

GDAŃSK UNIVERSITY

Subject card

| Subject name and code | Principles of Spectroscopic Techniques, PG_00050110 | | | | | | | | |
|---|--|--|---|-------------------------------------|--------|--|-------------------|-----|--|
| Field of study | Biomedical Engineering | | | | | | | | |
| Date of commencement of studies | October 2025 | | Academic year of realisation of subject | | | 2028/2029 | | | |
| 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 | at the university | | |
| Year of study | 4 | | Language of instruction | | | Polish | Polish | | |
| Semester of study | 7 | | ECTS credits | | | 2.0 | 2.0 | | |
| Learning profile | general academic profile | | Assessment form | | | assessment | | | |
| Conducting unit | Division Of Complex Systems Spectroscopy -> Institute Of Physics And Applied Computer Science -> Faculty Of Applied Physics And Mathematics -> Wydziały Politechniki Gdańskiej | | | | | | | | |
| Name and surname | Subject supervisor | | dr inż. Marcin Dampc | | | | | | |
| of lecturer (lecturers) | Teachers | | | | | | | | |
| Lesson types and methods of instruction | Lesson type | Lecture | Tutorial | Laboratory | Projec | t | Seminar | SUM | |
| | Number of study hours | 15.0 | 0.0 | 0.0 | 15.0 | | 0.0 | 30 | |
| | 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 | 30 | | 2.0 | | 18.0 | | 50 | |
| Subject objectives | Presenting basic concepts of optical spectroscopy and physics behind the designated methods. Learning the skill of selecting appropriate technique for a specific physical/chemical/medical problem and learning about the limitations of each experimental technique. | | | | | | | | |
| 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 we as methods and theories explaining the complex relationships between them, constituting the basic general knowledge in the field of technic sciences related to the field of study | | dvanced of physics hena as well ories ex n them, c general d of technical | electromagnetic radiation with matter based on quatum mechanics, electromagnetism and | | | [SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects | | | |

| Prerequisites Basics in optical spectroscopy Electromagnetic radiation Quantization of energy Emission and absorption of radiation Optical spectroscopic equipment Optical monochromators and spectrographs Interferometers Detectors Interferometers Detectors Rotational spectra Vibrational spectra Vibrational spectra Vibrational spectra Raman spectra | Subject contents | Introduction | | | | | | |
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| Electromagnetic radiation Quantization of energy Emission and absorption of radiation Optical spectroscopic equipment Optical spectroscopic equipment Optical monochromators and spectrographs Interferometers Detectors Infrared, absorption, Fourier, Raman, laser and microwave spectroscopy Rotational spectra Raman spectra Vibrational spectra Raman spectra Recommended reading Basic Illerature 1. W. Dentroder, Spektroscopic Illesemon, PMN, Warszawa 1993. 2. Z. Kopic Aroskawi spektroskopic Illesemone, PMN, Warszawa 1993. Recommended reading 1. W. Dentroder, Spektroskopic Illesemone, PMN, Warszawa 1993. Recommended reading 1. W. Dentroder, Spektroskopic Illesemone, PMN, Warszawa 1993. Recommended reading 1. W. Dentroder, Spektroskopic Illesemone, PMN, Warszawa 1993. Recommended reading 1. W. Dentroder, Spektroskopic Illesemone, PMN, Warszawa 1993. Supplementary Illerature 1. W. Dentroder, Spektroskopic Induktane at Jack Jack VIN, Warszawa 1993. Resources addresses Adresy na platformic eNauczanic. Resources addresses Adresy na platformice Anauczanic. | | | | | | | | |
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| Work placement Not applicable | | Not applicable | | | | | | |

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