

SYLLABUS

1. General information on the course

Full course name	Occupational Diseases
Full official name of a higher education institution	Sumy State University
Full name of a structural unit	Academic and Research Medical Institute. Кафедра нейрохірургії та неврології з курсами психіатрії, наркології, медичної психології, професійних хвороб
Author(s)	Kolenko Oksana Ivanivna, Sotnikov Dmytro Dmytrovych
Cycle/higher education level	The Second Level Of Higher Education, National Qualifications Framework Of Ukraine – The 7th Level, QF-LLL – The 7th Level, FQ-EHEA – The Second Cycle
Semester	1 weeks across 9 semester
Workload	The volume of the discipline is 1,5 credit ECTS, 45 hours, of which 20 hours is contact work with the teacher (6 hours of lectures, 14 hours practical classes), 25 hours is independent work
Language(s)	English

2. Place in the study programme

Relation to curriculum	Elective course available for study programme "Medicine"
Prerequisites	There are no specific pre-requisites
Additional requirements	There are no specific requirements
Restrictions	There are no specific restrictions

3. Aims of the course

The purpose of studying the discipline "Occupational Diseases" is to acquire theoretical knowledge and practical skills in public health in the field of occupational pathology; prevention, diagnosis and treatment of occupational diseases necessary for the implementation of professional activities of a specialist in the specialty: "Medicine"

4. Contents

Topic 1 General issues of occupational pathology

Introduction of occupational pathology. The history of the occupational diseases. Peculiarities of the diagnosis of the occupational disease. Preliminary and periodical medical check-ups of industrial and agricultural workers. The concept, subject, and objectives of occupational pathology, its place among clinical and hygienic disciplines. Features of clinical examination of patients with a probability of occupational diseases. The value of the analysis of the patient's work (professional route), the establishment of the impact of adverse factors of the production environment according to the sanitary and hygienic characteristics. The main tasks and principles of medical and labor examination of patients with occupational diseases.

Topic 2 Pneumoconiosis. Silicosis. Berylliosis. Carboconiosis. Metalloconiosis. Pathogenesis. Options for the clinical course. Clinic. Diagnosis. Treatment. Prevention. Expertise efficiency

Functional features of the respiratory system; methods of functional diagnostics of respiratory organs and the cardiovascular system; features of radiological signs in the case of various diseases of the organs breath. Pneumoconiosis: the concept of pneumoconiosis. Classification. Etiological, radiological, clinical and functional characteristics. Silicosis. Etiology. Pathogenesis. Stages of silicosis, clinical and radiological characteristics. Complications of silicosis (tuberculosis, spontaneous pneumothorax, bronchiectasis, etc.). Issues of rational therapy, prevention and examination efficiency. Silicosis. General characteristics of this group of pneumoconiosis. Basic clinical and radiological forms: asbestosis, talcosis, cement pneumoconiosis. Questions of examination efficiency and rational employment. Carboconiosis (anthracnose, graphitosis). Features of the clinical picture. Diagnosis. Treatment. Questions of medical and labor examination, occupational rehabilitation. Metalloconiosis (siderosis, aluminosis, pneumoconiosis of electric welders, grinders). Features of clinical symptoms. Diagnosis. Medical and labor issues examination and labor rehabilitation. Hypersensitive pneumonitis - beryllium, bisinosis. Pathogenesis. Features of the clinical course. Diagnosis. Treatment. Prevention. Medical and labor examination. Occupational bronchial asthma.

Topic 3 Diseases caused by physical factors and overexertion of separate organs and systems

Vibration disease. Values of vibration parameters for disease development. Classification. Pathogenesis. Options for the clinical course. Differential diagnosis. Prevention. Treatment. Medical and labor examination and labor rehabilitation. Occupational diseases due to exposure to industrial noise (neurosensory deafness). Pathogenesis. Clinical manifestations. Diagnosis. Prevention. Treatment. Examination of working capacity. Occupational diseases related to change in atmospheric pressure. Conditions associated with increased atmospheric pressure. The concept of altitude and caisson disease. Pathogenesis. Clinical manifestations. Diagnosis. Treatment. Medical and labor examination. Occupational diseases caused by electromagnetic radiationultrasound, and unfavorable factors of industrial microclimate. Treatment of diseases from the standpoint of evidence-based medicine.

