





| Pasteura 4  |                                  |   |  |   |  |  |  |  |  |  |  |   |   |  |  |  |  |  |  |
|---|----------------------------------|---|--|---|--|--|--|--|--|--|--|---|---|--|--|--|--|--|--|
| Department of Pharmacology, ul. Mikulicza Radeckiego 2  | 10                               |   |  | 0 |  |  |  |  |  |  |  |   |   |  |  |  |  |  |  |
| <b>TOTAL per year:</b>  |                                  |   |  |   |  |  |  |  |  |  |  |   |   |  |  |  |  |  |  |
| Department of Endocrinology, Diabetology and Isotopes Therapy, Wybrzeże L. Pasteura 4   |                                  |   |  | 5 |  |  |  |  |  |  |  |   |   |  |  |  |  |  |  |
| Department of Pharmacology, ul. Mikulicza Radeckiego 2  | 10                               |   |  |   |  |  |  |  |  |  |  |   |   |  |  |  |  |  |  |
| <b>Educational objectives (max. 6 items)</b>  |                                  |   |  |   |  |  |  |  |  |  |  |   |   |  |  |  |  |  |  |
| C1. The acquaint with knowledge in the field of actually diagnostic and therapies isotopes procedures   |                                  |   |  |   |  |  |  |  |  |  |  |   |   |  |  |  |  |  |  |
| C2. Get to know the indications and contraindications to perform the diagnostic procedures using isotopes, the role of isotopes examinations during diagnostics procedures, the limitations of using the isotopes (in the subject of the treatment of radioactive iodine the patients with hyperthyroidism) |                                  |   |  |   |  |  |  |  |  |  |  |   |   |  |  |  |  |  |  |
| C3. Teaching the therapies with isotopes (especially radioiodine treatment of hyperthyroidism), indications, contraindications and the rules of radiation safety  |                                  |   |  |   |  |  |  |  |  |  |  |   |   |  |  |  |  |  |  |
| <b>Education result matrix for module/course in relation to verification methods of the intended education result and the type of class</b>   |                                  |   |  |   |  |  |  |  |  |  |  |   |   |  |  |  |  |  |  |
| Number of course education result   | Number of major education result | Student who completes the module/course knows/is able to  |  |   |  |  |  |  |  |  |  | Methods of verification of intended education results (forming and summarising) | Form of didactic class<br><i>**enter the abbreviation</i> |  |  |  |  |  |  |
| <b>W1</b>   | F.W.10                           | The student knows the basis of radiation and the methods of its detection.  |  |   |  |  |  |  |  |  |  | Oral response   | SE, CC  |  |  |  |  |  |  |
| <b>W2</b>   |                                  | Lists the common diagnostic and therapeutic isotopes procedures.  |  |   |  |  |  |  |  |  |  | Oral response   | SE, CC  |  |  |  |  |  |  |
| <b>W3</b>   |                                  | Defines hyperthyroidism symptomatology useful to qualify patients to the radioactive iodine treatment.  |  |   |  |  |  |  |  |  |  | Oral response   | SE, CC  |  |  |  |  |  |  |
| <b>W4</b>   |                                  | Lists diagnostic procedures (scintigraphies) and laboratory findings which are needed to plan the radioactive iodine treatment of benign thyroid disease. |  |   |  |  |  |  |  |  |  | Oral response   | SE, CC  |  |  |  |  |  |  |
| <b>W5</b>   |                                  | Compares various treatment of hyperthyroidism.  |  |   |  |  |  |  |  |  |  | Oral response   | SE, CC  |  |  |  |  |  |  |
| <b>W6</b>   |                                  | Lists the basic and important indications and contraindications to use the isotopes in medicine.  |  |   |  |  |  |  |  |  |  | Oral response   | SE, CC  |  |  |  |  |  |  |
| <b>W7</b>   |                                  | Describes the radiation safety rules regarding to personnel and patients.   |  |   |  |  |  |  |  |  |  | Oral response   | SE, CC  |  |  |  |  |  |  |
| <b>U1</b>   | F.U. 7                           | Describes the thyroid scintigraphy.   |  |   |  |  |  |  |  |  |  | Oral response   | CC  |  |  |  |  |  |  |
| <b>U2</b>   |                                  | Plans the moment when the radioiodine therapy of benign thyroid diseases is indicated and justified   |  |   |  |  |  |  |  |  |  | Oral response   | CC  |  |  |  |  |  |  |



