



## Subject card

|   |   |   |                                     |            |  |         |     |
|---|---|---|-------------------------------------|------------|--|---------|-----|
| Subject name and code                       | Coordinate measuring techniques, PG_00040092  |   |                                     |            |  |         |     |
| Field of study                              | Medical and Mechanical Engineering, Mechanical and Medical Engineering  |   |                                     |            |  |         |     |
| Date of commencement of studies             | October 2020  | Academic year of realisation of subject   |                                     |            | 2022/2023  |         |     |
| 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                               | Full-time studies   | Mode of delivery  |                                     |            | at the university  |         |     |
| Year of study                               | 3   | Language of instruction   |                                     |            | Polish   |         |     |
| Semester of study                           | 5   | ECTS credits  |                                     |            | 1.0  |         |     |
| Learning profile                            | general academic profile  | Assessment form   |                                     |            | assessment   |         |     |
| Conducting unit                             | Department of Manufacturing and Production Engineering -> Faculty of Mechanical Engineering and Ship Technology   |   |                                     |            |  |         |     |
| Name and surname of lecturer (lecturers)    | Subject supervisor  | dr inż. Michał Dobrzyński   |                                     |            |  |         |     |
|   | Teachers  | dr inż. Michał Dobrzyński   |                                     |            |  |         |     |
| Lesson types and methods of instruction     | 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  | 3.0                                 |            | 7.0  |         | 25  |
| Subject objectives                          | Understanding the construction and operation of coordinated measuring machines and learning of measurement methods quantities.  |   |                                     |            |  |         |     |
| Learning outcomes                           | Course outcome  | Subject outcome   |                                     |            | Method of verification   |         |     |
|   | K6_U06  | Student explains construction and principle of operation of coordinated measuring machines. Student chooses suitable measuring strategy for measure given quantity. Student measures. Student analyses results of measurements. |                                     |            | [SU4] Assessment of ability to use methods and tools   |         |     |
|   | K6_W13  | The construction and operation of coordinated measuring machines and learning of measurement methods quantities.  |                                     |            | [SW1] Assessment of factual knowledge  |         |     |
| Subject contents                            | The content will include: the importance of coordinated measurements in a machining process, components of CMM, types of probe heads, the measurement methods for the combined quantities and indirect quantities in the measurement systems, computer aided programming of CMM, the measurement systemsthe measurement data recording, analysis and conclusive results |   |                                     |            |  |         |     |
| Prerequisites and co-requisites             | Metrology   |   |                                     |            |  |         |     |
| Assessment methods and criteria             | Subject passing criteria  | Passing threshold   |                                     |            | Percentage of the final grade  |         |     |
|   | Written exam  | 50.0%   |                                     |            | 100.0%   |         |     |
| Recommended reading                         | Basic literature  | 1. Ratajczak E., Woźniak A.: Współrzędnościowe systemy pomiarowe. Oficyna Wydawnicza Politechniki Warszawskiej. W-wa 2014. 2. Jakubiec W., Malinowski J.: Metrologia wielkości geometrycznych.WNT. W-wa 2009 .                  |                                     |            |  |         |     |
|   | Supplementary literature  | 1. Lesiak P., Świsulsk D.i: Komputerowa technika pomiarowa. Warszawa, Agenda Wydawnicza PAK 2002.   |                                     |            |  |         |     |
|   | eResources addresses  | Adresy na platformie eNauczanie:  |                                     |            |  |         |     |

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| Example issues/<br>example questions/<br>tasks being completed | 1. Describe main elements of CMM. |
| Work placement   | Not applicable                    |