



Subject card

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|---|---|--|---|-------------------------------------|--|------------|-----|
| Subject name and code | Astronomy with Elements of Astrophysics, PG_00050008 | | | | | | |
| Field of study | Space and Satellite Technologies | | | | | | |
| Date of commencement of studies | February 2026 | | Academic year of realisation of subject | | 2025/2026 | | |
| Education level | second-cycle studies | | Subject group | | Obligatory subject group in the field of study | | |
| Mode of study | Full-time studies | | Mode of delivery | | at the university | | |
| Year of study | 1 | | Language of instruction | | Polish | | |
| Semester of study | 1 | | ECTS credits | | 3.0 | | |
| Learning profile | general academic profile | | Assessment form | | assessment | | |
| Conducting unit | Department of Geoinformatics -> Faculty of Electronics Telecommunications and Informatics -> Wydział Politechniki Gdańskiej | | | | | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | | dr hab. inż. Zbigniew Łubniewski | | | | |
| | Teachers | | dr hab. inż. Zbigniew Łubniewski | | | | |
| Lesson types and methods of instruction | Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
| | Number of study hours | 15.0 | 15.0 | 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 | | 10.0 | | 35.0 | 75 |
| Subject objectives | Students obtain knowledge and practical skills in the field of astronomy and astrophysics for space and satellite technologies. | | | | | | |
| Learning outcomes | Course outcome | | Subject outcome | | Method of verification | | |
| | [K7_K02] Understands the non-technical aspects of activities in the field of space and satellite technologies, including their social consequences and impact on the state of the environment. Expresses opinions on the development of technology and related risks. | | Student understands the non-technical aspects of activities in the field of astronomy and astrophysics, including their social consequences and impact on the state of the environment. | | [SK4] Assessment of communication skills, including language correctness [SK2] Assessment of progress of work | | |
| Subject contents | The celestial sphere, spherical coordinates, horizontal coordinate system, astronomical meridian, gnomon, hourly coordinate system, sun clock, sphere movement at different latitudes, apparent celestial motion, determination of altitude in upper and lower culmination of celestial body. Stars, their origin, naming, division of the celestial sphere, equatorial and ecliptic coordinate systems, atlases and star catalogs, precession, apparent annual motion of the Sun, concept of ecliptic, Kepler laws, days, 'nights, seasons, moon, its phases, Eclipses of the Sun and Moon, planets and their apparent motion, geocentric system, heliocentric system, calendar concept. Selected physical processes in the Universe related to objects such as galactic stars, interstellar matter and their interactions, Star formation and planetary systems, Gas and star dust: formation of molecules and grains, flares. The apparent and absolute brightness of stars, own movements, spectral classes, Russell's Hertzsprung diagram. Evolution of the stars. | | | | | | |
| Prerequisites and co-requisites | Mathematics, physics | | | | | | |
| Assessment methods and criteria | Subject passing criteria | | Passing threshold | | Percentage of the final grade | | |
| | Colloquium | | 56.0% | | 80.0% | | |
| | Exercises | | 100.0% | | 20.0% | | |

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| Recommended reading | Basic literature | E. Rybka, Astronomia ogólna, PWN, Warszawa, 1983 B. Kołaczek, Astronomia sferyczna, Warszawa, 1976 P. G. Kulikowski, Poradnik miłośnika astronomii, PWN, Warszawa 1976 M. Kubiak, Gwiazdy i materia międzygwiazdowa, PWN, Warszawa, 1994. |
| | Supplementary literature | Not specified. |
| | eResources addresses | |
| | Not specified. | |
| Example issues/ example questions/ tasks being completed | Not specified. | |
| Work placement | Not applicable | |

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