FACULTY OF MEDICINE

STUDY PROGRAM 0912.1 MEDICINE 2

DEPARTAMENT OF ONCOLOGY

APPROVED

At the meeting of the Quality Assurance Committee and Curricular Evaluation Faculty of Medicine
Proceedings No. 1 from 16.09.21
President, PhD, professor
Suman Serghei _____

APPROVED

At the meeting of Medical Faculty No.1 Council
Proceedings No. 1 from 21.09.21
Dean of Faculty of Medicine No.1, PhD, professor
Plăcintă Gheorghe _____

APPROVED

at the meeting of the Oncology Department
Proceedings No. 02 from 14.09.2021
Head of the Oncology Department PhD, professor
Sofroni Dumitru _____

SYLLABUS

DISCIPLINE **OF ONCOLOGY**

Integrated studies

Course type: **Mandatory discipline**

Curriculum developed by the team of authors:

Sofroni Dumitru PhD, professor
Cucieru Cristina university assistant

Chişinău, 2021

I. PRELIMINARIES

- General presentation of the discipline: place and role of discipline in formation of specific competences of professional training program / specialties

The discipline of Oncology is an indispensable pillar in the clinical training of the medical student. Currently, both nationally and internationally, the incidence of malignant neoplasms is constantly increasing, being predicted to rank first in the general structure of mortality by 2030. It is well known that the success of effective management in patients diagnosed with malignant tumors it is directly correlated with the detection of cancer in the early stages and the application of a personalized treatment. However, despite technical progress, modernization of diagnostic and treatment methods, the advanced stages of the tumor process, represent a rate of 30 - 40%. Thus, among the basic premises of this discipline are: achieving primary prophylaxis by promoting a healthy lifestyle, diagnosis and treatment of precancerous conditions, studying the evolutionary features and locoregional and distant extension by lymph and hematogenous metastasis of cancer, clinical features and paraclinical, establishing the principles of early diagnosis, treatment of cancer at various stages of the malignant process and estimation of prognostic and survival factors.

- The purpose of the discipline

Development of cognitive skills and functional application skills aimed at theories and notions specific to the discipline of Oncology, in terms of acquiring the peculiarities of precancerous conditions, benign and malignant tumors, assessment of diagnostic behavior and therapeutic tactics focused on the patient.

- Teaching languages: Romanian, Russian, English, French;
- Beneficiaries: students of the first year, Medicine Faculty No. 1 and No. 2, Medicine specialty

II. ADMINISTRATION OF THE DISCIPLINE

Code of discipline		**S.09.O.076**	
Name of the discipline		**Oncology**	
Responsible for discipline		**PhD, professor Sofroni Dumitru**	
Year	**V**	Semester	**IX**
Total hours, including:			**120**
Cours	**20**	Practical work	**20**
Seminars	**20**	Individual work	**60**
Evaluation form	**E**	Number of credits	**4**

III. THE OBJECTIVES OF TRAINING IN THE DISCIPLINE

At the end of the course, the student will be able to:

- ***at the level of knowledge and understanding:***

- to use the normative acts that regulate the field of oncology (protocols, guides, standards, etc.);
- to know the general notions and specific classifications (TNM, micro- / macroscopic) applicable in oncology;
- to understand the peculiarities of precancerous conditions;
- to establish the particularities of clinical-paraclinical differentiation of benign and malignant tumors;
- to determine the risk factors and the types of prophylaxis performed in order to prevent oncological pathology;
- to appreciate the general and specific clinical signs (depending on the location) of an oncological process;
- to establish the particularities of the paraclinical parameters in the case of malignant tumors;
- to appreciate the imaging aspects suggestive of the benign and malignant oncological process;
- to evaluate the role of endoscopic methods in the examination of the oncological patient;

- to determine the data suggestive of the progression of the malignant process depending on the metastatic pathway;
- to know the methods of specific treatment in oncology;
- to establish the principles of personalized treatment of the patient;
- to know the particularities of organization and the components of a successful therapeutic act;
- to establish the prognosis of the oncological process depending on the specific factors;
- to know the principles of dispensing the oncological patient;

- ***practical level:***

- to demonstrate communication skills with the cancer patient based on the principles of professional ethics;
- to demonstrate an empathetic attitude towards the patient and his relatives;
- to correctly implement the provisions of the normative acts in the clinical activity;
- to apply the principles of prophylaxis of oncological diseases;
- to know the particularities of collecting anamnestic data in the case of the oncology patient;
- to practice clinical methods and maneuvers to examine the cancer patient;
- to perform the general clinical examination of the patient with the determination of the specific signs of the benign / malignant tumor;
- to practice the general clinical examination of the patient with the appreciation of the characteristic signs of the primary / secondary tumor;
- to perform rectal examination in order to exclude rectal, prostate and Blummer-Schnitzler (pararectal) metastases in gastric cancer;
- to apply the bimanual examination of the internal genital organs in women in order to exclude tumors of the reproductive organs as well as the data of loco-regional advancement of the process with the invasion in the adjacent organs;
- to be able to analyze the laboratory data based on the theoretical knowledge accumulated regarding the specific parameters of the oncological process;
- to interpret radiograms, tomograms, isotopic and ultrasonographic scintigraphy data characteristic of the oncological process;
- to assist in performing punctures of visual tumors and peripheral lymph nodes;
- to take the smear - fingerprint in visual tumors (skin cancer, lip cancer, breast cancer, etc.);
- to assist in performing biopsy procedures for diagnostic purposes;
- to establish a complete diagnosis of malignant tumor;
- to stage a specific treatment in the case of the oncological patient;
- to plan a personalized treatment in the case of the cancer patient
- to apply the knowledge gained in the prevention of oncological diseases;

- ***at the integration level:***

- to be able to evaluate the place and role of oncology in the clinical training of the student-doctor;
- be competent to use the knowledge gained and explain the nature of pathological processes of an oncological nature;
- to be able to make the connection between oncological process → at molecular level → at cellular level → at tissue level → at organism level;
- be able to deduce the possible causes of the blockage of basic molecular processes and their consequences on the cell, tissue, organism as a whole;
- to demonstrate work skills in the multidisciplinary team;
- to be able to implement the knowledge gained in the research activity;
- be competent to use critically and reliably the scientific information obtained, using new information and communication technologies;
- be able to use multimedia technology to receive, evaluate, store, produce, present and exchange

information, and to communicate and participate in networks via the Internet;
- be able to learn to learn, which will contribute to the management of the career path.

