

**Odessa National Medical University**  
**Faculty of Dentistry**  
**Department of Radiation Diagnostics, Therapy, Radiation medicine and**  
**Oncology**

**Syllabus course**  
**Radiology**

<b>Amount</b>	<b>3,0 credits, 90 hours</b>
<b>Semester, year of study</b>	<b>VI semester III year of study</b>
<b>Days, time, place</b>	On schedule
<b>Teacher (s)</b>	Sokolov Viktor Mykolayovych Head of the Department, Professor, Doctor of Medical Sciences Doikova Kateryna Mykhailivna as., B \ s Korsun Alexander Anatolyevich as., B \ s Slyusarenko Olesya Dmytrivna as., B \ s
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<b>Workplace</b>	kaf. Radiology 6cor. KB11
<b>Консультації</b>	<i>consultations:</i> Every Thursday <i>Online consultations:</i> Every Saturday at Windows Teams 1) Radiology testing 3rd year (practice) 2) Radiology testing 3rd year foreigners (practice) 3) Radiology testing 3rd year (lectures) 4) Lectures (English)

### **COMMUNICATION**

Communication with the student during the distance form of study Full-time in the classrooms and offices of the department, remotely on the platform Microsoft Teams, in some cases with prior notice - through ZOOM and in Viber-groups.

### **COURSE ANNOTATION**

**The subject of study of the discipline** there are modern radiation research methods and radiation signs of diseases of various organs and systems and the main methods of radiation therapy.

**Prerequisites and postrequisites of the course:** mastering the discipline "Radiology" is based on the study of medical biology, parasitology and genetics by students; medical and biological physics; biological chemistry; bioorganic chemistry;

bioinorganic chemistry; human anatomy; normal physiology and integrates with these disciplines, based on knowledge of pathomorphology and pathological physiology, which students receive in parallel with the study of radiology. All this lays the foundations for students to study propaedeutics of internal medicine with patient care; general surgery with anesthesiology and patient care; propaedeutics of children's diseases with child care, which involves the integration of teaching with these disciplines and the formation of skills to apply knowledge of radiology in the process of further study and professional activities.

**The purpose** academic discipline is the training of future dentists in the diagnostic capabilities of radiation methods with the determination of radiation semiotics of diseases; learning the basics of radiation therapy, taking into account the indications and contraindications.

***Tasks of the discipline:***

- teach students to choose from the existing radiological methods of examination the optimal method of radiological examination to identify functional and morphological changes in the pathology of various organs and systems;
- learn to analyze the radiation semiotics of functional and morphological changes in the pathology of various organs and systems;
- learn to choose the optimal method of radiation therapy for the treatment of tumors and non-neoplastic diseases.

***Expected results***

As a result of studying the discipline, the student must evaluate information about the diagnosis in a health care institution, its unit, using knowledge about the person, his organs and systems, be able to identify and record the leading radiation symptom or syndrome based on radiation research, be able to establish the most probable or syndrome diagnosis by comparison with standards, using preliminary patient history and patient examination data, in accordance with relevant ethical and legal norms. Prescribe an effective method of radiation treatment, taking into account the results of radiation and laboratory tests.

According to the requirements of the standard, the discipline provides acquisition by students ***competencies:***

***integral:***

- ability to solve typical and complex specialized problems and practical problems in the learning process, which involves research and / or innovation and is characterized by complexity and uncertainty of conditions and requirements;

***general:***

- Ability to abstract thinking, analysis and synthesis.
- Knowledge and understanding of the subject area and understanding of professional activity.
- Ability to apply knowledge in practice.
- Ability to communicate in the state language both orally and in writing.
- Ability to communicate in English.
- Skills in the use of information and communication technologies.
- Ability to search, process and analyze information from various sources.
- Ability to adapt and act in a new situation.

- Ability to identify, pose and solve problems.
- Ability to be critical and self-critical.
- Ability to work in a team.
- The desire to preserve the environment.
- Ability to act socially responsibly and consciously.
- The ability to exercise their rights and responsibilities as a member of society, to realize the values of civil (free democratic) society and the need for its sustainable development, the rule of law, human and civil rights and freedoms in Ukraine.
- Ability to preserve and multiply moral, cultural, scientific values and achievements of society based on understanding the history and patterns of development of the subject area, its place in the general system of knowledge about nature and society and in the development of society, techniques and technologies. active recreation and a healthy lifestyle.

