GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

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| Subject name and code | Tooling of Manufacturing Systems, PG_00050175 | | |
| Field of study | Mechanical Engineering | | |
| Date of commencement of studies | October 2021 | Academic year of realisation of subject | 2023/2024 |
| Education level | first-cycle studies | Subject group | Optional subject group<br>Subject group related to scientific research in the field of study |
| Mode of study | Part-time studies | Mode of delivery | at the university |
| Year of study | 3 | Language of instruction | Polish<br>Polish |
| Semester of study | 6 | ECTS credits | 4.0 |
| Learning profile | general academic profile | Assessment form | assessment |
| Conducting unit | Zakład Technologii Maszyn i Automatyzacji Produkcji -> 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 | dr inż. Piotr Sender<br>prof. dr hab. inż. Adam Barylski | |

**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 | 62.0 | 100 |

**Subject objectives**

Rules for using of universal jig and fixtures. Design of special fixtures..

**Learning outcomes**

| Course outcome | Subject outcome | Method of verification |
|---|---|---|
| [K6_U05] is able to plant an experiment within the range of measuring the basic operating parameters of mechanical devices using a specialized equipment, interpret the results and reach the correct conclusions | Rules for using handles universal. | [SU1] Assessment of task fulfilment |
| [K6_W08] possesses basic knowledge including the methodology of designing machine parts, mechanical devices, selection of construction materials, manufacturing and operation, with the lifetime cycle | Principles of calculating forces fastening the item processed in the fixture. | [SW3] Assessment of knowledge contained in written work and projects |

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| Subject contents | LECTURE: The role of instrumentation in the machine parts manufacturing system. Errors affecting accuracy of workmanship in machining holders. Fixing the workpiece in the holder. Fixing manufacturing items in handle. Determining and mounting the holder on the machine tool. Principles of handle design: handles lathes, drill chucks, milling chucks, modular chucks, tool holders. Assembly equipment. Transport equipment, manipulators and robots. Rules of computer-aided design and management of workshop aids. Rules for using universal handles. Costs of using jig and fixture. Calculation of fastening forces.<br><br>LABORATORY (computer): Acquiring the ability to practically apply the principles of basing and mounting objects (workpieces) in holders and preparing a design of a machining holder for the indicated onesurgery. |
| Prerequisites and co-requisites | Knowledge in the preparation of documentation of machine design and technology. |

Assessment methods and criteria

| Subject passing criteria | Passing threshold | Percentage of the final grade |
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| laboratory | 60.0% | 50.0% |
| lecture | 60.0% | 50.0% |

Recommended reading

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| Basic literature | Feld M.: Machining holders. WNT, Warsaw, 2002.<br><br>Dobrzański T.:Machining holders. Designer's guide, WNT, Warsaw, 1987.<br><br>Subject standards |
| Supplementary literature | Feld M.: Machining holders. WNT, Warsaw,<br><br>Engineer's guide. Machining. Vol. I-III, WNT, Warsaw,1993.<br><br>Catalogs of instrumentation manufacturers.Studying studies (books, presentations, lectures) from universitiestechnical Polish and foreign. 2002.Dobrzański T.:Machining holders. Designer's guide, WNT, Warsaw,1987. Subject standards |
| eResources addresses | Adresy na platformie eNauczanie:<br>Oprzyrządowanie technologicznych systemów wytwarzania (PG_00050175) - Moodle ID: 37084<br>https://enauczanie.pg.edu.pl/moodle/course/view.php?id=37084 |

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| Example issues/ example questions/ tasks being completed | Describe the tooling used on lathes and milling machines.<br><br>Describe how to calculate fastening forces.<br><br>List the principles of construction of turning and milling equipment. |
| Work placement | Not applicable |