Topic 4 Occupational diseases caused by overstraining of separate organs and systems

The main clinical forms of occupational dyskinesias. Chronic myofibrosis. Periarthritis of the shoulder joint. Mono- and polyneuropathy of the upper and lower extremities. Vegetative-sensory radiculopathy and radiculomyelopathy. Pathogenesis. Clinic. Diagnosis. treatment of diseases from the standpoint of evidence-based medicine. Prevention. Examination of working capacity.

Topic 5 Occupational diseases caused by chemical factors

Occupational poisoning with a predominant lesion of the nervous system (mercury, manganese, tetraethyl lead, carbon disulfide). Characteristics of neurotropic poisons. The mechanism of their action on organism. Clinical symptoms of the nervous system lesions. Methods of clinical and functional diagnosis of chronic intoxication with manganese, mercury, tetraethyl lead and carbon disulfide. Clinical symptoms of manganese, mercury intoxication, tetraethyl lead and carbon disulfide. Primary and secondary prevention. Classification of pesticides, the mechanism of their action on the human body. Acute and chronic poisoning by chlorine, phosphorus, organomercury and arsenic compounds derived from carbamic acids. Pathogenesis of intoxication. Clinical symptoms and syndromes of the respiratory, nervous, cardiovascular system, skin. Diagnosis of chronic and acute poisoning. Basic principles of treatment. Antidote treatment. transplantation issues. Differential diagnosis of major clinical syndromes. Treatment, using of antidotes. Question medical and labor examination and labor rehabilitation. Clinical and toxicological characteristics of the action of lead, arsenic compounds, amino and nitro compounds of benzene. Pathogenesis. Clinical symptoms, course, diagnosis. Treatment of diseases from the standpoint of evidence-based medicine. Prevention.

Topic 6 Final modular control

5. Intended learning outcomes of the course

After successful study of the course, the student will be able to:

LO1	Apply knowledge of occupational diseases in practical situations
LO2	Solve complex problems and problems that arise in professional activities
LO3	Determine the list of necessary laboratory and instrumental studies for examining a patient with occupational pathology as well as interpret the obtained results

7. Teaching and learning activities

7.1 Types of training

Topic 1. General issues of occupational pathology

pr.tr.1 "General issues of occupational pathology" (full-time course)

The concept, subject, and objectives of occupational pathology, its place among clinical and hygienic disciplines. Features of clinical examination of patients with a probability of occupational diseases. The value of the analysis of the patient's work (professional route), the establishment of the impact of adverse factors of the production environment according to the sanitary and hygienic characteristics. The main tasks and principles of medical and labor examination of patients with occupational diseases

Topic 2. Pneumoconiosis. Silicosis. Silicosis. Berylliosis. Carboconiosis. Metalloconiosis. Pathogenesis. Options for the clinical course. Clinic. Diagnosis. Treatment. Prevention. Expertise efficiency

lect.1 "General issue of occupational pathology. Pneumoconiosis. Silicosis. Silicosis. Berylliosis. Carboconiosis. Metalloconiosis. Pathogenesis. Clinical signs. Diagnosis. Treatment. Prevention." (full-time course)

Pneumoconiosis. The concept of pneumoconiosis. Classification of pneumoconiosis. Silicosis as pneumoconiosis, which occupies a special place among pneumoconiosis. Etiology. Pathogenesis. Clinic of the disease. Complications of silicosis (silicotuberculosis, pneumothorax, bronchiectasis, silicoarthritis). Questions of diagnostics, therapy, examination of working capacity, prevention. Berylliosis. Pathogenesis. Options for the clinical course. Clinic. Diagnosis. Treatment. Prevention. Assessment of working ability.