|   |  |  |                             |    |
|---|--|--|-----------------------------|----|
| U3  |  | Formulates the radiation safety rules (patient and personnel).   | Oral response               | CC |
| U4  |  | Based on medical history and additional examinations (especially scintigraphy) differentiates diagnosis and therapies. | Oral response               | CC |
| U5  |  | Takes unassisted medical history.  | Oral response               | CC |
| K 1<br>K2<br>K3   |  |  |                             |    |
| ** L - lecture; SE - seminar; AC – auditorium classes; MC – major classes (non-clinical); CC – clinical classes; LC – laboratory classes; SCM – specialist classes (magister studies); CSC – classes in simulated conditions; FLC – foreign language course; PCP practical classes with patient; PE – physical education (obligatory); VP – vocational practice; SS – self-study, EL – E-learning . |  |  |                             |    |
| Please mark on scale 1-5 how the above effects place your classes in the following categories:<br>communication of knowledge, skills or forming attitudes:<br>Knowledge: ....4<br>Skills: ....3<br>Social competences: not applicable   |  |  |                             |    |
| <b>Student's amount of work (balance of ECTS points)</b>  |  |  |                             |    |
| <b>Student's workload</b><br>(class participation, activity, preparation, etc.)   |  |  | <b>Student Workload (h)</b> |    |
| 1. Contact hours:   |  |  | 15                          |    |
| 2. Student's own work (self-study):   |  |  | 5,5                         |    |
| Total student's workload  |  |  | 20,5                        |    |
| <b>ECTS points for module/course</b>  |  |  | 0,5                         |    |
| Comments  |  |  |                             |    |
| <b>Content of classes</b> (please enter topic words of specific classes divided into their didactic form and remember how it is translated to intended educational effects)   |  |  |                             |    |
| <b>Lectures – not applicable</b>  |  |  |                             |    |
| <b>Seminars:</b>  |  |  |                             |    |
| 1. History and basal of nuclear medicine; radioisotopes, detection of ionizing radiation, the radiation safety (F.W1, F.W2, F.W7) – 100 minutes (sem.1)   |  |  |                             |    |
| 2. The role of endocrine system scintigraphy in diagnosis and treatment based on thyroid and parathyroid examinations (F.W2, F.W4, F.W6) – 110 minutes (sem 1., sem.2)  |  |  |                             |    |
| 3. Scintigraphy of musculoskeletal system; neoplastic bone diseases, metabolic diseases, inflammations (F.W2, F.W4, F.W6) – 100 min (sem.2, sem 3.)   |  |  |                             |    |
| 4. Other nuclear examinations (scintigraphy of cardiovascular, excretory, respiratory systems, lymphoscintigraphy, sentinel node detection (F.W2, F.W4, F.W6) – 50 min (sem.3)  |  |  |                             |    |
| 5. Isotopes therapy (thyroid diseases, bone metastases, polycythemia, liver carcinoma) (F.W2, F.W3, F.W4, F.W5, F.W6, F.W7) – 90 min (sem.3)  |  |  |                             |    |
| <b>Practical classes</b>  |  |  |                             |    |
| - organization of Nuclear's Medicine Division (F.W1, F.W7) – 20 minutes   |  |  |                             |    |
| - scintigraphy imaging (isotopes, aquisition, results) (F.W2, F.W6, F.U1, F.U4) – 40 minutes  |  |  |                             |    |
| - qualification to radioiodine therapy (patients suffering from hyperthyroidism or nontoxic goiter), examination of the patient (discussion about the result of ultrasound, hormone's level and especially thyroid scintigraphy using technetium (99-mTc) and radioiodine (131-I) (F.W2, F.W3, F.W4, , F.W5, F.W6, F.U2, F.U3, F.U4, F.U5) – 55 minutes   |  |  |                             |    |
| - repetition of thyroid gland anatomy, hypo – and hyperthyroidism and crucial examinations for the best choice of therapy (including isotopic tests) (F.W3, F.W6, F.U4) - 55 minutes  |  |  |                             |    |
| - the rules of radiation safety (131-I therapy) (F.W1, F.W6, F.W7, F.U3, F.U7) – 55 minutes   |  |  |                             |    |



**Other - not applicable**

**Basic literature** (list according to importance, no more than 3 items)

**In English:** M. Reza Habibian, Dominique Delbeke, William H. Martin, Martin P. Sandler, o V. Vitola Nuclear Medicine Imaging, A Teaching File. Lippincott Williams & Wilkins, 2012,

