**COURSE OUTLINE**

1. **GENERAL**

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| **SCHOOL** | School of Health Sciences | | | | |
| **ACADEMIC UNIT** | Faculty of Medicine | | | | |
| **LEVEL OF STUDIES** | Undergraduate | | | | |
| **COURSE CODE** | **IAE807** | **SEMESTER** | | **G’** | |
| **COURSE TITLE** | Diagnostic and Therapeutic Aplications in Nuclear Medicine | | | | |
| **INDEPENDENT TEACHING ACTIVITIES** *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits* | | | **WEEKLY TEACHING HOURS** | | **CREDITS** |
| Theoretical teaching lectures and Hospital laboratory practice | | | 2 | | 2 |
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|  | | |  | |  |
| *Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).* | | |  | |  |
| **COURSE TYPE**  *general background,  special background, specialised general knowledge, skills development* | General Knowledge and Scientific area | | | | |
| **PREREQUISITE COURSES:** | None | | | | |
| **LANGUAGE OF INSTRUCTION and EXAMINATIONS:** | Greek | | | | |
| **IS THE COURSE OFFERED TO ERASMUS STUDENTS** | YES | | | | |
| **COURSE WEBSITE (URL)** | <https://ecourse.uoi.gr/enrol/index.php?id=1820> | | | | |

1. **LEARNING OUTCOMES**

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| **Learning outcomes** | |
| *The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.*  *Consult Appendix A*   * *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area* * *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B* * *Guidelines for writing Learning Outcomes* | |
| The teaching approach concerns the description of the main diagnostic and therapeutic radioisotope methods applied in Nuclear Medicine, the branch of Medicine that uses radioactive elements for diagnostic and therapeutic purposes. The principle on which it is based is the use of special pharmaceutical substances, which are labeled with radioactive tracers. These complex compounds are called radiopharmaceuticals and emit radiation, in the form of gamma rays or α or β particles, as well as positrons.  Diagnostic Nuclear Medicine is divided into scintigraphic imaging (in vivo) and serological diagnosis (in vitro). Scintigraphy is a functional imaging examination, which provides unique diagnostic information. It is performed by administering a radiopharmaceutical, usually intravenously, followed by taking appropriate images in a special imaging device, called a γ-camera (SPECT) or positron emission tomography (PET) system. The recorded image from various organs of the body reflects the manner in which each radiopharmaceutical is taken up and metabolized, thus depicting the functional state of the tissue and organ under examination. In vitro Nuclear Medicine applies the use of radioactive tracers to measure various substances and hormones in the blood of the subject, without exposing the subject to radiation. Finally, therapeutic Nuclear Medicine aims at administering radiopharmaceuticals that emit particle radiation.  These are selectively concentrated in the human tissue under treatment, irradiating it "from the inside" and thus causing increased cellular destruction, for the purpose of treatment. | |
| **General Competences** | |
| *Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?* | |
| *Search for, analysis and synthesis of data and information, with the use of the necessary technology*  *Adapting to new situations*  *Decision-making*  *Working independently*  *Team work*  *Working in an international environment*  *Working in an interdisciplinary environment*  *Production of new research ideas* | *Search for, analysis and synthesis of data and information, with the use of the necessary technology*  *Adapting to new situations*  *Decision-making*  *Working independently*  *Team work*  *Working in an international environment*  *Working in an interdisciplinary environment*  *Production of new research ideas* |
| -Search, analysis and synthesis of data and information, using the necessary technologies  -Autonomous work  -Work in an interdisciplinary environment | |

1. **SYLLABUS**

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| The introduction of students to metabolic (or functional) imaging (SPECT, PET), which is the subject of application of the specialty, serological diagnosis (RIA-IRMA in vitro) and the administration of radioisotopes for therapeutic purposes. |

1. **TEACHING and LEARNING METHODS - EVALUATION**

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| **DELIVERY** *Face-to-face, Distance learning, etc.* | Face-to-face theoretical teaching and hospital laboratory practice in the Nuclear Medicine Laboratory in small groups of students from faculty members and NHS doctors. |
| **USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY** *Use of ICT in teaching, laboratory education, communication with students* | Image processing for diagnostic purposes |
| **TEACHING METHODS**  *The manner and methods of teaching are described in detail.*  *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.*  *The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS* | |  |  | | --- | --- | | ***Activity*** | ***Workload of each students group*** | | Lectures | 26 | | Laboratory Exercise | 10 | | Student Study | 20 | |  |  | |  |  | |  |  | |  |  | | Total course of 25 hours of workload per credit unit | ***56*** | |
| **STUDENT PERFORMANCE EVALUATION**  *Description of the evaluation procedure*  *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other*  *Specifically-defined evaluation criteria are given, and if and where they are accessible to students.* | Oral examination (100%) |

1. **ATTACHED BIBLIOGRAPHY**

*Teaching - study material*

NUCLEAR MEDICINE. Dimitrios Apostolopoulos, Tryfon Spyridonidis, Nikolaos Papathanasiou. Year of Publication:2022