IV. PREVIOUS CONDITIONS AND REQUIREMENTS

- knowledge of the rendition language;
- confirmed skills in sciences at the preclinical level (anatomy, genetics, histology, pathophysiology, morphopathology, pharmacology, surgery, internal medicine, psychology, ethics);
- digital competences (use of the Internet, document processing, electronic tables and presentations, use of graphics programs);
- ability to communicate and work in team;
- qualities - tolerance, compassion, autonomy.

V. ORIENTAL TIMETABLE AND ORIENTAL DISTRIBUTION OF HOURS

Courses (lectures), practical works / laboratory works / seminars and individual work

Nr. d/o	TOPIC	Number of hours		
		Prelegeri	Lucrări practice	Lucru individual
1.	Foray into oncology. Cancer: definition, epidemiology and etiology of cancer, incidence, prevalence, mortality, risk factors for cancer: exogenous, endogenous and human carcinogenesis (physical, chemical, viral), symptoms in oncological diseases. Tumor classification. Cancer prevention: primary, secondary and tertiary prevention; early detection and screening of cancers - principles, practical methods, results; principles of clinical and imaging diagnosis in cancer; tumor markers; practical importance of TNM staging in cancers. Principles of active oncological treatments (surgical, radiotherapeutic and chemotherapeutic treatment). Organization of oncology care in the Republic of Moldova. Ethics and deontology in the oncology service.	2	4	6
2.	Tumors of the reproductive organs in women. Cervical cancer. Etiopathogenesis and precancerous conditions. Early detection and screening. Symptomatology. Histopathological classification and TNM, AJCC, 8th edition, 2017. Staging (FIGO). Diagnostic and treatment methods. Prophylaxis. Prognosis. Endometrial cancer. Etiopathogenesis ("pathognomonic" triad). Histopathological and molecular classification. TNM Classification, AJCC, 8th edition, 2017. Staging (FIGO). Diagnostic and treatment methods. Follow-up. Evolution and Prognosis. Ovarian cancer. Etiopathogenesis. Risk factors. TNM Classification, AJCC, 8th edition, 2017. Staging (FIGO). WHO histopathological classification of ovarian tumors. Ovarian cancer prophylaxis. Diagnostic methods. Tumor markers in ovarian cancer (antigenic, enzymatic,	2	4	6

	hormonal). Treatment methods. Secondary surgical procedures (resection of residual mass, secondlook surgery).			
3.	Breast cancer. Mammary glands - notions of anatomy and physiology. Regional lymph nodes. Epidemiology, etiology, incidence, prevalence, breast cancer mortality. Risk factors for breast cancer: exogenous, endogenous. Precancerous conditions. Clinical and histological forms, molecular (immunohistochemical) classification of breast cancer. TNM Classification, AJCC, 8th edition, 2017. Screening. Diagnostic and treatment methods. The prognosis.	2	4	6
4.	Bronchopulmonary and esophageal cancer. Etiopathogenesis and precancerous conditions. Clinical - anatomical and histological forms. TNM Classification, AJCC, 8th edition, 2017. Evolution and clinic of lung cancer. Methods of diagnosis and treatment of central and peripheral cancer. Treatment of lung cancer according to the histological stage and form. The prognosis. Peculiarities of bronchopulmonary microcellular cancer treatment. Esophageal cancer. Carcinogenic factors and precancerous conditions. TNM Classification, AJCC, 8th edition, 2017. Diagnostic methods (radiological, endoscopic, CT). Treatment methods. Classical radical operations: Torec, Garlock, Lewis. Palliative surgery: Vitzel, Kader, Toprover gastrostomy. Chemo-radiotherapy treatment. Complex treatment. The prognosis.	2	4	6
5.	Gastric cancer. Carcinogenic factors and precancerous conditions. TNM Classification, AJCC, 8th edition, 2017. Histopathological classification of gastric cancer. Pathways of extension and metastasis. Remote lymphatic metastases Virchow-Troisier, Blummer-Schnitzler, Krukenberg, etc. Hematogenous metastases. Diagnostic methods (radiological, endoscopic, etc.). Treatment methods. The prognosis.	2	4	6
6.	Liver and pancreato-duodenal cancer (ZPD). Etiopathogenesis. Staging TNM, AJCC, 8th edition, 2017. Morphological classification of ZPD cancer. Tumors of the endocrine system of the pancreas. Diagnostic and treatment methods. Palliative surgery. Biliodigestive derivations. The prognosis. Wermer syndrome, Verner - Morisson syndrome. Liver cancer. Etiopathogenesis. TNM Classification, AJCC, 8th edition, 2017. Morphological classification of liver cancer. Diagnostic methods (USG, CT, isotope scintigraphy, biopsy laparoscopy). Treatment methods.	2	4	6