***special (professional, subject):***

- ability to interpret the result of laboratory and instrumental research;
- ability to diagnose: preliminary, clinical, final, concomitant diagnosis, emergencies.
- ability to organize and conduct a screening examination in dentistry
- ability to assess the impact of the environment on the health of the population (individual, family, population).
- ability to maintain regulatory medical records.

**COURSE DESCRIPTION**

***Forms and methods of teaching***

The course will be presented in the form of lectures (10 hours) and practical classes (30 hours), organization of independent work of students (50 hours).

Lectures are presented in the form of a presentation. During the teaching of the discipline in practical classes the author's presentations are used, prepared by the teachers of the department taking into account the peculiarities of the students of each group. Individual assignments and radiographs for homework are provided for each student, which are discussed at the next practical lesson with the assessment of the answer given in the group, the assessment is published. The student has the opportunity to ask questions during the practical lesson and get an answer.

*Teaching methods:* survey of students, mastering practical skills.

***The content of the discipline***

**Lecture topics**

Topic 1. Physical and technical bases of radio diagnostics in dentistry.

Topic 2. Cone-beam computed tomography in diagnostics. diseases of the maxillofacial region. Dental subtraction CT in dental practice.

Topic 3. Radiation research methods and radiation signs of diseases of the teeth and jaws.

Topic 4. Physical and technical bases of radio therapy in dentistry.

Topic 5. Radiotherapy procedures in dental practice

### **Topics of practical classes**

Topic 1. Basic properties of ionizing radiation. Features of the device of X-ray and radiological departments.

Topic 2. Physical and technical bases of radio diagnostics in dentistry. Physical and technical bases of X-ray research.

Topic 3. Cone-beam computed tomography in diagnostics. diseases of the maxillofacial region. Dental subtraction CT in dental practice.

Topic 4. Radiation research methods and radiation anatomy of the maxillofacial region. Radiation signs of diseases of the teeth and jaws.

Topic 5. Radiation signs of diseases of the teeth and jaws.

Topic 6. Variants of development of the teeth and maxillofacial region.

Topic 7. Anomalies of development of the teeth.

Topic 8. Radiation semiotics of diseases of the teeth and jaws.

Topic 9. Radiation signs of inflammatory diseases of the teeth and jaws.

Topic 10. Radiation diagnosis of periodontitis.

Topic 11. Radiation signs of traumatic damage of teeth and jaws.

Topic 12. Radiation signs of complications of healing of fractures of the maxillofacial region. Radiation diagnosis of osteomyelitis of the maxillofacial region.

Topic 13. Radiation signs of tumor (benign and malignant) lesions of the maxillofacial region.

Topic 14. Biological action of ionizing radiation. Radioactivity and dose. Dosimetry of ionizing radiation. Principles and methods of radiation therapy in dentistry.

Topic 15. Final control of mastering the discipline.

### ***List of recommended reading***

#### **Basic:**

1. Essential radiology for medical students, interns and residents // A. Ahuja. – OMF publishing. – 2017. – 518 p.
2. Kovalsky O. Radiology. Radiotherapy. Diagnostic Imaging: textbook for students of higher med. education establishments of IVth accreditation level / O. Kovalsky, D. Mechev, V. Danylevych. — 2nd ed. — Vinnytsia: Nova Knyha, 2017. — 504 p.
3. Diagnostic Radiology: textbook for medical students, residents, doctors, researches / M.I. Pilipenko, Y.E. Vikman, M.E. Slabodchikov [et al.]. - Kharkiv, 2018. - 260 p.
4. William Herring MD FACR\ Learning Radiology: Recognizing the Basics 3rd Edition\ May, 2019\451 p.
5. Jo-Anne O Shepard MD\Thoracic Imaging The Requisites (Requisites in Radiology) 3rd Edition\ March, 2018 \496 p
6. Mista R., Planner A., Uthappa M. \ A-Z of Chest Radiology \ Cambridge University, 2007\224 p.

#### **Secondary**

7. Chen M. Basic Radiology / Michael Y. M. Chen, Thomas L. Pope, David J. Ott. — 2nd ed. — McGraw Hill Professional, 2017. — 408 p.
8. Haller J. O., Slovis T. L., Joshi A. Pediatric Radiology 3rd Ed. \ Springer-Verlag Berlin Heidelberg 1995, 2015. Printed in Germany, 298 p.

