINCIPLES OF IONIZING RADIATION SAFETY. RADIATION PROTECTION.

1. Radiation protection and safety conditions.
2. Ionizing radiation – main principles of protection.
3. Decontamination (deactivation). Ways and means for decontamination.
4. Introduction to the activity of the State Radiation Control Department at Regional Health Inspection Plovdiv.

PRACTICAL № 15 – 2 acad. hours

SUMMARY ON PROBLEMS OF COMMUNITY AND IONIZING RADIATION HYGIENE.

1. Discussion on problems of Community and Ionizing radiation Hygiene.

PRACTICAL № 16 – 2 acad. hours

ASSESSMENT OF PERSONAL NUTRITION. METHODS FOR DETERMINATION OF DAILY ENERGY EXPENDITURE, NORMAL BODY WEIGHT, BODY MASS INDEX AND PERSONAL NUTRITIONAL REQUIREMENTS.

1. Role of the diet and nutrition in the prevention of chronic diseases */noncommunicable diseases (NCD)/*.
2. Assessment of personal nutrition. Methods for determination of daily energy expenditure.
3. Determination of normal body weight and body mass index (BMI).
4. Determination of personal nutritional requirements; population nutrient intake goals.
5. Principles of healthy nutrition.
6. Results discussion.

PRACTICAL № 17 – 2 acad. hours

ASSESSMENT OF NUTRITIONAL STATUS. DIETARY ASSESSMENT METHODS.

1. Dietary assessment methods.
2. Physiological norms of population's nutrition.
3. Making and evaluation a diet per person from determinate population group.

PRACTICAL № 18 – 2 acad. hours

HYGIENE INVESTIGATION OF FOOD PRODUCTS. HYGIENIC INVESTIGATION OF MEAT.

1. Hygiene investigation of Food products – indicators, stages.
2. Taking of Meat sample and sample analysis – organoleptic, chemical, microbiological, parasitological indicators.
3. Results discussion.

PRACTICAL № 19 – 2 acad. hours

HYGIENE INVESTIGATION OF MILK, BABY FOOD AND CANNED FOOD.

1. Hygiene investigation of Milk – taking of Milk sample and organoleptic, chemical and biochemical analysis of milk.

2. Results discussion.
3. Hygiene evaluation of Baby food and Canned food.

PRACTICAL № 20 – 2 acad. hours

PREVENTION OF FOODBORNE DISEASES AS A RESULT OF BIOLOGICAL AND CHEMICAL CONTAMINATION OF FOOD. DUTIES OF MEDICAL SPECIALIST IN THE CASE OF FOODBORNE OUTBREAK.

1. Duties of medical specialist in the case of foodborne outbreak.
2. Discussion on the cases of foodborne diseases.
3. Foodborne diseases – control and preventive measures.

PRACTICAL № 21 – 2 acad. hours

HYGIENE INVESTIGATION OF CATERING ESTABLISHMENTS.

1. Health control of Catering establishment.
2. Results discussion.

PRACTICAL № 22 – 2 acad. hours

NUTRITION HYGIENE COLLOQUIUM.

1. Written (Test) examination
2. Oral examination.

PRACTICAL № 23 – 2 acad. hours

OCCUPATIONAL HEALTH SERVICE – SUBJECT, MAIN TASKS, ACTIVITIES, RESPONSIBILITIES AND DUTIES.

1. Subject, main tasks and activities of the Occupational health service.
2. Responsibilities and duties of the Occupational health service.

PRACTICAL № 24 – 2 acad. hours

PSYCHOLOGICAL AND PSYCHOPHYSIOLOGICAL METHODS FOR ASSESSMENT OF WORK CAPACITY AND FATIGUE.

1. Methods for assessment of Work capacity and Fatigue.
2. Methods for investigation of Nervous system – attention, memory, tremometriya, time of reaction.
3. Results discussion.
4. Preventive measures.

PRACTICAL № 25 – 2 acad. hours

HYGIENE ASSESSMENT OF NOISE AND VIBRATIONS.

1. Hygiene assessment and measurement of Noise – definition, measurement, personal hearing protection, audiometric testing.
2. Hygiene assessment and measurement of Occupational Vibrations – definition, measurement, control measures, prevention.

PRACTICAL № 26 – 2 acad. hours

HYGIENE-TOXICOLOGICAL EVALUATION OF CHEMICALS. HYGIENE CONTROL IN THE USE OF PESTICIDES.

1. Toxicometry of chemical substances using in industry and agriculture. Pesticides – definition, classification, toxicity, exposure.
2. Duties of medical specialists in the use of Pesticides.
3. Hygiene control in the use of Pesticides. Methods for Pesticides application – presentation.
4. Medical tests for the effects of Organophosphorous and Carbamate pesticide exposure.
5. Preventing pesticide exposure, protective clothing and personal safety.