	Notion of total hepatectomy with liver transplantation. Palliative treatment. The prognosis.			
7.	Colorectal cancer. Carcinogenic factors and precancerous conditions. Family polyposis. TNM Classification, AJCC, 8th edition, 2017. Histological forms of colorectal cancer. Clinical forms of colon cancer. Diagnostic and treatment methods. Typical operations: right, left hemicolonectomy; segmental colon resection; operation Dixon, Babcock - Chiricuță; extirpation of the rectum type Quenus - Miles. Combined treatment.	2	4	6
8.	Renal, urinary and prostate cancer. Etiopathogenesis of kidney cancer. Primary extension and metastasis of kidney cancer. TNM staging classification, AJCC, 8th edition, 2017. Clinical and histological forms. Diagnostic methods (i / v urography, USG, CT, angiography). Treatment methods (surgical, radiotherapy, chemotherapy, hormonal). The prognosis. Bladder cancer. Etiopathogenesis. Clinical and histological forms. Staging TNM, AJCC, 8th edition, 2017. Diagnostic and treatment methods. Types of operations: cystectomy, bladder resection, bladder hemirection. Palliative operations: epicystotomy, uretero-cutaneostomy. Prognosis. Prostate cancer, incidence. Etiopathogenetic factors. Histopathological classification. TNM Classification, AJCC, 8th edition, 2017. Diagnostic and treatment methods. Evolution and prognosis.	2	4	6
9.	Skin cancer and malignant melanoma. Mandatory and optional precancerous conditions of the skin. Clinical and histological forms. TNM Classification, AJCC, 8th edition, 2017. Diagnostic methods. Treatment of skin cancer (surgical, radiotherapy, cryotherapy, laser therapy, chemotherapy, combined, complex). Late results and prognosis. Malignant melanoma. Predisposing factors and signs of nevi malignancy (Miller-Evans system). Peculiarities of melanoma growth and metastasis. TNM Classification, AJCC, 8th edition, 2017. Clark-Breslow staging. Methods of diagnosis and treatment of malignant melanoma. The prognosis.	2	4	6
10.	Thyroid, lower lip and mucous membranes of the oral cavity cancer. Etiopathogenetic factors. Precancerous conditions. Clinical and histological forms. TNM Classification, AJCC, 8th edition, 2017. Diagnostic and treatment methods. Peculiarities of MEN I-II syndrome. Cowden syndrome. Sipple syndrome. Cancer of the lower lip and mucous membranes of the oral cavity. Incidence. Predisposing factors, mandatory and	2	4	6

	optional precancerous conditions. TNM Classification, AJCC, 8th edition, 2017. Diagnostic and treatment methods. The prognosis.			
	Total	**20**	**40**	**60**

VI. PRACTICAL WORKS PURCHASED AT THE END OF THE COURSE

Mandatory essential practical tasks are:

- be able to communicate effectively and empathetically with oncological patient;
- to correctly implement the provisions of the normative acts in the clinical activity;
- to apply the principles of prophylaxis of oncological diseases;
- to know the particularities of collecting anamnestic data in the case of oncological patient;
- to practice clinical methods and maneuvers to examine oncological patient;
- to perform the general clinical examination of the patient with the determination of the specific signs of the benign / malignant tumor;
- to practice the general clinical examination of the patient with the appreciation of the characteristic signs of the primary / secondary tumor;
- perform rectal examination to rule out rectal, prostate and Blummer-Schnitzler (pararectal) metastases in gastric cancer;
- to apply the bimanual examination of the internal genital organs in women in order to exclude tumors of the reproductive organs as well as the data of loco-regional advancement of the process with the invasion in the adjacent organs;
- to be able to analyze laboratory data based on the theoretical knowledge accumulated on the specific parameters of the oncological process;
- to interpret radiograms, tomograms, isotopic and ultrasonographic scintigraphy data characteristic of the oncological process;
- to assist in performing punctures of visual tumors and peripheral lymph nodes;
- to take the smear - fingerprint in visual tumors (skin cancer, lip cancer, breast cancer, etc.);
- to assist in performing biopsy procedures for diagnostic purposes;
- establish a complete diagnosis of malignant tumor;
- to stage a specific treatment in the case of the cancer patient;
- to plan a personalized treatment for the cancer patient.

VII. REFERENCE OBJECTIVES AND UNITS OF CONTENT

Objectives	Content units
Topic 1. Foray into oncology. Cancer: definition, epidemiology and etiology of cancer, incidence, prevalence, mortality, risk factors for cancer: exogenous, endogenous and human carcinogenesis (physical, chemical, viral), symptoms in oncological diseases. Tumor classification. Cancer prevention: primary, secondary and tertiary prevention; early detection and screening of cancers - principles, practical methods, results; principles of clinical and imaging diagnosis in cancer; tumor markers; practical importance of TNM staging in cancers. Principles of active oncological treatments (surgical, radiotherapeutic and chemotherapeutic treatment). Organization of oncology care in the Republic of Moldova. Ethics and deontology in the oncology service.	

