



Subject card

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|---|--|--|--|-------------------------------------|---|------------|-----|
| Subject name and code | Advances in materials engineering instrumentation: new trends and applications, PG_00042271 | | | | | | |
| Field of study | Nanotechnology | | | | | | |
| Date of commencement of studies | October 2023 | Academic year of realisation of subject | | | 2023/2024 | | |
| Education level | second-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 | 1 | Language of instruction | | | English | | |
| Semester of study | 1 | ECTS credits | | | 2.0 | | |
| Learning profile | general academic profile | Assessment form | | | assessment | | |
| Conducting unit | Instytut Nanotechnologii i Inżynierii Materiałowej -> Faculty of Applied Physics and Mathematics | | | | | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | | dr hab. inż. Aleksandra Mielewczyk-Gryń | | | | |
| | Teachers | | dr hab. inż. Aleksandra Mielewczyk-Gryń | | | | |
| Lesson types and methods of instruction | Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
| | Number of study hours | 30.0 | 0.0 | 0.0 | 0.0 | 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 | The aim of the course is to present the current advancement in multiple experimental techniques used in state-of-the-art measurement techniques. | | | | | | |
| Learning outcomes | Course outcome | | Subject outcome | | Method of verification | | |
| | K7_W03 | | The student recognizes the relevant trends in materials science | | [SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects | | |
| | K7_W02 | | The student has proper knowledge of current state-of-the-art materials engineering methods | | [SW1] Assessment of factual knowledge | | |
| | K7_U01 | | The student is capable of analyzing the information coming from different sources. | | [SU2] Assessment of ability to analyse information | | |

| Subject contents | <p>§Introduction</p> <p>§Thermal analysis</p> <p>§Microscopy</p> <p>§Resonance methods</p> <p>§Spectroscopy §Ion scattering methods</p> <p>§Optical properties measurements</p> <p>§Low temperature methods</p> <p>§Electrical properties measurements</p> <p>§Diffraction methods§Introduction</p> <p>§Thermal analysis</p> <p>§Microscopy</p> <p>§Resonance methods</p> <p>§Spectroscopy</p> <p>§Ion scattering methods</p> <p>§Optical properties measurements</p> <p>§Low temperature methods</p> <p>§Electrical properties measurements</p> <p>§Diffraction methods</p> | | | | | | | | | | | | | | |
|--|--|---|--|--------------------------|-------------------|-------------------------------|---------------------|-------|-------|------------------------|-------|-------|------------|-------|-------|
| Prerequisites and co-requisites | | | | | | | | | | | | | | | |
| Assessment methods and criteria | <table border="1"> <thead> <tr> <th data-bbox="456 1592 794 1619">Subject passing criteria</th> <th data-bbox="799 1592 1137 1619">Passing threshold</th> <th data-bbox="1142 1592 1469 1619">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="456 1626 794 1653">paper review - oral</td> <td data-bbox="799 1626 1137 1653">50.0%</td> <td data-bbox="1142 1626 1469 1653">25.0%</td> </tr> <tr> <td data-bbox="456 1659 794 1686">paper review - writing</td> <td data-bbox="799 1659 1137 1686">50.0%</td> <td data-bbox="1142 1659 1469 1686">25.0%</td> </tr> <tr> <td data-bbox="456 1693 794 1720">final test</td> <td data-bbox="799 1693 1137 1720">50.0%</td> <td data-bbox="1142 1693 1469 1720">50.0%</td> </tr> </tbody> </table> | | | Subject passing criteria | Passing threshold | Percentage of the final grade | paper review - oral | 50.0% | 25.0% | paper review - writing | 50.0% | 25.0% | final test | 50.0% | 50.0% |
| Subject passing criteria | Passing threshold | Percentage of the final grade | | | | | | | | | | | | | |
| paper review - oral | 50.0% | 25.0% | | | | | | | | | | | | | |
| paper review - writing | 50.0% | 25.0% | | | | | | | | | | | | | |
| final test | 50.0% | 50.0% | | | | | | | | | | | | | |
| Recommended reading | <p>Basic literature</p> <p>Supplementary literature</p> <p>eResources addresses</p> | <p>William D. Callister, Jr. Materials Science and Engineering 2007 John Wiley & Sons, Inc.</p> <ul style="list-style-type: none"> • Charles T. Lynch Practical Handbook of Materials Science ISBN 9781439832097 • Goldstein, J., Scanning Electron Microscopy and X-ray Microanalysis ISBN 978-1-4615-0215-9 <p>Adresy na platformie eNauczanie: Advances in materials engineering instrumentation: new trends and applications - Moodle ID: 33951 https://enauzanie.pg.edu.pl/moodle/course/view.php?id=33951</p> | | | | | | | | | | | | | |
| Example issues/ example questions/ tasks being completed | | | | | | | | | | | | | | | |

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| Work placement | Not applicable |
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