pr.tr.2 ""Pneumoconiosis. Chronic bronchitis and chronic obstructive pulmonary disease of dust etiology. Occupational respiratory diseases of toxic-chemical etiology" (full-time course)

Pneumoconiosis: the concept of pneumoconiosis. Silicosis. General characteristics of this group of pneumoconiosis. Carboconiosis (anthracosis, graphitosis). Metalloconiosis. Hypersensitive pneumonitis. Classification. Etiological, radiological and clinical-functional characteristics. Chronic dust bronchitis. Chronic obstructive pulmonary diseases. Classification, clinical pictures. Treatment of diseases from the perspective of evidence-based medicine. Assessment of working ability. The study of this topic involves the use of virtual simulation (watching movies) with further discussion; viewing of thematic radiographs and spirograms; analysis of clinical cases; protection of thematic presentations and reports.

Topic 3. Diseases caused by physical factors and overexertion of separate organs and systems

lect.2 "Occupational diseases caused by physical factors" (full-time course)

Vibration disease. Values of vibration parameters for disease development. Classification. Pathogenesis. Options for the clinical course. Differential diagnosis. Prevention. Treatment. Medical and labor examination and labor rehabilitation. Occupational diseases due to exposure to industrial noise (neurosensory deafness). Pathogenesis. Clinical manifestations. Diagnosis. Prevention. Treatment. Examination of working capacity. Occupational diseases related to change in atmospheric pressure. Conditions associated with increased atmospheric pressure. The concept of altitude and caisson disease. Pathogenesis. Clinical manifestations. Diagnosis. Treatment. Medical and labor examination. Occupational diseases are caused by electromagnetic radiation, ultrasound, and unfavorable factors of industrial microclimate. Treatment of diseases from the standpoint of evidence-based medicine.

pr.tr.3 "Vibration disease and neurosensory deafness. Altitude and decompression sickness. Occupational diseases caused by electromagnetic radiation and ultrasound, the action of adverse factors of the production microclimate" (full-time course)

Vibration disease. Values of vibration parameters for disease development. Classification. Pathogenesis. Options for the clinical course. Differential diagnosis. Prevention. Treatment. Medical and labor examination and labor rehabilitation. Occupational diseases due to exposure to industrial noise (neurosensory deafness). Pathogenesis. Clinical manifestations. Diagnosis. Prevention. Treatment. Examination of working capacity. Occupational diseases related to change in atmospheric pressure. Conditions associated with increased atmospheric pressure. The concept of altitude and caisson disease. Pathogenesis. Clinical manifestations. Diagnosis. Treatment. Medical and labor examination. Occupational diseases are caused by electromagnetic radiation, ultrasound, and unfavorable factors of industrial microclimate. Treatment of diseases from the standpoint of evidence-based medicine. The study of this topic involves the use of virtual simulation (watching movies) with further discussion; analysis of clinical cases; protection of thematic presentations and reports.

Topic 4. Occupational diseases caused by overstraining of separate organs and systems

pr.tr.4 "Occupational diseases associated with overvoltage of certain organs and systems" (full-time course)

Diseases of the peripheral nervous system: mono- and polyneuropathy of the upper and lower extremities, including compression and autonomic-sensory radiculopathy (cervical, lumbosacral levels), radiculomyelopathy (cervical and lumbosacral levels). Clinical picture. Diagnosis. Prevention. Treatment. Chronic myofibrosis, ligamentosis, styloidosis (elbow, shoulder), epicondylitis, bursitis of the elbow and knee joints, periarthrosis (shoulder-scapular, elbow, knee), arthrosis, osteoarthritis, osteoarthritis, osteoarthritis, osteoarthritis. Clinical picture. Diagnosis. Prevention. Treatment of diseases from the perspective of evidence-based medicine. Medical and working ability examination. The study of this topic involves the use of viewing of thematic radiographs, analysis of clinical cases; protection of thematic presentations and reports.