• to define the general notions in oncology; • to know the stages of oncogenesis, the peculiarities of benign and malignant tumors; • demonstrate skills in assessing TNM criteria in the classification of malignant tumors; • to apply empathic communication, based on the principles of ethics and deontology, in relation to the cancer patient and his relatives; • integrate the knowledge gained about risk factors (modifiable / extrinsic / exogenous and unchangeable / intrinsic / endogenous) involved in the development of tumor processes by promoting primary, secondary and tertiary prophylaxis.	1. General notions in oncology. 2. Files from the history of the development of the oncological service. 3. The stages of oncogenesis. The role of oncogenes and antioncogens in conditioning the tumor process. 4. Modifiable / extrinsic / exogenous and non-modifiable / intrinsic / endogenous risk factors in oncology. 3. Characteristics of precancerous conditions, peculiarities of benign and malignant tumors. 4. General principles of histopathological classification and TNM, AJCC, 8th edition, 2017. 5. Clinical evolution. Elements of clinical, paraclinical and imaging diagnosis. 6. Specific and personalized treatment of the cancer patient. Notions of combined / associated / complex treatment, radical / palliative, neoadjuvant / adjuvant. 7. Clinical groups in oncology. 8. Ethical and deontological aspects in the oncological service.
Topic 2. Tumors of the reproductive organs in women. Cervical cancer. Etiopathogenesis and precancerous conditions. Early detection and screening. Symptomatology. Histopathological classification and TNM, AJCC, 8th edition, 2017. Staging (FIGO). Diagnostic and treatment methods. Prophylaxis. Prognosis. Endometrial cancer. Etiopathogenesis ("pathognomonic" triad). Histopathological and molecular classification. TNM Classification, AJCC, 8th edition, 2017. Staging (FIGO). Diagnostic and treatment methods. Follow-up. Evolution and Prognosis. Ovarian cancer. Etiopathogenesis. Risk factors. TNM Classification, AJCC, 8th edition, 2017. Staging (FIGO). WHO histopathological classification of ovarian tumors. Ovarian cancer prophylaxis. Diagnostic methods. Tumor markers in ovarian cancer (antigenic, enzymatic, hormonal). Treatment methods. Secondary surgical procedures (resection of residual mass, secondlook surgery).	
• to define early detection and screening in cervical pathology; • to know the predisposing factors and the precancerous states of the reproductive organs; • demonstrate skills in clinical examination (specular examination of the cervix, bimanual and rectal of the internal genitals); • to interpret USG data, radiographic (scintigraphy, CT, MRI), laboratory (cytohistopathological); • demonstrate knowledge of analysis of treatment principles; • to apply the cytological and histopathological examination in case of detection of tumors of the reproductive organs;	1. Anatomy and physiology of the reproductive organs in women. 2. Sex hormones and the change in their secretion depending on the phases of the menstrual cycle. 3. Characteristic of precancerous conditions and benign tumors of the reproductive organs in women. 4. Etiopathogenetic classification of endometrial cancer. 5. TNM and histopathological classification of cervical, endometrial and ovarian cancer. 6. Oncological anatomy and ways of disseminating metastases. 7. Clinical evolution. Elements of clinical, paraclinical and imaging diagnosis. 8. Surgical treatment, specifically chemotherapeutic and radiant (teletherapy,

• to integrate the acquired knowledge about the pathology of the reproductive organs in the medical activity and in the society.	brachytherapy) applied in tumors of the reproductive organs in women. Indications for hormonal treatment. Applicability of immunotherapy. 9. Palliative therapy applicable in metastatic disease: surgery, radiotherapy, systemic treatment, hormone therapy, chemotherapy: mono-therapy vs. multimodal treatment; treatment with monoclonal antibodies. 10. Post-therapeutic monitoring.
Topic 3. Breast cancer. Mammary glands - notions of anatomy and physiology. Regional lymph nodes. Epidemiology, etiology, incidence, prevalence, breast cancer mortality. Risk factors for breast cancer: exogenous, endogenous. Precancerous conditions. Clinical and histological forms, molecular (immunohistochemical) classification of breast cancer. TNM Classification, AJCC, 8th edition, 2017. Screening. Diagnostic and treatment methods. The prognosis.	
• to define early detection and screening in mammary gland pathology; • to know the predisposing factors and precancerous conditions of the mammary glands; • to demonstrate skills in clinical examination (palpation of mammary glands and regional lymph nodes); • to interpret USG data, radiographic (mammography, scintigraphy, CT, MRI), laboratory (cytohistopathological); • demonstrate knowledge of analysis of treatment principles; • to apply the cytological and histopathological examination in case of detecting breast tumors; • to integrate the knowledge about the oncological pathology of the mammary glands in the medical activity and in the society.	1. Anatomy and physiology of the mammary gland. 2. Characteristic of precancerous conditions and benign tumors of the mammary glands. 3. Immunohistochemical classification of breast cancer. 4. TNM and histopathological classification of breast cancer. 5. Oncological anatomy and ways of disseminating metastases. 6. Clinical evolution. Elements of clinical, paraclinical and imaging diagnosis. 7. Surgical treatment, specifically chemotherapeutic and radiant (teletherapy, brachytherapy) applied in breast tumors. Indications for hormonal treatment. 8. Metastatic disease: surgery, radiotherapy, systemic treatment, hormone therapy, chemotherapy: mono-therapy vs. multimodal treatment; treatment with monoclonal antibodies. 9. Post-therapeutic monitoring.
Topic 4. Bronchopulmonary and esophageal cancer. Etiopathogenesis and precancerous conditions. Clinical - anatomical and histological forms. TNM Classification, AJCC, 8th edition, 2017. Evolution and clinic of lung cancer. Methods of diagnosis and treatment of central and peripheral cancer. Treatment of lung cancer according to the histological stage and form. The prognosis. Peculiarities of bronchopulmonary microcellular cancer treatment. Esophageal cancer. Carcinogenic factors and precancerous conditions. TNM Classification, AJCC, 8th edition, 2017. Diagnostic methods (radiological, endoscopic, CT). Treatment methods. Classical radical operations: Torec, Garlock, Lewis. Palliative operations: bypass, gastrostomy type Vitzel, Kader, Toprover. Chemo-radiotherapy treatment. Complex treatment. The prognosis.	
• to define the screening and detection of lung pathologies.	1. Anatomy and physiology of the respiratory system.

