CLINICAL ONCOLOGY

CLINICAL MEDICINE 3

FIFTH YEAR

2025/2026.

Subject:

CLINICAL ONCOLOGY

The course is evaluated with 3 ECTS. There are 3 hours of active teaching per week (2 hour of lectures and 1 hour of work in a small group).

TEACHERS:

SB	Name and surname	e-mail address	Title
1	Ivan Jovanovic	ivanjovanovic77@gmail.com	Full professor
2	Vladimir Vukomanovic	vukomanovic@gmail.com	Associate professor
3	Snezana Radovanovic	jovanarad@yahoo.com	Associate professor
4	Aleksandar Cvetkovic	alex777yu@yahoo.com	Associate professor
5	Marko Spasic	drmspasic@gmail.com	Associate professor
6	Ivana Simic Vukomanovic	drivanasimic@gmail.com	Associate professor
7	Vesna Ignjatovic	vesnaivladaignjatovic@gmail.com	Assistant professor
8	Marija Zivković Radojevic	makizivkovimarija@gmail.com	Assistant professor
9	Neda Milosavljevic	neda.milosavljevic@yahoo.com	Assistant professor
10	Valentina Opančina	valentina.opancina@gmail.com	Assistant professor
11	Marina Markovic	maki.49@hotmail.com	Assistant
12	Katarina Vuleta Nedic	kvuleta@gmail.com	Assistant
13	Jelena Đorđević	jeladj997@gmail.com	Teaching assistant

COURSE STRUCTURE:

Module	**Name of the module**	**Weeks**	**Lectures weekly**	**Work in a small group per week**	**Teacher in charge**
1	Clinical oncology: basic principles and practice 1	7	2	1	Vladimir Vukomanovic
2	Clinical oncology: basic principles and practice 2	8	2	1	Vladimir Vukomanovic
					Σ 30+15=45

EVALUATION:
In the points-based grading system, the grade is equivalent to a total number of points earned in a class and each activity (see tables):

ACTIVITY DURING THE LESSON:
Students can earn up to **30** points: from lecture attendance up to 10 points and answering exam questions from lecture week during the work in a small group and receiving maximum 20 points.

MODULE TESTS:
Student can earn up to **40** points according to the attached table.

FINAL EXAM:
Students can earn up to **30** points, at final evaluation of acquired knowledge and skills. The final exam covers the overall knowledge throughout the entire lesson materials and curriculum. Examinations are performance assessments and can be carried out in written and/or oral form. The final examination is held before a committee.

MODULE		MAXIMUM NUMBER OF POINTS			
		Activity during the lesson	**Module tests**	**Final exam**	**Σ**
1	**Clinical Oncology: Basic Principles and Practice 1**	14	20		34
2	**Clinical Oncology: Basic Principles and Practice 2**	16	20		36
				30	30
Σ		**30**	**40**	**30**	**100**

TEACHING CONSULTATIONS: Consultations can be scheduled with the head of the department, Assoc. Prof. Dr Vladimir Vukomanović, vukomanovic@gmail.com

The final grade is formed as follows:
In order to pass the course, the student must obtain a minimum of 51 points, and pass all the modules.
In order to pass the module, the student must:
1. earn more than 50% of points from the module
2. earn more than 50% of points from activity during the lessons
3. pass the module test, with minimum 50% of correct answers

Passing all the modules, the student can gain the maximum of 70 points. Passing the final exam, the student can earn the maximum of 30 points in addition. The final grade is formed as the sum of total number of points from the module and the final exam, in accordance with the table.

Number of points won	Grade
0 - 50	**5**
51 - 60	**6**
61 - 70	**7**
71 - 80	**8**
81 - 90	**9**
91 - 100	**10**

MODULE TESTS

MODULE 1

MODULE 1 TEST
0--20 POINTS

The test has 20 questions.
Each question is worth 1 points.