Topic 5. Occupational diseases caused by chemical factors

lect.3 "Occupational diseases caused by chemical factors" (full-time course)

Occupational diseases caused by chemical factors. Occupational intoxication with substances with a predominant effect on the blood system. Occupational neurotoxicosis. Features of the clinical picture. Diagnosis. Treatment. Prevention and examination of working ability. Diseases caused by exposure to agricultural pesticides.

pr.tr.5 "Occupational diseases caused by the influence of factors with a predominant effect on the hematopoietic system" (full-time course)

Acute lead intoxication. The nature of hematological changes. Questions of medical and labor examination and labor rehabilitation. Questions of primary and secondary prevention. Clinical and toxicological characteristics of the action of amino and nitro compounds of benzene. Pathogenesis. Clinical symptoms, course, diagnosis. Prevention, treatment. Issues of medical and labor examination and labor rehabilitation in case of acute and chronic intoxications. Acute and chronic intoxication with arsenic compounds. Ways of penetration of poison into an organism. Pathogenesis. Clinical symptoms, main syndromes. Treatment of diseases from the perspective of evidence-based medicine. Issues of medical and labor examination of rehabilitation in case of acute and chronic intoxications. Issues of primary and secondary prevention. The study of this topic involves the use of discussion; analysis of clinical cases; protection of thematic presentations and reports.

pr.tr.6 "Diseases caused by exposure to agricultural pesticides. Occupational neurotoxicosis. Features of the clinical picture. Diagnosis. Treatment. Prevention and examination of working ability" (full-time course)

Characteristics of substances of neurotropic action. Mercury poisoning. Pathogenesis. Classification, clinical picture. Diagnosis. Treatment. Prevention. Pathogenesis. Classification. Diagnosis. Treatment. Examination of working capacity. Tetraethyl lead poisoning. Mechanism of action. Classification. Clinic. Treatment of diseases from the perspective of evidence-based medicine. Examination of working ability. Basic principles of emergency care and antidote therapy in acute occupational poisoning. The study of this topic involves the use of discussion; analysis of clinical cases; the protection of thematic presentations and reports.

Topic 6. Final modular control

pr.tr.7 "Final modular control" (full-time course)

Grading test

7.2 Learning activities

LA1	Viewing training videos
LA2	Preparation of multimedia presentations
LA3	Self-study
LA4	E-learning in Google Meet, MIX learning systems
LA5	Solving situational tasks
LA6	Preparation to final control
LA7	Work with textbooks and relevant information sources

8. Teaching methods

Course involves learning through:

TM1	Educational discussion
TM2	Case-based learning (CBL)

TM3	Team-based learning (TBL)
TM4	Research-based learning (RBL)
TM5	Think-pair-share
TM6	Multimedia lectures
TM7	Demonstration method

The discipline provides students with the ability to abstract thinking, analysis and synthesis; ability to apply knowledge in practical situations; ability to make informed decisions; ability to learn, master modern knowledge and apply it in practical situations.

According to the requirements of educational program discipline provides students with: GC 1. Ability to abstract thinking, analysis, and synthesis. GC 2. Ability to learn, master modern knowledge, and apply the knowledge in practice. GC 3. Knowledge and understanding of the subject area and professional activity comprehension. GC 4. Ability to adapt and act in a new situation. GC 5. Ability to make reasoned decisions; teamwork ability; interpersonal skills. GC 6. Ability to communicate in a foreign language. GC 7. Ability to use information and communication technologies. GC 8. Determination and persistence on the tasks and commitments undertaken.

