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| Study program : Pharmacy | | | |
| Type and level of studies: Integrated academic studies, Level 1/2 | | | |
| Course unit: RADIOPHARMACY | | | |
| Teacher in charge: Assistant professor Vesna Ignjatovic, MD, DSc | | | |
| Language of instruction : ENGLISH | | | |
| ECTS: 7 | | | |
| Prerequisites: Completed course in pharmacology and toxicology | | | |
| Semester: SUMMER SEMESTER | | | |
| Course unit objective: Acquiring knowledge and skills of preparation and quality control of radiopharmaceuticals. | | | |
| Learning outcomes of Course unit: | | | |
| <ul style="list-style-type: none"> • Understands the issues regarding patient, personnel and environment safety when working with radioactive materials and is able to apply that knowledge in practice when preparing a radiopharmaceutical. • Basic knowledge of radiopharmacy, which includes production, preparation of radiopharmaceuticals, preparation of individual doses for patients, quality control of pharmaceutical forms labeled with different radioactive isotopes with the application of the principle of protection against ionizing radiation. Knowledge about clinically important adverse drug reactions and drug-drug interactions. • Basics of pharmacokinetics and pharmacodynamics of radiopharmaceuticals, pathophysiological basis of diseases and conditions in the diagnosis and therapy of which radiopharmaceuticals are used, the importance of recognizing side effects and effects of drugs. • Making appropriate radiopharmaceutical choices and dosage regimens according to the needs of patients | | | |
| Course unit contents | | | |
| <i>Theoretical classes</i> | | | |
| Introduction to radiopharmacy. Properties and method of radioisotope production for use in nuclear medicine. Basic characteristics of ⁹⁹ Mo / ^{99m} Tc generator; Aseptic procedure of preparation of radiopharmaceuticals for diagnosis. Labeling of biological material with radioactive isotopes. Quality control of radiopharmaceuticals. Properties and production of PET radiopharmaceuticals. Radionuclide therapy. Pharmacology and pharmacokinetics of radiopharmaceuticals. Adverse reactions and interactions of radiopharmaceuticals. | | | |
| <i>Practical classes</i> | | | |
| Calculation of generator radioactivity eluate. Calculating a single dose for a patient. Applying the principles of radiation protection. Introduction to the work in the HOT laboratory and to the methods of quality control of radiopharmaceuticals. Handling of PET radiopharmaceuticals. Preparation of the patient for examinations and therapy with radionuclides with monitoring of the pharmaceutical-therapeutic plan. | | | |
| Literature | | | |
| <ul style="list-style-type: none"> • Saha GB. Fundamentals of Nuclear Pharmacy. 7th Edition. Gopal BS (Ed) Springer; 2018 • Sampson`s Textbook of Radiopharmacy. 4th revised Edition. Theobald T (Ed) Pharmaceutical Press; 2011 • Radiopharmaceuticals in Nuclear Pharmacy and Nuclear Medicine. 3rd Edition. Kowalsky RJ, Falen SW (Eds) • American Pharmacists Association; 2011 Atkinson JA, Huang SM, Lertora JLL, Markey SP. Principles of Clinical Pharmacology, 3rd ed., Academic Press, 2012. | | | |
| Number of active teaching hours | | | Other classes |
| Lectures: 30 | Practice: 30 | Other forms of classes: 15 | |
| Teaching methods: Lectures, practice in a clinic, clinical problems solving | | | |
| Examination methods (maximum 100 points) | | | |
| Exam prerequisites | No. of points: | Final exam | No. of points: |
| Student`s activity during lectures | 30 | oral examination | |

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|-------------------------|----|---------------------|--|
| practical classes/tests | 70 | written examination | |
| Seminars/homework | | | |
| Project | | | |
| Other | | | |
| | | | |

| Grading system | | |
|-----------------------|----------------------|--------------------|
| Grade | No. of points | Description |
| 10 | 95-100 | Excellent |
| 9 | 85 – 94 | Exceptionally good |
| 8 | 75 – 84 | Very good |
| 7 | 65 – 74 | Good |
| 6 | 55 – 64 | Passing |
| 5 | < 55 | Failing |

(Table 5.2) Course unit description