

。 GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

| Subject name and code | , PG_00058631 | | | | | | | | |
|--|--|--|--|-------------------------------------|------------|-------------------|--------------|---------------|--|
| Field of study | Mechatronics | | | | | | | | |
| Date of commencement of studies | February 2024 | | Academic year of realisation of subject | | 2024/2025 | | | | |
| Education level | second-cycle studies | | Subject group | | | | | | |
| Mode of study | Full-time studies | | Mode of delivery | | | at the university | | | |
| Year of study | 1 | | Language of instruction | | Polish | | | | |
| Semester of study | 2 | | 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 | Subject supervisor | | dr hab. inż. Piotr Mioduszewski | | | | | | |
| of lecturer (lecturers) | Teachers | | | | | | | | |
| Lesson types and methods of instruction | Lesson type | Lecture | Tutorial | Laboratory | Projec | t | 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 | ity Participation in didact classes included in str plan | | Participation in consultation hours | | Self-study | | SUM | |
| | Number of study hours | 30 | | 0.0 | | 0.0 | | 30 | |
| Subject objectives | To familiarize student modern vehicles. | s with issues re | elated to the co | onstruction and | mainte | nance o | of mechatron | ic systems in | |

| Learning outcomes | Course outcome | Subject outcome | Method of verification | | |
|------------------------------------|---|--|---|--|--|
| | [K7_U04] is able to utilise known methods and mathematical models, as well as computer simulations for analysis and evaluation of non-stationary continuous and discrete mechatronic systems and processes | The student is able to analyze the principles of operation of control systems of various mechatronic systems of modern vehicles. | [SU2] Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject | | |
| | [K7_W06] has detailed, supported by the theory knowledge in terms of mechatronic design, mechatronic systems and machines, devices and process where they are used | The student is able to describe the structure and principle of operation of individual mechatronic systems of modern vehicles. | [SW1] Assessment of factual knowledge | | |
| | [K7_W01] has extended knowledge in terms of selected areas of mathematics, including discrete and applied mathematics, optimisation methods, mathematical and numerical methods essential for: 1) modelling and analysis of nonstationary mechatronics, continuous and discrete time systems as well as physical phenomena; 2) description and analysis of mechatronic systems that include programmable devices 3) description and analysis of signal processing algorithms 4) synthesis of non-stationary mechatronic systems | The student is able to model mechatronic systems used in modern vehicles. | [SW3] Assessment of knowledge contained in written work and projects | | |
| | [K7_W10] knows development trends and most important new achievements in technical sciences and science disciplines: Mechanical Engineering, Automation, Electronics and Electrical Engineering and related: Informatics and Materials Engineering | The student has basic knowledge of development trends in the construction and maintenence of mechatronic systems in modern vehicles. | [SW1] Assessment of factual knowledge | | |
| Subject contents | Active and passive safety systems ir comfort systems (driver assistance). | n vehicles. "Inteligent" vehicle lighting Active vehicle suspension systems. | systems. Driving and travelling Modern steering systems. | | |
| Prerequisites and co-requisites | Knowledge of mechanics of machine mechatronics, electronics, electronics, electrical | es and devices. Basic knowledge of v engineering and computer science. | whicle construction. Basics of | | |
| Assessment methods and criteria | Subject passing criteria | Passing threshold 50.0% | Percentage of the final grade 100.0% | | |
| Recommended reading | Basic literature | | | | |
| | | Bosch Automotive Handbook 6th Edition, Bentley Publishers, USA, 2005The Mechatronics Handbook By Robert H. Bishop, CRC Press, 2002.Current internet articles on solutions for mechatronic systems in vehicles and heavy machinery. | | | |
| | Supplementary literature | Mechatronics and the Design of Intelligent Machines and Systems By David A. Bradley, CRC Press, 2000. | | | |
| | eResources addresses | Adresy na platformie eNauczanie: | | | |

| Example issues/ example questions/ tasks being completed | Active and passive safety systems in vehicles.Vehicle lighting systems.Driving and travelling comfort systems.Active vehicle suspension systems.Modern steering systems. |
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| Work placement | Not applicable |

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