**In Polish:**

D. Piciu Endokrynologia nuklearna, Springer, Medipage, 2015

B. Birkenfeld, M. Listewnik – Medycyna nuklearna – obrazowanie molekularne, PUM, Szczecin, 2011

L. Królicki – Medycyna nuklearna, Fundacja im. L. Rydygiera, 1996

**Additional literature and other materials** (no more than 3 items)

**In English (journals):**

Nuclear Medicine Review,

European Journal of Nuclear Medicine and Molecular Imaging

**Didactic resources requirements** (e.g. laboratory, multimedia projector, other...)

- Classes: Division of Nuclear Medicine with equipment: gamma cameras (planar and SPECT/CT), room for radiopharmaceuticals preparation, room for physician

- Seminars: Overhead projector, multimedia equipment

**Preliminary conditions** (minimum requirements to be met by the student before starting the module/course)

The knowledge of:

- symptoms and signs of hyperthyroidism

- causes of hyperthyroidism

- therapies of hyperthyroidism

- laboratory findings and diagnostic imaging in the thyroid diseases

- basis of radiation safety (especially in nuclear medicine)

**Conditions to receive credit for the course** (specify the form and conditions of receiving credit for classes included in the module/course, admission terms to final theoretical or practical examination, its form and requirements to be met by the student to pass it and criteria for specific grades)

**Classes:**

Mandatory presence, active presence, oral response

**Seminars:**

Presence and oral response are mandatory to receive credit

| <b>Grade:</b>              | <b>Criteria</b> (only for courses/modules ending with an examination) |
|----------------------------|---|
| Very Good<br>(5.0)         |   |
| Good Plus<br>(4.5)         |   |
| Good<br>(4.0)              |   |
| Satisfactory Plus<br>(3.5) |   |
| Satisfactory<br>(3.0)      |   |



|                      |  |
|----------------------|--|
| Dość dobra<br>(3,5)  |  |
| Dostateczna<br>(3,0) |  |

**Nazwa i adres jednostki prowadzącej moduł/przedmiot, kontakt: tel. i adres email**

Katedra i Klinika Endokrynologii, Diabetologii i Leczenia Izotopami  
Wydział Lekarski Kształcenia Podyplomowego, Uniwersytet Medyczny we Wrocławiu  
50-367 Wrocław, Wybrzeże L. Pasteura 4, Tel. 71 784 25 45  
Mail: [marek.bolanowski@umed.wroc.pl](mailto:marek.bolanowski@umed.wroc.pl)

**Koordinator / Osoba odpowiedzialna za moduł/przedmiot, kontakt: tel. i adres email**

Diana Jędrzejuk, dr n. med., nauki medyczne, Pracownia Medycyny Nuklearnej, 50-367 Wrocław,  
Wybrzeże L. Pasteura 4, piwnice, pok. 31, tel. 71 784 25 65, [diana.jedrzejuk@umed.wroc.pl](mailto:diana.jedrzejuk@umed.wroc.pl)

**Wykaz osób prowadzących poszczególne zajęcia: Imię i Nazwisko, stopień/tytuł naukowy lub zawodowy, dziedzina naukowa, wykonywany zawód, forma prowadzenia zajęć.**

**Katedra i Klinika Endokrynologii, Diabetologii i Leczenia Izotopami:**

Diana Jędrzejuk, dr n med., nauki medyczne, pracownik naukowo-dydaktyczny, ćwiczenia / seminaria  
Eliza Kubicka, dr n med., nauki medyczne, pracownik naukowo-dydaktyczny, ćwiczenia / seminaria

**Katedra i Zakład Radiologii:**

Karolina Dopierała, lekarz, doktorant II roku / seminaria  
Jurand Silicki, lekarz, doktorant II roku / seminaria  
Małgorzata Milnerowicz, lekarz, doktorant II roku / seminaria  
Aleksandra Rubin, lekarz, doktorant II roku / seminaria  
Jagoda Jacków, lekarz, doktorant II roku / seminaria

Data opracowania sylabusu  
30/06/2017

Sylabus opracował(a)  
Dr n. med. Diana Jędrzejuk.

Podpis Kierownika jednostki prowadzącej zajęcia

prof. dr hab. n. med. Marek Bolanowski

Podpis Dziekana właściwego wydziału

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