PRACTICAL № 27 – 2 acad. hours

HYGIENE INVESTIGATION OF INDUSTRIAL ENTERPRISE (SITE VISIT).

PRACTICAL № 28 – 2 acad. hours

METHODS FOR CONTROL AND EVALUATION OF HEALTH STATUS AND PHYSICAL DEVELOPMENT OF CHILDREN AND ADOLESCENTS.

1. Growth and development monitoring of children and adolescents.
2. Methods for control and evaluation of child and adolescents' growth and development – anthropometry and somatoskopiya.
3. Health problems and career orientation in schools.

PRACTICAL № 29 – 2 acad. hours

HYGIENIC INVESTIGATION OF KINDERGARTENS AND SCHOOLS (SITE VISIT).

PRACTICAL № 30 – 2 acad. hours

SUMMARY ON PROBLEMS OF OCCUPATIONAL MEDICINE AND CHILDHOOD AND ADOLESCENT HYGIENE.

1. Discussion on problems of Occupational medicine.
2. Discussion on problems of Childhood and adolescent hygiene.

RECOMMENDED LITERATURE

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.

SYLLABUS IN HYGIENE AND ECOLOGY FOR SEMESTER EXAMINATION

THEORETICAL PART

1. Hygiene as a main prophylactic medical science – subject, aim, tasks, branches, methods. Current hygiene environmental issues.
2. Atmosphere. Air composition. Hygiene characteristic of physical factors of the atmosphere.
3. Climate and weather. Diseases dependent on meteorological factors. Acclimatization.
4. Chemical factors of the atmosphere – composition, characteristic and importance. Air pollutants and their effects. Winter and summer smog – characteristic and health importance. Prevention of air pollution.
5. Importance of water as a major element of the biosphere. Waterborne diseases.
6. Hygiene requirements to drinking water quality.
7. Hygiene requirements to water distribution – water supply sources and systems of water distribution. Health protection of water supplies.
8. Water purification and disinfection.
9. Hygiene of soil. Soil structure, characteristic and chemical content. Microorganisms and protozoa in the soil. Soil pollution.
10. Disposal of solid and liquid wastes.
11. Hygiene characteristics of living conditions in the areas. Hygiene requirements to the planning and building in the areas. Urban greening and public health. Urbanization.
12. Noise in urban areas – definition, sources, health effects, prevention and control.
13. Hygiene characteristics of the housing conditions. Health effects related to hygiene conditions of the houses.
14. Healthy lifestyle. Conditioning and physical activity as the elements of the healthy lifestyle.
15. Personal hygiene. Hygiene characteristics of washing means. Hygiene characteristics of dress materials and shoes.
16. Hospital hygiene. Common hygiene requirements to hospitals. Disposal of hospital wastes.
17. 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.
18. Hygiene requirements to hospitals (clinics) with high epidemiological risk – operating theatre (room), hospitals (clinics) for delivery and gynaecological diseases, clinical pathology clinics.
19. Ionizing radiation. Sources of ionizing radiation. Occupational and medical exposure.
20. Biological effects of ionizing radiation.
21. Risk and control of ionizing radiation (ionizing radiation monitoring). Main principles of protection.
22. Hygiene of nutrition. Proteins, fats and carbohydrates – physiological importance, sources and needs. Dietary fiber.
23. Vitamins – physiological importance, sources and needs. Antivitamins.

24. Minerals – physiological importance, sources and needs.
25. Healthy nutrition – main principles. Curative nutrition – principles, importance. Enteral and parenteral nutrition. Alternative nutrition.
26. Nutrition of pregnant and lactating women.
27. Nutrition of children and schoolchildren.
28. Nutrition of people engaged in mental work. Nutrition in case of stress. Nutrition in case of occupational hazards.
29. Nutrition of old people. Nutrition and osteoporosis.
30. Food processing and preservation.
31. Hygiene importance of milk and dairy products, eggs.
32. Hygiene importance of meat, fish and their products. Fats and oils.
33. Foods of vegetable origin – cereals, wheat, vegetables and fruit, pulses (legumes) and nuts, spices.
34. Sugar, sugar products and honey. Beverages.
35. Functional foods and beverages. Genetically modified foods.
36. Foodborne diseases as a result of biological food contamination. Prevention.
37. Foodborne diseases as a result of chemical food contamination. Prevention.
38. Non-microbial food poisoning. Prevention.
39. Diseases in result of super sensitiveness (“food allergy”). Interaction between food and drugs.
40. Diseases in result of irregularly nutrition.
41. Diseases because of non-balanced nutrition – obesity, cardiovascular diseases, cancer, diabetes.
42. Occupational hygiene (medicine) – subject, aim, tasks. Work activity forms. Modern work-related problems. Occupational health service.
43. Physiology of work. Changes in the body during work.
44. Work capacity, fatigue and exhaustion.
45. Ergonomics – basic principles. Ergonomics in the use of video display.
46. Physical hazards in workplace – industrial microclimate and atmospheric pressure.
47. Physical hazards in workplace – noise, ultrasound and infrasound, occupational vibrations.
48. Non-ionizing radiation in workplace – ultraviolet radiation, infrared radiation, radiofrequency radiation, extremely low frequency radiation and static fields, lasers.
49. Dust and particulate – classification, composition, health effects and risk. Occupational prevention.
50. Chemical hazards in workplace – classification, toxic effects of hazardous substances. Toxicology – toxicokinetics and toxicodynamics. Hazards, risks and risk assessment. Prevention of occupational diseases and poisoning.
51. Chemical hazards in workplace – heavy metals.
52. Chemical hazards in workplace – toxic gases.
53. Chemical hazards in workplace – organic solvents.
54. Chemical hazards in workplace – pesticides.
55. Occupational hygiene issues in Healthcare.