MODULE 2

MODULE 2 TEST
0--20 POINTS

The test has 20 questions.
Each question is worth 1 points

Module	The name of the textbook	Authors	Publisher	The library
Clinical Oncology: Basic Principles and Practice 1 and 2	Cancer, Principles and practice of Oncology	DeVita, Hellman, Rosenberg Williams&Wilkins.	Wolters Kluver Lippincott Williams&Wilkins 10th edition, 2015	YES
	Perez & Brady's Principles and Practice of Radiation Oncology.	Halperin EC, Wazer DE, Perez CA. Brady LW	LWW Lippincott Williams and Wilkins 7th ed, 2018.	NO
	Nuclear Medicine and Molecular Imaging: The Requisites.	O'Malley J, Ziessman H	Elsevier Science 5th Edition. 2020.	NO
	Walter and Miller's Textbook of Radiotherapy: Radiation Physics,	Symonds, R Paul.	Elsevier Science, 2019.	NO
	Nuclear Medicine: A Core Review.	Shah C, Bradshaw M, Dalal I.	Wolters Kluver Lippincott Williams&Wilkins 2ed edition, 2021.	YES

The lectures and presentations can be found on the website of the Faculty of Medical Sciences: www.medf.kg.ac.rs

PROGRAM:

FIRST MODULE
CLINICAL ONCOLOGY: BASIC PRINCIPLES AND PRACTICE 1

TEACHING UNIT 1 (FIRST WEEK)

DEFINITION AND CHARACTERISTICS OF MALIGNANT TUMORS

2 hours of lectures	1 hour of work in a small group
• Basics principle oncology • Molecular biology of cancer • Oncogenesis • Molecular principles of tissue invasion and metastasis	Basic principles in oncology

TEACHING UNIT 2 (SECOND WEEK)

ETIOLOGY AND EPIDEMIOLOGY OF CANCER

2 hours of lectures	1 hour of work in a small group
• Etiology of cancer • Epidemiology of Cancer and Prevention Strategies • Global cancer incidence and mortality • Demographic factors that affect risk • Temporal Trends. Performance characteristics of a screening test • Incidence and mortality patterns for common cancers. prevention and early detection	Etiology and epidemiology of malignant tumors .

TEACHING UNIT 3 (THIRD WEEK)

BASIC PRINCIPLES OF CANCER DIAGNOSTICS

2 hours of lectures	1 hour of work in a small group
• Diagnostics in malignant tumors • Principles of patient assessment • The validity of serum tumor markers in oncology • Basic cancer pathology • The principles of cancer staging	Basic principles of diagnostics in cancer assessment .

TEACHING UNIT 4 (FOURTH WEEK)

NUCLEAR MEDICING CANCER IMAGING

2 hours of lectures	1 hour of work in a small group
• Devices in nuclear medicine (gamma camera, SPECT, PET) • Scintigraphy with tumorotropic radiopharmaceuticals. Molecular imaging using various radiopharmaceuticals • 18FDG PET CT imaging (staging, radiotherapy planing, PERCIST) • Immunoscintigraphy • Lymphoscintigraphy: sentinel node detection • Somatostatin receptor scintigraphy	Role of nuclear medicine in cancer diagnosis and therapy

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TEACHING UNIT 5 (FIFTH WEEK)

RADIONUCLIDE THERAPY OF MALIGNANT TUMORS

2 hours of lectures	1 hour of work in a small group
• Therapeutic Radionuclides: Biophysical and Radiobiologic Principles • Treatment of Differentiated Thyroid Cancer. Peptide Receptor Radionuclide Therapy. Radionuclide Therapy of Bone Metastases. • Radionuclide theraopy of Medullary Thyroid Carcinoma, pheochromocytoma, neuroblastoma • Radioimmunotherapy. Intra-arterial Therapy of Liver Tumours.	Nuclear Medicine Therapy: Principles and Clinical Applications

TEACHING UNIT 6 (SIXTH WEEK)

RADIOLOGICAL CANCER IMAGING

2 hours of lectures	1 hour of work in a small group
• Structural Imaging: Computed Tomography (CT) Magnetic Resonance Imaging (MRI) Ultrasound (US) • Imaging in head and neck tumors, lung, breast, abdominal tumors. • Neuroradiology. • Tumor staging. Post-treatment Evaluation. RECIST	Role of radiological imaging in cancer management

TEACHING UNIT 7 (SEVENTH WEEK)

BASIC PRINCIPLES OF RADIOTHERAPY: BASIC PHYSICS AND RADIOBIOLOGY

2 hours of lectures	1 hour of work in a small group
• Physics and chemistry of radiation interactions with matter. Molecular and cellular radiobiology. Radiobiological basis of radiation protection • Radioprotectors and radiosensitizers	General principles of radiation therapy

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SECOND MODULE
CLINICAL ONCOLOGY: BASIC PRINCIPLES AND PRACTICE 2

TEACHING UNIT 8 (EIGHT WEEK)

