



Subject card

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| Subject name and code | , PG_00064558 | | | | | | |
| Field of study | Mechatronics | | | | | | |
| Date of commencement of studies | October 2022 | | Academic year of realisation of subject | | 2025/2026 | | |
| Education level | first-cycle studies | | Subject group | | | | |
| Mode of study | Full-time studies | | Mode of delivery | | at the university | | |
| Year of study | 4 | | Language of instruction | | Polish | | |
| Semester of study | 7 | | ECTS credits | | 1.0 | | |
| Learning profile | general academic profile | | Assessment form | | assessment | | |
| Conducting unit | Division Of Heating Ventilation Air Conditioning And Refrigeration -> Institute Of Energy -> Faculty Of Mechanical Engineering And Ship Technology -> Wydziały Politechniki Gdańskiej | | | | | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | | dr hab. inż. Michał Klugmann | | | | |
| | Teachers | | | | | | |
| 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 | | 0.0 | | 0.0 | 15 |
| Subject objectives | The aim of the course is to comprehensively familiarize students with the techniques of recording and reproducing image and sound, starting from the history and creation of these techniques, ending with the latest tools. This will allow you to understand visualization measurement methods, their nuances and sources of errors. Particular emphasis will be placed on how computers work in image generation and analysis and on how a digital image is constructed. | | | | | | |
| Learning outcomes | Course outcome | | Subject outcome | | Method of verification | | |
| | [K6_K01] is aware of non-technical aspects, individual and colaborative work responsibilty and is capable to comply to rules of team cooperation and to take resposnibility for collectively performed tasks | | Ability to select tools in an economically justified way. Knowledge of limitations and nuances, allowing for optimization of the techniques used. | | [SK2] Assessment of progress of work | | |
| | [K6_K02] is aware of social role of the technical university alumni, the importance of professional attitudes, obeying ethic rules with respect to diverse point of views and cultures, understands the need for permanent self-learning | | Knowledge of the historical foundations that shaped modern measurement techniques. Knowledge of the historical background, allowing you to trace the development, but also the ethical and ecological aspects of the development of selected techniques. | | [SK5] Assessment of ability to solve problems that arise in practice | | |
| | [K6_W13] knows general rules of establishing and development of a private, small business that applies knowledge form engineering and technical sciences and scientifical disciplines, adequate for mechatronics | | Understanding the dynamics of development and the need to constantly monitor changes in young and intensively developing fields. | | [SW3] Assessment of knowledge contained in written work and projects | | |

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| Subject contents | 1. A historical outline of sound recording techniques, photography, cinematography and television in the analog era. 2. A shortened history of computers in terms of the ability to generate images and sounds. 3. Principle of operation of a digital computer, method of recording and generating digital sound, construction of a digital image. Discussion from a historical perspective - how graphic modes and formats were developed, etc. 4. Digital techniques for recording, processing and interpreting sound and image: static photography, video, 3D, 360 degrees, drones. related techniques: high-speed photos, thermal imaging, liquid crystal thermography. | | |
| Prerequisites and co-requisites | | | |
| Assessment methods and criteria | Subject passing criteria | Passing threshold | Percentage of the final grade |
| | Essay | 56.0% | 100.0% |
| Recommended reading | Basic literature | No English literature. | |
| | Supplementary literature | Archival magazines about computers and audio-video techniques. | |
| | eResources addresses | Adresy na platformie eNauczanie: | |
| Example issues/ example questions/ tasks being completed | Comparison of digital and analog signal transmission. Issues of digitization of sound and image. Lossless and lossy image and sound recording formats - what are their origins and features? Light sources and their features. | | |
| Work placement | Not applicable | | |

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