9. Methods and criteria for assessment

9.1. Assessment criteria

Definition	National scale	Rating scale
Outstanding performance without errors	5 (Excellent)	$170 \leq RD \leq 200$
Above the average standard but with minor errors	4 (Good)	$140 \leq RD < 169$
Fair but with significant shortcomings	3 (Satisfactory)	$120 \leq RD < 139$
Fail – some more work required before the credit can be awarded	2 (Fail)	$0 \leq RD < 119$

9.2 Formative assessment

FA1	Interviews and oral comments of the teacher on his results
FA2	Solving situational tasks
FA3	Teacher's instructions in the process of performing practical tasks
FA4	Checking and evaluating written assignments

9.3 Summative assessment

SA1	Overall score for the current success of the discipline
SA2	Presentation protection
SA3	Solving a clinical case
SA4	Final control: practice-oriented differentiated test (according to the regulations)

Form of assessment:

9 semester		200 scores
SA1. Overall score for the current success of the discipline		100
		100
SA2. Presentation protection		10
		10
SA3. Solving a clinical case		10
		10
SA4. Final control: practice-oriented differentiated test (according to the regulations)		80
		80

Form of assessment (special cases):

9 semester		200 scores
SA1. Overall score for the current success of the discipline		100
	In case of quarantine restrictions, the grading is carried out on-line using the platform Mix.sumdu.edu.ua, Zoom, Google meet.	100
SA2. Presentation protection		10
	In case of quarantine restrictions, the protection is carried out on-line using the platform Mix.sumdu.edu.ua, Zoom, Google meet.	10
SA3. Solving a clinical case		10
	In case of quarantine restrictions, the grading is carried out on-line using the platform Mix.sumdu.edu.ua, Zoom, Google meet.	10
SA4. Final control: practice-oriented differentiated test (according to the regulations)		80
	In case of quarantine restrictions, the grading is carried out on-line using the platform Mix.sumdu.edu.ua, Zoom, Google meet.	80

Grade in the discipline is defined as the sum of points for current educational activities (not less than 72) and points for the final module control (not less than 48). The number of points for the current activity is calculated by the formula $100 \times \frac{\text{arithmetic mean of the student's success in the 4-point grading system}}{5}$. The student receives a maximum of 10 points for solving a clinical case. The minimum number of points that a student must receive is 6 points. For the defense of the presentation the student receives a maximum of 10 points, a minimum of 6. The student is admitted to the test subject to the requirements of the curriculum and if for the current educational activity he scored at least 72 points: 60 points during practical classes, 6 points for defense presentations and 6 points for solving a clinical case. The final module control is conducted at the end of the semester in the form of a written test, with a score of "5" corresponds to 80 points, "4" - 64 points, "3" - 48 points, "2" - 0 points. In case of unsatisfactory result for the final module control, the student has the right to retake the test. Students who fail to take the test without good reason are considered to have received an unsatisfactory grade. The student's refusal to perform the final modular task is certified as an unsatisfactory answer.

10. Learning resources

10.1 Material and technical support

MTS1	Library funds, archive of radiographs, movies, videos
MTS2	Software (use of the training platform Mix.sumdu.edu.ua, in special cases of the platforms Google meet, Zoom)
MTS3	Information and communication systems, computers, computer systems and networks, projection equipment
MTS4	Sumy Regional Clinical Hospital

10.2 Information and methodical support

Essential Reading	
1	Occupational Diseases [Текст] : textbook / V. A. Kapustnik, I. F. Kostyuk, H. O. Bondarenko etc. ; edit.: V.A. Kapustnik, I.F. Kostyuk. — second edition. — K. : AUS Medicine Publishing, 2018. — 496 p.
Supplemental Reading	
3	Occupational Health and safety for healthcare workers [Текст] : study guide / O. P. Yavorovsky, M. I. Veremey, V. I. Zenkina etc. — K. : AUS Medicine Publishing, 2015. — 120 p.
Web-based and electronic resources	
4	Journal of Occupational Medicine and Toxicology https://occup-med.biomedcentral.com/
5	American lung association https://Journal of Occupational Medicine and Toxicology https://lung.org
6	International Labour Organization: https://www.ilo.org/