• to know the clinical methods and examination procedures (palpation, percussion, auscultation) of patients with precancerous conditions of the lungs and esophagus. • to demonstrate abilities to determine a pulmonary or esophageal pathology. • to demonstrate the correct interpretation of radiographs, CT, MRI, cytological and histological investigations in lung and esophageal cancer. • to apply the knowledge acquired in the examination of patients, the exclusion of risk factors, the treatment of precancerous conditions. • to integrate optimal decisions in the medical activity in order to optimize the therapeutic act at the prophylaxis stage.	2. Background and precancerous conditions of the lungs. 3. Peculiarities of the evolution of central and peripheral bronchopulmonary cancer. 4. Atypical forms of lung cancer (mediastinal, bone, liver, brain and miliary forms). 5. Imaging examination of the organs of the rib cage - radioscopy and pulmonary radiography of the face and profile, bronchography, CT, angiopneumography, phlebography). 6. Treatment methods applicable in bronchopulmonary cancer corresponding to the stage of evolution and localization of the process. 7. Characteristics of precancerous conditions of the esophagus - chronic esophagitis, peptic ulcers, diverticula, achalasia, genetic factor with Plummer Vinson syndrome. 8. Clinical evolution of esophageal cancer. 9. Radiological semiotics for exophytic, endophytic and ulcerative tumors. 10. Operations - Lewis, Garlok, Gavriliu and Kirschner-Nakayama, palliative. 11. Radiotherapy treatment in esophageal cancer of the cervical region considered as a radical method.
Topic 5. Gastric cancer. Carcinogenic factors and precancerous conditions. TNM Classification, AJCC, 8th edition, 2017. Histopathological classification of gastric cancer. Pathways of extension and metastasis. Remote lymphatic metastases Virchow-Troisier, Blummer-Schnitzler, Krukenberg, etc. Hematogenous metastases. Diagnostic methods (radiological, endoscopic, etc.). Treatment methods. The prognosis.	
• define the clinical aspects and diagnostic methods applicable in the examination of the stomach. • to know the predisposing factors and the precancerous states of the stomach. • to demonstrate the interpretation of radiographs, CT, MRI, histologies, endoscopic methods in gastric cancer. • to apply the knowledge in the examination of patients (palpation of the lymphatic ggl), the establishment of precancerous conditions, the principle of diagnosis and treatment. • to integrate knowledge in the professional activity for the exclusion of risk factors and the treatment of precancerous conditions.	1. Predisposing factors in the appearance of malignant neoplasms of the stomach - diet rich in carbohydrates, preparation and preservation of products, the action of nitrosamines, nitrates in water, alcohol, genetic disorder, immune disorders. 2. Preneoplastic diseases such as chronic gastritis, ulcer disease, polyps and polyposis, menetric disease and pernicious anemia. 3. Nodal stations according to the lambert and melnicov classification. 4. Metastases virhow, marie-joseph, krukenberg, blummer-schnitzler. 5. Diagnosis (clinical symptoms and signs, imaging, endoscopy, biopsy). 6. Resectable tumors: surgery, chemotherapy, radiotherapy. Unresectable and metastatic tumors.

Topic 6. Liver and pancreato-duodenal cancer (ZPD). Etiopathogenesis. Staging TNM, AJCC, 8th edition, 2017. Morphological classification of ZPD cancer. Tumors of the endocrine system of the pancreas. Diagnostic and treatment methods. Palliative surgery. Biliodigestive derivations. The prognosis. Wermer syndrome, Verner - Morisson syndrome.
Liver cancer. Etiopathogenesis. TNM Classification, AJCC, 8th edition, 2017. Morphological classification of liver cancer. Diagnostic methods (USG, CT, isotope scintigraphy, biopsy laparoscopy). Treatment methods. Notion of total hepatectomy with liver transplantation. Palliative treatment. The prognosis.

• to define the anatomical structure of this area, the evolutionary peculiarities and the methods of diagnosis of ZPD pathologies; • to know the epidemiology of ZPD tumors; • to demonstrate knowledge in clinical and paraclinical investigation (laboratory, imaging and endoscopic); • to apply the knowledge in the clinical examination (palpation of the liver, abdomen), reading of laboratory results (biochemical, immunological), imaging and endoscopic results in the correct application of the treatment principle of ZPD; • to integrate optimal decisions in order to optimize the therapeutic act.	1. Zpd - consisting of the pancreas, duodenum, vaterian region (papilla and ampulla water) and extrahepatic bile ducts. 2. The preicteric and jaundiced phase in the zpd cancer clinic. 3. Clinical, radiological and endoscopic diagnostic methods. 4. Benign epithelial parenchymal tumors - hepatocellular adenoma, cholangiocellular, cystadenoma and bile cell papilloma and mesenchymal - angioma, cavernous hemangioma, infantile hemangioendothelioma. 5. Primary and secondary (metastatic) liver malignancies.

Topic 7. Colorectal cancer. Carcinogenic factors and precancerous conditions. Family polyposis. TNM Classification, AJCC, 8th edition, 2017. Histological forms of colorectal cancer. Clinical forms of colon cancer. Diagnostic and treatment methods. Typical operations: right, left hemicolonectomy; segmental colon resection; operation Dixon, Babcock - Chiricuţă; extirpation of the rectum type Quenus - Miles. Combination treatment.

• to define the physiological and pathological processes at the level of the colon and rectum; • to know the precancerous conditions and the principles of examination of the colon and rectum (imaging, endoscopic); • to demonstrate knowledge regarding colon and rectal pathologies, to interpret irigograms in various pathological states; • to apply the knowledge acquired in the diagnosis of precancerous conditions and the principle of treatment of early and advanced malignant colon / rectal neoplasms; • to integrate among the general population the knowledge gained about the primary prophylaxis of colorectal cancer by promoting a healthy lifestyle.	1. Anatomy and physiology of the colon and rectum-segments of the lower digestive tract. 2. Predisposing factors in the appearance of malignant neoplasms of the colorectum. The importance of the genetic factor. Diet - excess animal fats, cholesterol and lack of cellulose fiber. 2. Precancerous conditions - inflammatory lesions, adenomatous polyps, gardner syndrome, peutz-jeghers syndrome. 3. Clinical forms of colon cancer. 4. Specific methods of diagnosis and treatment. 5. Radical and palliative surgical treatment. 6. Postoperative complications and their treatment.