GENERAL PRINCIPLES OF RADIATION THERAPY

2 hours of lectures	1 hour of work in a small group
• Radiotherapy machines. Types of external radiotherapy • Transcutaneous radiotherapy. Target Volume Delineation • Modern Radiotherapy Techniques • Brachytherapy	General principles of radiation therapy

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TEACHING UNIT 9 (NINTH WEEK)

RADIATION THERAPY IN THE MANAGEMENT OF VARIOUS CANCERS

2 hours of lectures	1 hour of work in a small group
• Radiation therapy techniques in cancer treatment (breast, lung, digestive, gynecological cancers, lymphoma...)	General principles of radiation therapy

TEACHING UNIT 10 (TENTH WEEK)

CLINICAL TREATMENT OF VULNERABLE POPULATIONS IN RADIATION ONCOLOGY

2 hours of lectures	1 hour of work in a small group
• Palliative radiotherapy • Radiotherapy in geriatric cancer patients • Advances in radiotherapy for pediatric cancer patients • Side effects of radiotherapy	General principles of radiation therapy

TEACHING UNIT 11 (ELEVENTH WEEK)

BASIC PRINCIPLES OF SURGICAL ONCOLOGY

2 hours of lectures	1 hour of work in a small group
• Basic principles of surgical oncology • Surgical emergencies in oncology • Palliative surgery • Reconstructive Surgery	Basic principles of surgical oncology

TEACHING UNIT 12 (TWELFTH WEEK)

BASIC PRINCIPLES OF CHEMOTHERAPY

2 hours of lectures	1 hour of work in a small group
• Traditional cytotoxic antineoplastic agents. • Basic concept of cancer cell growth cell kinetics and growth fraction • The Different Mechanisms of Cancer Drug Resistance • Chemotherapy Regimens ((breast, lung, digestive, gynecological cancers, lymphoma...	Basic principles of chemotherapy

TEACHING UNIT 13 (THIRTEENTH WEEK)

LATEST ADVANCES IN MEDICAL ONCOLOGY

2 hours of lectures	1 hour of work in a small group
• The Principles of Targeted Therapy for Cancer Treatment • The biological therapy of cancer • Cancer immunotherapy • Antitumor Drugs and Their Targets	Advancements in clinical aspects of targeted therapy and immunotherapy in oncology

TEACHING UNIT 14 (FOURTEENTH WEEK)

MANAGEMENT OF ADVERSE EFFECTS OF CHEMOTHERAPY

2 hours of lectures	1 hour of work in a small group
• Management of adverse effects of chemotherapy • Oncologic emergencies	Management of adverse effects of oncological therapy

TEACHING UNIT 15 (FIFTEENTH WEEK)

BEST SUPPORTIVE CARE AND QUALITY OF LIFE

2 hours of lectures	1 hour of work in a small group
• Management of Cancer Pain • Psychological Issues • Specific Problems in the Setting of Advanced Cancer • Specialized Care of the Terminally Ill	Supportive care needs and health-related quality of life in cancer patients

module	week	place	type	method unit name
1	1	**L**	DEFINITION AND CHARACTERISTICS OF MALIGNANT TUMOURS	Ivan Jovanovic
1	1	**P**	DEFINITION AND CHARACTERISTICS OF MALIGNANT TUMOURS	Vladimir Vukomanovic Vesna Ignjatovic Marija Zivkovic Radojevic Neda Milosavljevic Katarina Vuleta Nedic
1	2	**L**	ETIOLOGY AND EPIDEMIOLOGY OF CANCER	Snezana Radovanovic Ivana Simic Vukomanovic
1	2	**P**	ETIOLOGY AND EPIDEMIOLOGY OF CANCER	Vladimir Vukomanovic Vesna Ignjatovic Marija Zivkovic Radojevic Neda Milosavljevic Katarina Vuleta Nedic
1	3	**L**	BASIC PRINCIPLES OF CANCER DIAGNOSTIC	Vladimir Vukomanovic
1	3	**P**	BASIC PRINCIPLES OF CANCER DIAGNOSTIC	Vladimir Vukomanovic Vesna Ignjatovic Marija Zivkovic Radojevic Neda Milosavljevic Katarina Vuleta Nedic
1	4	**L**	NUCLEAR MEDICINE IMAGING	Vladimir Vukomanovic
1	4	**P**	NUCLEAR MEDICINE CANCER IMAGING	Vladimir Vukomanovic Vesna Ignjatovic Marija Zivkovic Radojevic Neda Milosavljevic Katarina Vuleta Nedic
1	5	**L**	RADIONUCLIDE THERAPY OF MALIGNANT TUMORS	Vesna Ignjatovic

