



Subject card

| | | | | | | | |
|---|---|--|--|-------------------------------------|--|------------|-----|
| Subject name and code | Hydraulics and pneumatics for Management and Production Engineering, PG_00039951 | | | | | | |
| Field of study | Management and Production Engineering, Management and Production Engineering | | | | | | |
| Date of commencement of studies | October 2020 | | Academic year of realisation of subject | | 2021/2022 | | |
| Education level | first-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 | 2 | | Language of instruction | | Polish | | |
| Semester of study | 4 | | ECTS credits | | 2.0 | | |
| Learning profile | general academic profile | | Assessment form | | assessment | | |
| Conducting unit | Institute of Mechanics and Machine Design -> Faculty of Mechanical Engineering and Ship Technology | | | | | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | | dr hab. inż. Leszek Osiecki | | | | |
| | Teachers | | dr hab. inż. Leszek Osiecki dr inż. Paweł Załuski | | | | |
| 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 | | | | | | |
| | Adresy na platformie eNauczanie: | | | | | | |
| 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 | | 4.0 | | 16.0 | 50 |
| Subject objectives | Acquainting with physical phenomena, the basics of design and operation of hydraulic and pneumatic drive and control systems | | | | | | |
| Learning outcomes | Course outcome | | Subject outcome | | Method of verification | | |
| | K6_U01 | | The student analyzes the principles of operation, application and exploitation of hydraulic and pneumatic systems for drives and automation of machines and devices. | | [SU3] Assessment of ability to use knowledge gained from the subject | | |
| | K6_W04 | | The student analyzes the principles of operation, application and exploitation of hydraulic and pneumatic systems for drives and automation of machines and devices. | | [SW1] Assessment of factual knowledge | | |
| Subject contents | LECTURE: Structure of hydraulic and pneumatic drive and control. Properties of working fluid and air pressure losses in the institution and their calculation. Flows through the slots. Basic elements and hydrostatic and pneumatic systems of machines: pumps, motors, actuators, valves, filters, accumulators, compressed air units. Special electrohydraulic and electropneumatic machine automation systems.LABORATORIES: Practical familiarization with the structure and operation of hydraulic and pneumatic elements as well as self-assembly of basic systems. | | | | | | |
| Prerequisites and co-requisites | Physics | | | | | | |
| Assessment methods and criteria | Subject passing criteria | | Passing threshold | | Percentage of the final grade | | |
| | lecture pass | | 56.0% | | 66.0% | | |
| | laboratory pass | | 56.0% | | 34.0% | | |

| | | |
|--|--------------------------|---|
| Recommended reading | Basic literature | <ol style="list-style-type: none"> 1. Osiecki A.: Hydrostatyczny napęd maszyn. WNT, Warszawa 1998 2. Szejnach W.: Napęd i sterowanie pneumatyczne. WNT, Warszawa 1997 3. Baławender A. i inni: Laboratorium napędów hydraulicznych. Część 1. Podstawy hydrauliki. Gdańsk 1996 4. Niegoda J., Pomierski W.: Sterowanie pneumatyczne. Ćwiczenia laboratoryjne. Skrypt PG, Gdańsk 1998 |
| | Supplementary literature | Dindorf R.: Napędy płynowe. Podstawy teoretyczne i metody obliczania napędów hydraulicznych i pneumatycznych. Wydawnictwo Politechniki Świętokrzyskiej. Kielce 2009 |
| | eResources addresses | |
| Example issues/ example questions/ tasks being completed | | |
| Work placement | Not applicable | |