56. Childhood and adolescent hygiene. Age, morphological and physiological peculiarities among children and adolescents. Growth and developmental age periods.
57. Child and adolescent growth and development. Acceleration. Characteristic of morbidity among children and adolescents.
58. Physiological bases of school education. Hygiene requirements to daily regimen of children and adolescent. School fatigue and exhaustion – prevention.
59. Physiological bases of physical education. Medical control on physical education.
60. Hygiene of work and career orientation in schools.
61. Hygiene requirements to Crèches and Kindergartens.
62. Hygiene requirements to Schools.

PRACTICAL PART

1. State health control – organization, structure, public health protection activities. Regional health inspection (RHI).
2. Methods for hygienic investigation and evaluation of main physical factors of the air – Air Temperature and Air Humidity.
3. Methods for hygienic investigation and evaluation of main physical factors of the air – Air Velocity and IR radiation.
4. Subjective methods for complex microclimate evaluation.
5. Objective methods for complex microclimate evaluation — physical, physiological and integral methods.
6. Air pollutants. Air sampling for gases and vapors. Monitoring of air pollution.
7. Determination of CO and CO₂, SO₂ and NO₂ in air samples.
8. Determination of lead aerosols and dust in air samples.
9. Methods for hygienic investigation of water supplies and drinking water.
10. Water sampling for chemical and microbiological analysis. Monitoring of drinking water.
11. Organoleptic (aesthetic) and physical analysis of drinking water.
12. Chemical analysis of drinking water – pH-range, Oxidizability, Chloride, Sulfate.
13. Chemical analysis of drinking water – Ammonia, Nitrite, Nitrate.
14. Microbiological analysis of drinking water.
15. 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.
16. Hygienic evaluation of heating, lighting and ventilation in housing, public including hospital buildings.
17. Main principles of protection of external exposure and closed devices, and open sources of radiation. Decontamination (deactivation).
18. Assessment of personal nutrition. Methods for determination of daily energy expenditure, personal nutritional requirements and normal body weight.
19. Dietary assessment methods.
20. Food health control – indicators, stages.
21. Hygiene evaluation of meat. Taking of the meat samples. Laboratory tests.
22. Hygiene evaluation of milk. Taking of the milk samples. Laboratory tests.
23. Hygiene evaluation of baby foods and canned foods.

24. Foodborne diseases – control and preventive measures. Duties of medical specialist in the case of foodborne disease outbreak.
25. Hygiene requirements to catering establishments. Hazard Analysis and Critical Control Point (HACCP).
26. Psychophysiological methods for assessment of work capacity and fatigue – investigation of the nervous system and analyzers.
27. Hygiene-toxicological evaluation of chemicals. Principles of hygiene norms of chemical substances. Main criteria for assessment.
28. 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.
29. Hygiene assessment and measurement of noise and occupational vibrations.
30. Methods for control and evaluation of child and adolescents' growth and development – anthropometry and somatoskopiya.