module	week	place	type	method unit name
1	5	**P**	NUCLEAR MEDICINE CANCER THERAPY	Vladimir Vukomanovic Vesna Ignjatovic Marija Zivkovic Radojevic Neda Milosavljevic Katarina Vuleta Nedic
1	6	**L**	RADIOLOGICAL CANCER IMAGING	Valentina Opancina
1	6	**P**	RADIOLOGICAL CANCER IMAGING	Vladimir Vukomanovic Vesna Ignjatovic Marija Zivkovic Radojevic Neda Milosavljevic Katarina Vuleta Nedic
1	7	**L**	INTRODUCTION TO RADIOTHERAPY. BASIC PRINCIPLES OF RADIOTHERAPY	Neda Milosavljevic
1	7	**P**	INTRODUCTION TO RADIOTHERAPY. BASIC PRINCIPLES OF RADIOTHERAPY.	Vladimir Vukomanovic Vesna Ignjatovic Marija Zivkovic Radojevic Neda Milosavljevic Katarina Vuleta Nedic
2	8	**L**	RADIATION THERAPY IN THE MANAGEMENT OF VARIOUS CANCERS 1	Neda Milosavljevic
2	8	**P**	RADIATION THERAPY IN THE MANAGEMENT OF VARIOUS CANCERS 1	Vladimir Vukomanovic Vesna Ignjatovic Marija Zivkovic Radojevic Neda Milosavljevic Katarina Vuleta Nedic
2	9	**L**	RADIATION THERAPY IN THE MANAGEMENT OF VARIOUS CANCERS 2	Marija Zivkovic Radojevic

module	week	place	type	method unit name
2	9	**P**	RADIATION THERAPY IN THE MANAGEMENT OF VARIOUS CANCERS 2	Vladimir Vukomanovic Vesna Ignjatovic Marija Zivkovic Radojevic Neda Milosavljevic Katarina Vuleta Nedic
2	10	**L**	CLINICAL TREATMENT OF VULNERABLE POPULATIONS IN RADIATION ONCOLOGY	Marija Zivkovic Radojevic
2	10	**P**	CLINICAL TREATMENT OF VULNERABLE POPULATIONS IN RADIATION ONCOLOGY	Vladimir Vukomanovic Vesna Ignjatovic Marija Zivkovic Radojevic Neda Milosavljevic Katarina Vuleta Nedic
2	11	**L**	BASIC PRINCIPLES OF SURGICAL ONCOLOGY	Aleksandar Cvetković Marko Spasić
2	11	**P**	BASIC PRINCIPLES OF SURGICAL ONCOLOGY	Vladimir Vukomanovic Vesna Ignjatovic Marija Zivkovic Radojevic Neda Milosavljevic Katarina Vuleta Nedic
2	12	**L**	BASIC PRINCIPLES OF CHEMOTHERAPY	Neda Milosavljevic
2	12	**P**	BASIC PRINCIPLES OF CHEMOTHERAPY	Vladimir Vukomanovic Vesna Ignjatovic Marija Zivkovic Radojevic Neda Milosavljevic Katarina Vuleta Nedic
2	13	**L**	LATEST ADVANCES IN MEDICAL ONCOLOGY	Vladimir Vukomanovic

module	week	place	type	method unit name
2	13	**P**	LATEST ADVANCES IN MEDICAL ONCOLOGY	Vladimir Vukomanovic Vesna Ignjatovic Marija Zivkovic Radojevic Neda Milosavljevic Katarina Vuleta Nedic
2	14	**L**	MANAGEMENT OF ADVERSE EFFECTS OF CHEMOTHERAPY	Marija Zivkovic Radojevic
2	14	**P**	MANAGEMENT OF ADVERSE EFFECTS OF CHEMOTHERAPY	Vladimir Vukomanovic Vesna Ignjatovic Marija Zivkovic Radojevic Neda Milosavljevic Katarina Vuleta Nedic
2	15	**L**	SUPPORTIVE TREATMENTS AND QUALITY OF LIFE PATIENTS WITH CANCER	Neda Milosavljevic
2	15	**P**	SUPPORTIVE TREATMENTS AND QUALITY OF LIFE PATIENTS WITH CANCER	Vladimir Vukomanovic Vesna Ignjatovic Marija Zivkovic Radojevic Neda Milosavljevic Katarina Vuleta Nedic
			Exam	