### **Information resources.**

1. <https://radiopaedia.org/articles/cone-beam-ct?lang=us>
2. <https://radiopaedia.org/playlists/6531?lang=us>
3. <https://radiopaedia.org/articles/dental-implant?lang=us>
4. <https://www.slideshare.net/ektagarg11/periapical-pathology>

## **EVALUATION**

**Methods of current control: Practical classes:** conversation, solving clinical situational problems, practicing patient examination skills, demonstration and practice of manipulation skills according to list 5, instruction and practice of skills on simulation models, training exercises on differential diagnosis of the most common diseases.

**Current control:** oral examination, testing, assessment of practical skills, solving situational clinical problems, assessment of activity in the classroom.

**Final control:** dif.test.

### **Structure of the current assessment in the practical lesson:**

1. Assessment of theoretical knowledge on the topic of the lesson:
  - methods: survey, solution of situational clinical problem;
  - maximum score - 5, minimum score - 3, unsatisfactory score - 2.
2. Assessment of practical skills and manipulations on the topic of the lesson:
  - methods: assessment of correctness of practical skills
  - maximum assessment - 5, minimum assessment - 3, unsatisfactory assessment - 2;
3. Assessment of work with the patient on the topic:
  - methods: assessment: a) communication skills of communication with the patient and his parents, b) the correctness of the appointment and evaluation of laboratory and instrumental studies, c) compliance with the algorithm for differential diagnosis d) justification clinical diagnosis, e) preparation of a treatment plan
  - maximum score - 5, minimum score - 3, unsatisfactory score - 2;

The student is admitted to the final control of mastering the discipline (differential test) subject to the requirements of the curriculum and if for the current academic activity he received at least 3.00 points, no skipping lectures and practical classes, successfully made an abstract and a presentation on the topics of independent work of students (VTS).

***How will the assessment of knowledge (distribution of points) of higher education students be carried out?***

The maximum number of points assigned to students when mastering each module (ECTS credit) is 200.

### The structure of the differential test

The content of the evaluated activity	Number
Independent description of three cases of radiation damage (for example: acute and chronic radiation sickness).	3
The answer to theoretical 2 (two) questions.	2

The grade for the discipline is 50.0% of the grade for current performance and 50.0% of the grade for the exam.

The average score for the discipline is translated

Conversion of a traditional grade for a discipline into a 200-point scale is carried out by the information and computer center of the university by the program "Contingent".

Table of conversion of a traditional grade into a multi-point scale:

National assessment for the discipline	The sum of points for the discipline
«5»	185 – 200
«4»	151 – 184
«3»	120 – 150

Points from the discipline are independently converted into both the ECTS scale and the four-point scale. ECTS scale scores are not converted to a four-point scale and vice versa. Further accounts are carried out by the information and computer center of the university.

Conversion of traditional assessment in the discipline and the amount of points on the ECTS scale.

### Independent work of students (VTS)

Each student during the two semesters of the course "Radiology" must perform and report in a group 1 essay and 1 presentation, which are evaluated and taken into account when receiving the average score for the period of study. The student can get advice from his teacher on the topics of essays and presentations in extracurricular activities.

The student chooses the topics of the work freely according to the topics, the list of which is published in the first lesson, they are determined by the work program. Topics should not be repeated in the group.

### COURSE POLICY

**Deadline and recompilation policy:** For students who want to improve their performance in mastering the content modules, it is possible to conduct a re-final control of mastering the discipline (content module) during the exam in the commission.

#### **Academic Integrity Policy:**

Violation of academic integrity is not allowed when working on writing essays, presentations, preparing reports, etc. When using Internet resources and other sources of information, the student must indicate the source used during the task.

If plagiarism is detected, the student receives an unsatisfactory grade for the task and must re-complete the task.

Write-off during testing and diff. offsets are prohibited (including the use of mobile devices).

***Attendance and lateness policy:***

Delay of a student more than 15 minutes before a lecture or a practical lesson is counted as absence from the practical lesson.

***Mobile devices:***

Mobile devices in practice can be used exclusively for educational purposes. Namely: consideration of the presentation, which is worked on in class, solving the problems of the teacher. The use of mobile devices for other purposes during a lecture or practical lesson is prohibited, and a student who disregards these requirements will be suspended from the lecture or practical lesson.

***Audience behavior:***

During a lecture or practical lesson, the student should not interfere with the learning of other students and distract the teacher. A student is not allowed to eat or drink alcohol during a lecture or practical session. The student can leave the classroom, where there is a lecture or practical lesson of their choice only for health reasons.