

**Subject card**

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|----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-------------------------|-------------------------------------|---------|----------------------------------------------------------------------------------------------|-----|
| <b>Subject name and code</b>                       | Multimedia, PG_00178745                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                          |                         |                                     |         |                                                                                              |     |
| <b>Field of study</b>                              | Informatics and Econometrics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                          |                         |                                     |         |                                                                                              |     |
| <b>Date of commencement of studies</b>             | October 2026                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>Academic year of realisation of subject</b>           |                         |                                     |         | 2026/2027                                                                                    |     |
| <b>Education level</b>                             | Master's studies                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <b>Subject group</b>                                     |                         |                                     |         | Optional subject group<br>Subject group related to scientific research in the field of study |     |
| <b>Mode of study</b>                               | full-time studies                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>Mode of delivery</b>                                  |                         |                                     |         | at the university                                                                            |     |
| <b>Year of study</b>                               | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>Language of instruction</b>                           |                         |                                     |         | Polish                                                                                       |     |
| <b>Semester of study</b>                           | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>ECTS credits</b>                                      |                         |                                     |         | 5.0                                                                                          |     |
| <b>Learning profile</b>                            | academic                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>Assessment form</b>                                   |                         |                                     |         | credit                                                                                       |     |
| <b>Conducting unit</b>                             | Department of Business Informatics -> Faculty of Management -> Rector                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                          |                         |                                     |         |                                                                                              |     |
| <b>Name and surname of lecturer (lecturers)</b>    | <b>Subject supervisor</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                          | mgr inż. Dawid Jereczek |                                     |         |                                                                                              |     |
|                                                    | <b>Teachers</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                          |                         |                                     |         |                                                                                              |     |
| <b>Lesson types</b>                                | <b>Lesson type</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Lecture                                                  | Tutorial                | Laboratory                          | Project | Seminar                                                                                      | SUM |
|                                                    | <b>Number of study hours</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 15.0                                                     | 45.0                    | 0.0                                 | 0.0     | 0.0                                                                                          | 60  |
|                                                    | E-learning hours included: 0.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                          |                         |                                     |         |                                                                                              |     |
| <b>Learning activity and number of study hours</b> | <b>Learning activity</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Participation in didactic classes included in study plan |                         | Participation in consultation hours |         | Self-study                                                                                   | SUM |
|                                                    | <b>Number of study hours</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 60                                                       |                         | 4.0                                 |         | 61.0                                                                                         | 125 |
| <b>Subject objectives</b>                          | The aim of the course is to provide students with theoretical knowledge and practical skills in multimedia technologies. Students will learn the basic concepts related to multimedia, types of media (text, image, sound, video), and their applications in various fields of computer science. They will become familiar with popular multimedia file formats, compression techniques, as well as tools and software used for creating and editing multimedia content. The course also covers the fundamentals of computer graphics (raster, vector, and 3D), sound and video processing, and the integration of different media forms. Additionally, the course addresses the applications of multimedia in marketing, social media, and various business contexts, including communication, management, and training. |                                                          |                         |                                     |         |                                                                                              |     |

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| Learning outcomes                                              | Course outcome                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Subject outcome                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Method of verification                                                                                                 |
|                                                                | [liEMU2_W02] The student comprehends advanced theoretical and practical concepts in econometrics, informatics, or statistics, which are essential for a deeper understanding of economic and social phenomena.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | The student knows the basic concepts and technologies related to multimedia and their applications in computer science and business, understands the structure and properties of various multimedia file formats and compression techniques, is familiar with and understands tools and methods for creating and editing multimedia content, and possesses knowledge of the use of multimedia in marketing communication, social media, as well as in management and training processes.                      | [SW4] test/exam - oral or written<br>[SW5] implementation of a problem task                                            |
|                                                                | [liEMU2_U12] The student can adapt, design, create, and operate IT systems that support business entities.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | The student is able to select and apply appropriate multimedia tools and technologies for creating and editing content that supports organizational activities, can integrate various forms of media (text, image, sound, video) to effectively communicate information, is capable of designing and implementing multimedia solutions that enhance marketing, internal, and external communication within organizations, and can apply multimedia in training processes and knowledge management activities. | [SU4] test/exam - oral or written<br>[SU5] implementation of a problem task<br>[SU6] demonstration of practical skills |
| Subject contents                                               | Fundamentals of Multimedia: Introduction to the concept of multimedia, types of media (text, image, sound, video), and their applications in various areas of computer science. Multimedia File Formats: Overview of popular file formats (e.g., JPEG, MP3, MP4) and their compression, including a discussion of the advantages and limitations of each format. Multimedia Tools and Software: Practical introduction to tools for creating and editing multimedia content. Computer Graphics: Basics of raster and vector graphics, 3D modeling, and image and animation processing. Sound in Multimedia: Fundamentals of acoustics, techniques for recording and editing sound, and the integration of audio with other multimedia elements. Video in Multimedia: Techniques for video recording, editing, and processing, including the creation of special effects and animations. Multimedia in Marketing: Use of multimedia materials in advertising campaigns, social media, and brand building. Applications of Multimedia in Business: Case studies on the use of multimedia in various aspects of company operations, such as management, training, and internal and external communication. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                        |
| Prerequisites and co-requisites                                | The student should have basic knowledge of multimedia technologies (image, sound, and video), and be familiar with popular graphic and multimedia tools.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                        |
| Assessment methods and criteria                                | Subject passing criteria                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Passing threshold                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Percentage of the final grade                                                                                          |
|                                                                | test                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 51.0%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 50.0%                                                                                                                  |
|                                                                | own work during classes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 51.0%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 50.0%                                                                                                                  |
| Recommended reading                                            | Basic literature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1. Domanski M. (2010), Obraz cyfrowy, WKiŁ, Warszawa<br><br>2. Russ J. (2007), The Image Processing Handbook, CRC Press<br><br>3. Chapman N., Chapman J. (2009), Digital Multimedia, Wiley                                                                                                                                                                                                                                                                                                                    |                                                                                                                        |
|                                                                | Supplementary literature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Watkinson J. (2004), The MPEG Handbook, Focal Press                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                        |
|                                                                | eResources addresses                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                        |
| Example issues/<br>example questions/<br>tasks being completed |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                        |
| Work placement                                                 | Not applicable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                        |