SYLLABUS IN HYGIENE FOR STATE EXAMINATION

*as a part of the state exam of Hygiene, Epidemiology, Infectious diseases and Social
medicine*

1. Hygiene as a main prophylactic medical science – subject, aim, tasks, branches, methods. Current hygiene environmental issues.
2. Atmosphere. Air composition. Hygiene characteristic of physical factors of the atmosphere. Climate and weather. Diseases dependent on meteorological factors. Acclimatization.
3. Chemical factors of the atmosphere – composition, characteristic and importance. Air pollutants and their effects. Smog – characteristic and health importance. Prevention of air pollution.
4. Importance of water as a major element of the biosphere. Waterborne diseases. Hygiene requirements to drinking water quality.
5. Hygiene requirements to water distribution – water supply sources and systems of water distribution. Water purification and disinfection. Health protection of water supplies.
6. Hygiene of soil. Soil structure, characteristic and chemical content. Microorganisms and protozoa in the soil. Soil pollution.
7. Disposal of solid and liquid wastes.
8. Hygiene characteristics of living conditions in the areas. Hygiene requirements to the planning and building in the areas. Urban greening and public health. Urbanization. Noise in urban areas.
9. Hygiene characteristics of the housing conditions. Health effects related to hygiene conditions of the houses.
10. Healthy lifestyle. Conditioning and physical activity as the elements of the healthy lifestyle.

11. Personal hygiene. Hygiene characteristics of washing means. Hygiene characteristics of dress materials and shoes.
12. Hospital hygiene. Common hygiene requirements to hospitals. Disposal of hospital wastes.
13. 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.
14. Hygiene requirements to hospitals (clinics) with high epidemiological risk – operating theatre (room), hospitals (clinics) for delivery and gynaecological diseases, clinical pathology clinics.
15. Ionizing radiation. Sources of ionizing radiation. Occupational and medical exposure. Biological effects of ionizing radiation.
16. Risk and control of ionizing radiation (ionizing radiation monitoring). Main principles of protection. Decontamination (deactivation).
17. Hygiene of nutrition. Proteins, fats and carbohydrates – physiological importance, sources and needs. Dietary fiber.
18. Vitamins – physiological importance, sources and needs. Antivitamins.
19. Minerals – physiological importance, sources and needs.
20. Healthy nutrition – main principles. Curative nutrition – principles, importance. Enteral and parenteral nutrition. Alternative nutrition.
21. Nutrition of pregnant and lactating women.
22. Nutrition of children and schoolchildren.
23. Nutrition of people engaged in mental work. Nutrition in case of stress. Nutrition in case of occupational hazards.
24. Nutrition of old people. Nutrition and osteoporosis.
25. Food processing and preservation.
26. Hygiene importance of milk and dairy products, eggs.
27. Hygiene importance of meat, fish and their products. Fats and oils.
28. Cereals, wheat, vegetables and fruit, pulses (legumes) and nuts, spices. Sugar, sugar products and honey. Beverages.
29. Functional foods and beverages. Genetically modified foods.
30. Foodborne diseases as a result of biological food contamination. Foodborne infections.
31. Foodborne toxico-infections and intoxications. Foodborne intoxications due to toxins produced by some fungi.
32. Foodborne diseases as a result of chemical food contamination. Prevention.
33. Non-microbial food poisoning. Prevention.
34. Diseases in result of super sensitiveness (“food allergy”). Interaction between Food and Drugs.
35. Diseases in result of irregularly nutrition. Diseases because of non-balanced nutrition – obesity, cardiovascular diseases, cancer, diabetes.
36. Hygiene requirements to catering establishments. Hazard Analysis and Critical Control Point (HACCP).
37. Occupational hygiene (medicine) – subject, aim, tasks. Work activity forms. Modern work-related problems. Occupational health service.

38. Physiology of work. Changes in the body during work. Work capacity, fatigue and exhaustion.
39. Ergonomics – basic principles. Ergonomics in the use of video display.
40. Physical hazards in workplace – industrial microclimate and atmospheric pressure.
41. Physical hazards in workplace – noise, ultrasound and infrasound, occupational vibrations.
42. Non-ionizing radiation in workplace – ultraviolet radiation, infrared radiation, radiofrequency radiation, extremely low frequency radiation and static fields, lasers.
43. Dust and particulate – classification, composition, health effects and risk. Occupational prevention.
44. Chemical hazards in workplace – classification, toxic effects of hazardous substances. Toxicology – toxicokinetics and toxicodynamics. Hazards, risks and risk assessment. Prevention of occupational diseases and poisoning.
45. Chemical hazards in workplace – heavy metals.
46. Chemical hazards in workplace – toxic gases.
47. Chemical hazards in workplace – organic solvents.
48. Chemical hazards in workplace – pesticides.
49. Occupational hygiene issues in Healthcare.
50. Childhood and adolescent hygiene. Child and adolescent growth and development. Acceleration. Characteristic of morbidity among children and adolescents.
51. Physiological bases of school education. Hygiene requirements to daily regimen of children and adolescent. School fatigue and exhaustion – prevention.
52. Physiological bases of physical education. Medical control on physical education.
53. Hygiene of work and career orientation in schools.
54. Hygiene requirements to Crèches and Kindergartens.
55. Hygiene requirements to Schools.