



Subject card

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| Subject name and code | , PG_00056089 | | | | | | |
| Field of study | Mechanical and Medical Engineering | | | | | | |
| Date of commencement of studies | October 2023 | Academic year of realisation of subject | | | 2025/2026 | | |
| Education level | first-cycle studies | Subject group | | | | | |
| Mode of study | Full-time studies | Mode of delivery | | | at the university | | |
| Year of study | 3 | Language of instruction | | | Polish | | |
| Semester of study | 5 | ECTS credits | | | 2.0 | | |
| Learning profile | general academic profile | Assessment form | | | assessment | | |
| Conducting unit | Zakład Konstrukcji Maszyn i Inżynierii Medycznej -> Institute of Mechanics and Machine Design -> Faculty of Mechanical Engineering and Ship Technology | | | | | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | | dr inż. Rafał Gawarkiewicz | | | | |
| | Teachers | | | | | | |
| Lesson types and methods of instruction | Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
| | Number of study hours | 0.0 | 0.0 | 0.0 | 30.0 | 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 | | 0.0 | | 0.0 | 30 |
| Subject objectives | Skills of design development with use of CAD software with emphasis on analyses related to the specificity of medical devices. | | | | | | |

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| Learning outcomes | Course outcome | Subject outcome | Method of verification |
| | [K6_W07] he/she is able to design, manufacture and utilize machine parts and technical devices, he/she can prepare a technical documentation | Student identifies phenomena in elements of machines. Student creates computational models used in machine design. Student analyses and selects suitable computational models of separable and inseparable joints. Student identifies loadings and stress states at critical places of analyzed machine elements, and estimates their safety. Student draws engineering drawings with the help of the CAD software. | [SW1] Assessment of factual knowledge |
| | [K6_U08] he/she is able to assess whether proposed methods and tools can be used in practice to solve simple engineering task related to machine design, manufacturing and utilization | Student identifies phenomena in elements of machines. Student creates computational models used in machine design. Student analyses and selects suitable computational models of separable and inseparable joints. Student identifies loadings and stress states at critical places of analyzed machine elements, and estimates their safety. | [SU3] Assessment of ability to use knowledge gained from the subject |
| | [K6_U07] he/she is able to identify the problem and list simple engineering tasks to solve this problem in practice, he/she is able to critically analyze the proposed technical solutions and conclude whether these solutions can be implemented to solve problems related to design of mechanical devices and mechanical-medical devices | Student identifies phenomena in elements of machines. Student creates computational models used in machine design. Student analyses and selects suitable computational models of separable and inseparable joints. Student identifies loadings and stress states at critical places of analyzed machine elements, and estimates their safety. | [SU1] Assessment of task fulfilment |
| | [K6_W09] he/she has basic knowledge related to numerical methods and engineering software used to analyze, model and design a given mechanical system | The student uses CAD program tools that use the finite element method. | [SW1] Assessment of factual knowledge |
| | [K6_U05] he/she is able to use analytic and modelling methods to formulate and solve engineering tasks related to the mechanical-medical area | Student identifies phenomena in elements of machines. Student creates computational models used in machine design. Student analyses and selects suitable computational models of separable and inseparable joints. Student identifies loadings and stress states at critical places of analyzed machine elements, and estimates their safety. | [SU1] Assessment of task fulfilment |
| Subject contents | Issues that require the use of selected CAD software tools to carry out analyses required during the medical device design process. | | |
| Prerequisites and co-requisites | Engineering graphics, Mechanics, Strength of materials, Mechanical design and basic skills of using CAD software like Inventor and AutoCAD programme. | | |
| Assessment methods and criteria | Subject passing criteria | Passing threshold | Percentage of the final grade |
| | Test of the qualifying I | 50.0% | 50.0% |
| | Test of the qualifying II | 50.0% | 50.0% |
| Recommended reading | Basic literature | Help system of used CAD software. | |
| | Supplementary literature | Any literature concerning used CAD programmes. | |
| | eResources addresses | Adresy na platformie eNauczanie: | |
| Example issues/ example questions/ tasks being completed | | | |
| Work placement | Not applicable | | |