



Subject card

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| Subject name and code | Selected Issues of Human Radiobiology, PG_00050106 | | | | | | |
| Field of study | Biomedical Engineering | | | | | | |
| Date of commencement of studies | October 2022 | | Academic year of realisation of subject | | 2024/2025 | | |
| Education level | first-cycle studies | | Subject group | | Optional subject group Subject group related to scientific research in the field of study | | |
| Mode of study | Full-time studies | | Mode of delivery | | at the university | | |
| Year of study | 3 | | Language of instruction | | Polish | | |
| Semester of study | 6 | | ECTS credits | | 1.0 | | |
| Learning profile | general academic profile | | Assessment form | | assessment | | |
| Conducting unit | Department of Atomic, Molecular and Optical Physics -> Faculty of Applied Physics and Mathematics | | | | | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | | dr hab. Paweł Możejko | | | | |
| | Teachers | | | | | | |
| Lesson types and methods of instruction | Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
| | Number of study hours | 15.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15 |
| | E-learning hours included: 0.0 | | | | | | |
| Learning activity and number of study hours | Learning activity | Participation in didactic classes included in study plan | | Participation in consultation hours | | Self-study | SUM |
| | Number of study hours | 15 | | 1.0 | | 9.0 | 25 |
| Subject objectives | To provide basic and fundamental information about physical methods used in radiobiology. | | | | | | |
| Learning outcomes | Course outcome | | Subject outcome | | Method of verification | | |
| | [K6_W02] Knows and understands, to an advanced extent, selected laws of physics and physical phenomena as well as methods and theories explaining the complex relationships between them, constituting the basic general knowledge in the field of technical sciences related to the field of study | | - Knowledge of the structure of matter at the level of elementary particles and atomic nucleus - Knowledge of radioactive decay - Knowledge of the interaction of ionizing radiation with matter - Knowledge about radiation interaction with cellular systems - Knowledge of methods for detection of ionizing radiation. | | [SW1] Assessment of factual knowledge | | |
| | [K6_W51] Knows and understands, to an advanced extent, selected aspects of human anatomy and physiology, constituting general knowledge related to the field of study | | - Knowledge of the structure of matter at the level of elementary particles and atomic nucleus - Knowledge of radioactive decay - Knowledge of the interaction of ionizing radiation with matter - Knowledge about radiation interaction with cellular systems - Knowledge of methods for detection of ionizing radiation. | | [SW1] Assessment of factual knowledge | | |
| Subject contents | Lectures: The structure of matter Radioactive decays The interaction of the radioactive decay products with matter Ionizing radiation detectors Simple biological systems The effect of alpha radiation interaction with biological systems The effect of beta radiation interaction with biological systems The effect of gamma radiation interaction with biological systems Methods for study the interaction of the ionizing radiation with living organisms Direct effects of the ionizing radiation on cellular systems Indirect effects of the ionizing radiation on cellular systems Basic dosimetric quantities Determination of radiation doses Dosimetry of ionizing radiation Radiological protection Classes: The atomic nucleus Types of radioactive decay Law of radioactive decay Kinetics of radioactive decay The interaction of alpha radiation with matter The interaction of beta radiation and matter The interaction of gamma radiation with matter Basic biological systems. Effects of the interaction of ionizing radiation with bio-matter. Basic dosimetric quantities. Natural radioactivity in the environment Artificial radioactivity in the environment | | | | | | |
| Prerequisites and co-requisites | No requirements | | | | | | |

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| Assessment methods and criteria | Subject passing criteria | Passing threshold | Percentage of the final grade |
| | | 50.0% | 50.0% |
| | final exam | 50.0% | 50.0% |
| Recommended reading | Basic literature | Skrypt z materiałami do przedmiotu „Radiobiologia i Ochrona Radiologiczna” “Człowiek i promieniowanie jonizujące” Red. Z.A. Hryniewicz PWN Warszawa 2001 | |
| | Supplementary literature | Jerzy Sobkowski „Chemia jądrowa” PWN Warszawa 1981 Wojciech Szymański „Chemia jądrowa” PWN Warszawa 1996 | |
| | eResources addresses | Adresy na platformie eNauczanie: | |
| Example issues/ example questions/ tasks being completed | | | |
| Work placement | Not applicable | | |