

| STUDY MODULE DESCRIPTION FORM | | |
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| Name of the module/subject Theory of physical experiment | | Code 1010341631010424920 |
| Field of study Mathematics | Profile of study (general academic, practical) (brak) | Year /Semester 2 / 3 |
| Elective path/specialty - | Subject offered in: Polish | Course (compulsory, elective) obligatory |
| Cycle of study: First-cycle studies | Form of study (full-time, part-time) full-time | |
| No. of hours Lecture: 45 Classes: 30 Laboratory: 15 Project/seminars: - | | No. of credits 7 |
| Status of the course in the study program (Basic, major, other) (brak) | | (university-wide, from another field) (brak) |
| Education areas and fields of science and art technical sciences Technical sciences | | ECTS distribution (number and %) 7 100% 7 100% |
| Responsible for subject / lecturer: dr Andrzej Jarosz email: andrzej.jarosz@put.poznan.pl tel. tel. +48 61 665 3226 Wydział Fizyki Technicznej ul. Piotrowo 3, 60-965 Poznań | | |
| Prerequisites in terms of knowledge, skills and social competencies: | | |
| 1 | Knowledge | Fundamentals of physics and mathematics ? secondary school level |
| 2 | Skills | Basic knowledge of mathematics and physics |
| 3 | Social competencies | Student should be ready to hard work and has good relationship with team |
| Assumptions and objectives of the course: -Students will obtain knowledge of fundamental physics phenomena and their theoretical description in the field of: mechanics, heat and molecular physics, electricity and magnetism, optics and modern physics | | |
| Study outcomes and reference to the educational results for a field of study | | |
| Knowledge: | | |
| 1. The student should obtain knowledge of on basic method applied in solution of standard advances problems - [-] | | |
| Skills: | | |
| 1. Applied basic physical laws and solving some simple physical problems - [-] | | |
| Social competencies: | | |
| 1. Moral aspects of engineer?s social roles - [-] | | |
| 2. Sphere social interaction - [-] | | |
| Assessment methods of study outcomes | | |
| - Written examination, tests during which students should present their knowledge of both theoretical and practical skills | | |
| Course description | | |

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| <p>-Mechanics: particle kinematics and dynamics. Work and energy. Rotational kinematics and dynamics. Relativistic mechanics. Oscillations. The gravitational field. Fluid mechanics. Waves in elastic media. Temperature expansion. Gas processes. Distribution of molecular speeds. Heat: quantity of heat and specific heat; heat conduction. Thermodynamics. The electric field. Electric current. The magnetic field. Electromagnetic induction. Magnetic properties of matter. Electromagnetic oscillations and waves. Geometrical optics. Wave optics. Quantum physics. Temperature radiation; Plank's formula. Photoelectric effect. The Compton effect. The Bohr hydrogen atom. Nuclear physics. Solid state physics.</p> | | |
| <p>Basic bibliography:</p> <p>1. Podstawy fizyki, D.Halliday, R.Resnick, J.Walker, PWN, Warszawa, 2003 2. Kurs fizyki, B.Jaworski, H.Dietlaw, L.Miłkowska, PWN, Warszawa, 1979</p> | | |
| <p>Additional bibliography:</p> <p>1. Fizyka dla inżynierów, J.Massalski, WNT, Warszawa, 1971 2. Fizyka kwantowa, PWN, R.Eisberg, R.Resnick, PWN, Warszawa, 1983</p> | | |
| <p>Result of average student's workload</p> | | |
| <p>Activity</p> | | <p>Time (working hours)</p> |
| <p>1. Preparation of students for physical laboratory</p> | | <p>60</p> |
| <p>2. Preparation to pass examination</p> | | <p>60</p> |
| <p>Student's workload</p> | | |
| <p>Source of workload</p> | <p>hours</p> | <p>ECTS</p> |
| <p>Total workload</p> | <p>180</p> | <p>7</p> |
| <p>Contact hours</p> | <p>100</p> | <p>4</p> |
| <p>Practical activities</p> | <p>80</p> | <p>3</p> |