



Subject card

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| Subject name and code | Production Systems Components, PG_00055504 | | | | | | |
| Field of study | Mechanical Engineering | | | | | | |
| Date of commencement of studies | October 2022 | Academic year of realisation of subject | | | 2024/2025 | | |
| Education level | first-cycle studies | Subject group | | | Optional 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 | | | 3.0 | | |
| Learning profile | general academic profile | Assessment form | | | assessment | | |
| Conducting unit | Institute of Manufacturing and Materials Technology -> Faculty of Mechanical Engineering and Ship Technology | | | | | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | | dr inż. Piotr Sender | | | | |
| | Teachers | | | | | | |
| Lesson types and methods of instruction | Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
| | Number of study hours | 15.0 | 0.0 | 15.0 | 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 | | 8.0 | | 37.0 | 75 |
| Subject objectives | Principles of using of universal fixtures. Designing of special fixtures. | | | | | | |
| Learning outcomes | Course outcome | | Subject outcome | | Method of verification | | |
| | [K6_U04] is able to perform a critical analysis of the existing technical solutions, present the specification of the technology of manufacturing basic construction elements of machines and engineering assemblies | | Principles of calculating the forces fixing the workpiece in the machining fixture. | | [SU3] Assessment of ability to use knowledge gained from the subject | | |
| | [K6_W11] possesses knowledge on design, technology and manufacturing of machine parts, metrology, and quality control; knows and understands methods of measuring and calculating basic values describing the operation of mechanical systems, knows basic calculating methods applied to analyse the results of experiments | | Rules for using of universal fixtures. | | [SW1] Assessment of factual knowledge [SW2] Assessment of knowledge contained in presentation | | |
| | [K6_U08] is able to design a technological manufacturing process for typical elements of machines or devices, using analytical and numerical calculating tools | | Rules for using the modular fixtures and design of special holders. | | [SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment | | |
| Subject contents | <p>LECTURE: The role of tooling in the machine parts manufacturing system. Errors affecting the accuracy of execution in the fixtures. Arrangement the workpieces in the fixtures. Fixing the workpieces in the fixtures. Fixing and mounting the fixturing equipment in the machine tool. Rules for designing of fixtures: lathe fixtures, drill fixtures, milling fixtures, modular fixtures. Tool holders. Fixing accessories. Equipment for transport, manipulators and robots. Principles of computer design and management of workshop aids. principles of using universal fixtures. Tooling costs. Calculation of clamping forces.</p> <p>LABORATORY (computer): Acquisition of the ability to apply the principles of basing and fixing workpieces in fixtures in practice and designing a machining fixtures for the indicated operation.</p> | | | | | | |

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| Prerequisites and co-requisites | Knowledge in the field of preparing of construction and machine technology's drawings. | | |
| Assessment methods and criteria | Subject passing criteria | Passing threshold | Percentage of the final grade |
| | Written test | 60.0% | 50.0% |
| | Design of fixture | 60.0% | 50.0% |
| Recommended reading | Basic literature | Feld M.: Machining fixtures. WNT, Warssaw, 2002.Dobrzański T.: Machining fixtures. Constructor's guide., WNT,Warszawa, 1987.Standards | |
| | Supplementary literature | Engineer's handbook. Machining. Volume I-III, WNT, Warsaw 1993. Manufacturers Catalogs. Studying studies (books, presentations, lectures) from Polish and foreign technical universities. | |
| | eResources addresses | | |
| Example issues/ example questions/ tasks being completed | Describe fixture used on lathes and milling machines. Describe ways to calculate fixturing forces. List the principles of construction of turning and milling machining equipment. | | |
| Work placement | Not applicable | | |