



Subject card

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|---|---|--|-------------------------------------|---------------------------------------|--|---------|-----|
| Subject name and code | Modern manufacturing techniques in medical application, PG_00057495 | | | | | | |
| Field of study | Mechanical and Medical Engineering | | | | | | |
| Date of commencement of studies | February 2023 | Academic year of realisation of subject | | | 2023/2024 | | |
| Education level | second-cycle studies | Subject group | | | Obligatory subject group in the field of study 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 | | | Polish | | |
| Semester of study | 2 | ECTS credits | | | 2.0 | | |
| Learning profile | general academic profile | Assessment form | | | assessment | | |
| Conducting unit | Zakład Technologii Materiałów Konstrukcyjnych i Spajania -> Institute of Manufacturing and Materials Technology -> Faculty of Mechanical Engineering and Ship Technology | | | | | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | dr hab. inż. Agnieszka Ossowska | | | | | |
| | Teachers | dr hab. inż. Agnieszka Ossowska | | | | | |
| Lesson types and methods of instruction | Lesson type | Lecture | Tutorial | Laboratory | Project | 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 | 3.0 | | 17.0 | 50 | |
| Subject objectives | Acquainting students with modern manufacturing techniques in medical issues | | | | | | |
| Learning outcomes | Course outcome | Subject outcome | | | Method of verification | | |
| | [K7_K02] He/she understands outer aspects of influence of mechanical engineer and manager, their social consequences and impact on the environment, needs to follow the rules of ethics and respect for the diversities of views and cultures | Correctly identifies professional problems and is able to define the priorities and hierarchy using knowledge in solving problems | | | [SK5] Assessment of ability to solve problems that arise in practice [SK2] Assessment of progress of work | | |
| | [K7_U09] He/she has skills to work in industrial environment and is aware of work safety rules | Is able to design a procedural equipment or device compliant with the specifications using a design aid system in the form of a design documentation, selecting the appropriate model, performing critical analysis with the proper selection of tools and technologies. | | | [SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools | | |
| | [K7_W07] He/she in-depth knowledge related to engineering materials and technologies used in mechanical-medical engineering | Possesses profound knowledge on the diagnostics and monitoring of the condition of devices, assemblies and technical systems, as well as measurement methods of process and operation control | | | [SW1] Assessment of factual knowledge | | |
| [K7_W08] He/she broad knowledge related to understand social, economic, legal, ecological and other outer techniques conditions of engineering activities in mechanical-medical engineering | Possesses widened knowledge within the range of design methods of hydraulic systems, heating and fluid-flow machines and transport devices | | | [SW1] Assessment of factual knowledge | | | |
| Subject contents | Medical industry, manufacturing techniques, composite production, metal processing, laser processing, additive methods, SLM, measurement methods, reverse engineering. | | | | | | |

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| Prerequisites and co-requisites | | | |
| Assessment methods and criteria | Subject passing criteria | Passing threshold | Percentage of the final grade |
| | Lectures | 51.0% | 51.0% |
| | Project | 51.0% | 49.0% |
| Recommended reading | Basic literature | 1. Modeling of Metal Forming and Machining Processes: By Finite Element and Soft Computing Methods by Prakash M. Dixit. 2. Mechanics Modeling of Sheet Metal Forming by Sing C. Tang. 3. Sheet Metal Forming: Processes and Applications by Taylan Altan, A. Erman Tekkaya | |
| | Supplementary literature | 1. Technologia metali laboratorium by Robert Skoblik, Lech Wilczewski (in Polish) | |
| | eResources addresses | Adresy na platformie eNauczanie: Nowoczesne techniki wytwarzania w zastosowaniach medycznych - Moodle ID: 33874 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=33874 | |
| Example issues/ example questions/ tasks being completed | Manufacturing methods, SLM, additive manufacturies, reverse engineering. | | |
| Work placement | Not applicable | | |