



Subject card

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|---|---|---|----------|-------------------------------------|--|------------|-----|
| Subject name and code | Selected Aspects of Pharmaceutical Techniques, PG_00064143 | | | | | | |
| Field of study | Mechanical and Medical Engineering | | | | | | |
| Date of commencement of studies | October 2026 | Academic year of realisation of subject | | | 2028/2029 | | |
| Education level | first-cycle studies | 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 | Institute of Mechanics and Machine Design -> Faculty of Mechanical Engineering and Ship Technology -> Faculties of Gdańsk University of Technology | | | | | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | prof. Wiesław Sawicki | | | | | |
| | Teachers | | | | | | |
| Lesson types | 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 | Skills and competences: characterization and description of essential oral dosage forms. Skills and competences: quality assessment of drug formulation, selection of storage conditions for medicinal products. | | | | | | |
| Learning outcomes | Course outcome | Subject outcome | | | Method of verification | | |
| | [K6_U04] is able to utilize empirical, analytical, simulation, and computer-based methods to formulate and solve engineering tasks in the field of medical and mechanical engineering | The student is able to use the basic knowledge of solid dosage form technology necessary for the IMM course of study. | | | [SU3] Assessment of ability to use knowledge gained from the subject | | |
| | [K6_K01] knows his/her proficiencies and his/her limitations in performing professional tasks, he/she is aware of needing to improve his/her skills through the whole life, he/she has entrepreneurship and innovation skills, he/she is aware of engineering skills from the society point of view | Student understands the non-technical aspects of drugs production, has a habit of documenting activities, understands the need of work with maintaining order and cleanliness, demonstrate attention in anticipating potential problems and mistakes. | | | [SK5] Assessment of ability to solve problems that arise in practice | | |
| | [K6_W06] has knowledge in specific areas related to the application of mechanical engineering in medicine or in the field of medical and rehabilitation devices | Student has elementary knowledge of the issues of pharmacokinetics and biopharmacy. | | | [SW1] Assessment of factual knowledge | | |

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| Subject contents | <p>Course content – lecture</p> <p>Solid dosage form technology and related pharmacokinetic and biopharmaceutical issues: unit processes (granulation, tableting, coating, drying); tablet press types, design and operation of the Korsch XP1 laboratory tablet press, coating and coating machines, granulation, drying and fluidized bed coating, coating agents; granulate characteristics, manufacturing methods, excipients, control methods; pellet characteristics, manufacturing methods; tablets (oral, for oral use, for preparing solutions and suspensions, coated and uncoated, excipients); basics of powder compression engineering; gelatin capsules: soft and hard, release modification, multi-compartment dosage forms; basics of capsule filling engineering with powders and granules; Oral modified-release drug forms: enteric-coated and extended-release - manufacturing methods, role of excipients; tablet and capsule inspection methods; basics of herb drying technology.</p> | | |
| Prerequisites and co-requisites | | | |
| Assessment methods and criteria | Subject passing criteria | Passing threshold | Percentage of the final grade |
| | term with credit | 60.0% | 100.0% |
| Recommended reading | Basic literature | Janicki St., Fiebig A., Applied Pharmacy. Manual for Students of pharmacy, PZWL, Warszawa 2002. | |
| | Supplementary literature | <p>Łunio R., Sawicki W.: Tablets - methods and mechanism of manufacturing. Part I. Pol. Pharm., 2008; 64, nr 6, 265-275.</p> <p>Sawicki W., Krasowska M.: Methods and mechanism of tablets production. Part II. Pol. Pharm., 2009; 65, nr 1, 59-68.</p> | |
| | eResources addresses | | |
| Example issues/ example questions/ tasks being completed | | | |
| Practical activities within the subject | Not applicable | | |

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