Topic 8. Tumors of the prostate and reno-urinary system.
Etiopathogenesis of kidney cancer. Primary extension and metastasis of kidney cancer. TNM tadialization classification, AJCC, 8th edition, 2017. Clinical and histological forms. Diagnostic

methods (i / v urography, USG, CT, angiography). Treatment methods (surgical, radiotherapy, chemotherapy, hormonal). The prognosis.
Bladder cancer. Etiopathogenesis. Clinical and histological forms. Staging TNM, AJCC, 8th edition, 2017. Diagnostic and treatment methods. Types of operations: cystectomy, bladder resection, bladder hemirection. Palliative operations: epicystotomy, uretero-cutaneostomy. Prognosis.
Prostate cancer, incidence. Etiopathogenetic factors. Histopathological classification. TNM Classification, AJCC, 8th edition, 2017. Diagnostic and treatment methods. Evolution and prognosis.

• to define the role of harmful factors on the reno-urinary system; • to know the etiopathogenesis of benign and malignant tumors of the reno-urinary system; • to demonstrate knowledge of analysis of the principles of diagnosis and treatment of renal pathologies, bladder and prostate; • to apply modern radioimaging and endolaporoscopic methods for diagnosing pathologies of the reno-urinary system; • to integrate the knowledge about the modern techniques of diagnosis and treatment of the oncological pathology of the reno-urinary system in the professional activity.	1. People included in the risk groups of kidney cancer (people suffering from chronic kidney disease, kidney development abnormalities, pelvic mucosa leukoplakia, nephrolithiasis, renal cystic degeneration, contact with chemicals). 2. Benign and malignant tumors of the parenchyma and renal pelvis. 3. Triad of kidney and bladder cancer symptoms. 4. Clinical forms of renal cancer (hematuric, tumor, mixed, febrile, metastatic cr. 5. Methods of diagnosis and treatment of urinary tract tumors. 6. Differentiation of renal tumors from extraorganic retroperitoneal tumors.

Topic 9. Skin cancer and malignant melanoma. Mandatory and optional precancerous conditions of the skin. Clinical and histological forms. TNM Classification, AJCC, 8th edition, 2017. Diagnostic methods. Treatment of skin cancer (surgical, radiotherapy, cryotherapy, laser therapy, chemotherapy, combined, complex). Late results and prognosis.
Malignant melanoma. Predisposing factors and signs of nevi malignancy (Miller-Evans system). Peculiarities of melanoma growth and metastasis. TNM Classification, AJCC, 8th edition, 2017. Clark-Breslow staging. Methods of diagnosis and treatment of malignant melanoma. The prognosis.

• to define the fundamental concepts of oncology; • to know the structure of the skin tissue and the factors favoring the appearance of skin cancer; • to know the precancerous conditions of the skin and their treatment; • to demonstrate skills of analysis and systematization of knowledge; • to apply the knowledge in the methods of clinical examination, performing cytology and histology; • to integrate in the application of knowledge in everyday life to exclude the favoring factors in skin pathology.	1. The structure (epidermis, dermis, hypodermis) and skin functions. 3. Melanocytes - the pigment system of the epidermis having the function of releasing melanin. 4. Predisposing factors in the generation of malignant skin neoplasms. 5. Precancerous conditions - Bowen's disease, Querat's erythroplasia, Paget's disease, xeroderma pigmentozum. 6. Macroscopic forms of skin cancer - nodular, ulcerative, ulcerative-vegetative. 7. The peculiarities of the development of melanomas and nevi in cells called melanocytes. 8. Signs of malignancy of the nephews. The ABCDE system (Miller-Evans). 9. Diagnostic and treatment methods.

Topic 10. Thyroid lower lip and mucous membranes of the oral cavity cancer. Etiopathogenetic factors. Precancerous conditions. Clinical and histological forms. TNM Classification, AJCC, 8th

edition, 2017. Diagnostic and treatment methods. Peculiarities of MEN I-II syndrome. Cowden syndrome. Sipple syndrome.
Cancer of the lower lip and mucous membranes of the oral cavity. Incidence. Predisposing factors, mandatory and optional precancerous conditions. TNM Classification, AJCC, 8th edition, 2017. Diagnostic and treatment methods. The prognosis.

• to define the notion of HPV, ultraviolet, ionizing radiation, etc .; • to know the factors and precancerous conditions of the lips, the mucosa of the oral cavity, the tongue and the thyroid gland; • demonstrate clinical and laboratory examination capabilities; • to apply modern diagnostic methods (cytological - immunocytology, histological - immunohistology, imaging - radiographic, CT, MRI); • to know the treatment methods applicable in thyroid, lower lip and oral mucosa cancer (surgical, radiotherapy, chemotherapy, cryotherapy, laser therapy). • to integrate the knowledge gained in medical practice;	1. Lip precancers: optional with productive forms (diffuse hyperkeratosis) and destructive ones (chronic cheilitis, chronic fissures) and obligatory with productive forms (leukoplakia, various papillomas) and destructive ones (trophic ulcers, erythroplasias). 2. Histological classification (squamous cell carcinomas). 3. Progression of the malignant process - regional metastases (lymphatic pathway) and distant (hematogenous pathway). 4. Ionizing radiation - a major risk factor in altering the DNA of thyrocytes. 5. Histological forms of thyroid gland tumors - histogenetic (cells A, C, B). 6. Modern management in the diagnosis of thyroid pathologies. 7. Immunocytochemical and immunohistochemical markers. 8. Treatment of diseases of the skin and thyroid gland - surgical, radiotherapy and chemotherapy treatment depending on the stage of the tumor process.

VIII. PROFESSIONAL COMPETENCES (SPECIFIC (SC) AND TRANSVERSAL (TC)) AND PURPOSE OF STUDY

✓ **PROFESSIONAL COMPETENCES (SPECIFIC) (SC):**

• CP1. Responsible execution of professional tasks with the application of the values and norms of professional ethics, as well as the provisions of the legislation in force.
• CP2. Adequate knowledge of the sciences about the structure of the body, physiological functions and behavior of the human body in various physiological and pathological states, as well as the relationships between health, physical and social environment.
• C3. Resolving clinical situations by developing a plan for diagnosis, treatment and rehabilitation in various pathological situations and selecting appropriate therapeutic procedures for them, including providing emergency medical care.
• CP4. Promoting a healthy lifestyle, applying prevention and self-care measures.
• CP5. Interdisciplinary integration of the doctor's activity in a team with efficient use of all resources.
• CP6. Carrying out scientific research in the field of health and other branches of science.

✓ **TRANSVERSAL COMPETENCES (TC):**

• CT1. Improving the capacity for decision-making autonomy

✓ **THE PURPOSES OF THE DISCIPLINE**

• demonstrate communication skills with the cancer patient based on the principles of professional

ethics;
• demonstrate an empathetic attitude towards the patient and his relatives;
• to use the normative acts that regulate the field of oncology (protocols, guides, standards, etc.);
• to know the general notions and specific classifications (TNM, micro- / macroscopic) applicable in oncology;
• to acquire the particularities of precancerous conditions;
• to establish the particularities of clinical-paraclinical differentiation of benign and malignant tumors;
• to determine the predisposing factors and the types of prophylaxis performed in order to prevent oncological pathology;
• to appreciate the general and specific clinical signs (depending on the location) of an oncological process;
• to establish the particularities of the paraclinical parameters in the case of malignant tumors;
• to appreciate the imaging aspects suggestive of the benign and malignant oncological process;
• to evaluate the role of endoscopic methods in the examination of the oncological patient;
• to determine the data suggestive of the progression of the malignant process depending on the metastatic pathway;
• to demonstrate work skills in the multidisciplinary team;
• to learn the methods of specific treatment in oncology;
• to establish the principles of personalized treatment of the cancer patient;
• to know the particularities of organization and the components of a successful therapeutic act;
• to establish the prognosis depending on the specific factors of the oncological process;
• to learn the principles of dispensing the cancer patient;
• to apply the knowledge gained in the prevention of oncological diseases;
• be able to implement the specific knowledge gained in the research activity;
• be able to communicate effectively and empathetically with the cancer patient;
• to correctly implement the provisions of the normative acts in the clinical activity;
• to apply the principles of prophylaxis of oncological diseases;
• to know the particularities of collecting anamnestic data in the case of the oncological patient;
• to practice clinical methods and maneuvers to examine the cancer patient;
• to perform the general clinical examination of the patient with the determination of the specific signs of the benign / malignant tumor;
• to practice the general clinical examination of the patient with the appreciation of the characteristic signs of the primary / secondary tumor;
• perform rectal examination to rule out rectal, prostate and Blummer-Schnitzler (pararectal) metastases in gastric cancer;
• to apply the bimanual examination of the internal genital organs in women in order to exclude tumors of the reproductive organs as well as the data of loco-regional advancement of the process with the invasion in the adjacent organs;
• to be able to analyze laboratory data based on the theoretical knowledge accumulated on the specific parameters of the oncological process;
• to interpret radiograms, tomograms, isotopic and ultrasonographic scintigraphy data characteristic of the oncological process;
• to assist in performing punctures of visual tumors and peripheral lymph nodes;
• to take the smear - fingerprint in visual tumors (skin cancer, lip cancer, breast cancer, etc.);
• to assist in performing biopsy procedures for diagnostic purposes;
• establish a complete diagnosis of malignant tumor;
• to stage a specific treatment in the case of the cancer patient;
• plan a personalized treatment for the cancer patient.

IX. THE STUDENT'S INDIVIDUAL WORK

Nr.	The expected product	Strategy of achievement	Evaluation criteria	Period of realization
1.	Work with the book	Systemic work and mediate	Quality, logical thought, flexibility	During the module
2.	Report	Analysis of relevant sources on the topic of the paper. Analysis, systematization and synthesis of information on the proposed topic. Compilation of the report in accordance with the requirements in force and its presentation to the department / group.	The quality of the systematization and analysis of the informational material obtained through own activity. The concordance of the information with the proposed topic.	During the module
3.	Work with informational sources	Read the lecture or textbook material on the topic carefully. Reading the questions on the topic, which require reflection on the topic. To be acquainted with the list of additional information sources on the respective topic. Select additional sources of information on the topic. Read the whole text carefully and write the essential content. Formulation of generalizations and conclusions regarding the importance of the topic / subject..	Ability to extract the essential; Interpretive skills; workload	During the module
4.	Homework	Work in writing in the workbook depending on the question or problem posed.	The correct solution to the problem proposed for solving.	During the module
5.	Work with online materials	Online self-assessment, studying online materials on the department's SITE, expressing one's opinions through the forum and chat.	Number and duration of entries on the SITE, results of self-assessments	During the module

6.	Preparing and support of presentations	Selecting the research topic, establishing the research plan, establishing the deadlines. Establishing the components of the PowerPoint project / presentation - theme, purpose, results, conclusions, practical applications, bibliography. Colleague reviews. Teacher reviews.	The volume of work, the degree of penetration in the essence of the project theme, the level of scientific argumentation, the quality of the conclusions, elements of creativity, attitude formation.	During the module
7.	Analysis of one case	Selection and description of the case study. Analysis of the causes of the problems in the case study. Prediction of the expected outcome of the case.	Analysis, synthesis, generalization of data obtained through own investigation. Formation of a knowledge algorithm based on the conclusions obtained.	During the module

X. METHODOLOGICAL SUGGESTION OF SURRENDER – TEACHING – EVALUATION

- **Teaching and learning methods used**

When teaching the discipline Oncology, different didactic methods and procedures are used, oriented towards the efficient acquisition and achievement of the objectives of the didactic process. In the theoretical lessons, along with the traditional methods (lesson-exposition, lesson-conversation, synthesis lesson) modern methods are also used (lesson-debate, lesson-conference, problematic lesson). In the practical works are used forms of individual activity, patient care, participation in operating rooms, involvement in clinical investigations (palpation and puncture of peripheral ggl, percussion and palpation of the chest and abdomen, performing rectal palpation) and paraclinical.

For the deeper acquisition of the material, different semiotic systems (scientific language, graphic and computerized language) and didactic materials (tables, diagrams, X-rays, computed tomography, MRI, scintigraphy, mammography, endoscopic, laporoscopic and cytohistopathological data) are used. In the extracurricular lessons and activities are used Information Technology Communication - PowerPoint presentations, online lessons.

Teaching and learning methods used

• Course
- introduction
- current
- summary
- theoretical and practical
- debate

• Practical lessons
- synthesis
- repetitativ
- debate

• Traditional methods
- Case Study
- role-playing games
- interactive
- control work

- **Applied teaching strategies / technologies (specific to the discipline)**
  Presentation, interactive lecture, demonstration, problematization, group work, individual study, work with textbook and scientific text, learning through didactic film and audiovisual recordings, debate, carrying out laboratory tasks, problem solving, group interview, clinical case study, creative controversy, focus-group technique, Venn diagram, brainstorming, the tree of ideas, Sapiro's tree, bunches.
- **Methods of evaluation** (*calculating and including of final mark*).
  - ✓ **Current.** frontal and / or individual control through
- (a) applying the tests to the studied subject
- (b) solving the problems of the situation
- (c) analysis of clinical case studies
- (d) performing role-plays on the topics discussed
- (e) interpretation of clinical, laboratory, imaging and endo laparoscopy data.
  - ✓ **The final**: exam

How to round up the grades of the evaluation steps

Intermediate note (annual average, marks from the exam stages)	National system marks	Eequivalent ECTS
1,00-3,00	**2**	**F**
3,01-4,99	**4**	**FX**
5,00	**5**	**E**
5,01-5,50	**5,5**	
5,51-6,0	**6**	
6,01-6,50	**6,5**	**D**
6,51-7,00	**7**	
7,01-7,50	**7,5**	**C**
7,51-8,00	**8**	
8,01-8,50	**8,5**	**B**
8,51-8,00	**9**	
9,01-9,50	**9,5**	**A**
9,51-10,0	**10**	

The final grade will include the average for totalizations (part 0.3), practical skills (part 0.2), final test (part 0.2), oral answer (part 0.3). Annual average grade and grades of all stages of the final examination (computer-assisted, testing, oral answer) - all will be expressed in numbers according to the grading scale (according to the table), and the final grade obtained will be expressed in numbers with two decimals.
Failure to appear for the exam without good reason is recorded as "absent" and is equivalent to a grade of 0 (zero). The student is entitled to 2 repeated exams of the non-promoted exam.

X. RECOMMENDED BIBLIOGRAPHY:

A. Obligatory:

1. Lectures.
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B. Supplementary

1. David J. Kerr, Daniel G. Haller, Cornelis J. H. van de Velde, and Michael Baumann. Oxford Textbook of Oncology, 3 edition. University of Oxford, UK, 2016. ISBN-13: 9780199656103.
2. John E. Niederhuber; James O. Armitage; James H. Doroshow; Michael B. Kastan; Joel E. Tepper. Abeloff's Clinical Oncology. 2019, ISBN: 9780323476744.
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8. Цыбырнэ Г., Корчмару И., Софрони Д. и др. Клиническая онкология. Учебник для студентов. Кишинев, 2005, 830 с.
9. Суконко О. Г. Руководство по онкологии. Том 2.Минск, 2016.
10. Feiler A.A., Ungureanu A.M . Manual de radiologie şi imagistică medicală. Volumul I, Toracele. Editura Victor Babe, Timişoara, 2012. ISBN 9786068054834.
11. Philippe Giraud. Cancérologie 2ème édition actualisée. Paris, 2019.
12. Stephanie Dias. Hématologie oncologie. Vocabulaire Paris, 2018.
13. Martalog V., Cernat V., Ghidirim N. Cancerul bronhopulmonar. Chişinău, 2009, 48 p.
14. M. Grigorescu, A. Irimie, M. Beuran. Tratat de oncologie digestivă. Vol. 1. Bucureşti, 2013.
15. Martalog V., Cernat V., Ghidirim N. [et al.]. Cancerul bronhopulmonar : indicaţii metodice pentru studenţi, rezidenţi, medici de familie, oncologi, ftiziopneumologi . Universitatea de Stat de Medicină şi Farmacie "Nicolae Testemiţanu" ; IMSP Institutul Oncologic din Republica Moldova. Chişinău : Continental-Grup, 2009.