



## Subject card

|                                             |                                                                                                                                                                                                                                                                                                              |                                                          |                                                                                                                                                                                                                                                |                                     |                                                                                   |            |     |
|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-----------------------------------------------------------------------------------|------------|-----|
| Subject name and code                       | Occupational Safety and Ergonomics, PG_00072610                                                                                                                                                                                                                                                              |                                                          |                                                                                                                                                                                                                                                |                                     |                                                                                   |            |     |
| Field of study                              | Mechanical Engineering                                                                                                                                                                                                                                                                                       |                                                          |                                                                                                                                                                                                                                                |                                     |                                                                                   |            |     |
| Date of commencement of studies             | October 2026                                                                                                                                                                                                                                                                                                 |                                                          | Academic year of realisation of subject                                                                                                                                                                                                        |                                     | 2026/2027                                                                         |            |     |
| Education level                             | first-cycle studies                                                                                                                                                                                                                                                                                          |                                                          | Subject group                                                                                                                                                                                                                                  |                                     | Obligatory subject group in the field of study<br>Humanistic-social 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                           | 1                                                                                                                                                                                                                                                                                                            |                                                          | ECTS credits                                                                                                                                                                                                                                   |                                     | 1.0                                                                               |            |     |
| Learning profile                            | general academic profile                                                                                                                                                                                                                                                                                     |                                                          | Assessment form                                                                                                                                                                                                                                |                                     | assessment                                                                        |            |     |
| Conducting unit                             | Division of Mechanical Vehicles and Military Technology -> Institute of Mechanics and Machine Design -> Faculty of Mechanical Engineering and Ship Technology -> Faculties of Gdańsk University of Technology                                                                                                |                                                          |                                                                                                                                                                                                                                                |                                     |                                                                                   |            |     |
| Name and surname of lecturer (lecturers)    | Subject supervisor                                                                                                                                                                                                                                                                                           |                                                          | dr inż. Sławomir Sommer                                                                                                                                                                                                                        |                                     |                                                                                   |            |     |
|                                             | Teachers                                                                                                                                                                                                                                                                                                     |                                                          | dr inż. Sławomir Sommer                                                                                                                                                                                                                        |                                     |                                                                                   |            |     |
| Lesson types                                | 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                                                       |                                                                                                                                                                                                                                                | 5.0                                 |                                                                                   | 5.0        | 25  |
| Subject objectives                          | To acquire basic knowledge of ergonomics and occupational health and safety.                                                                                                                                                                                                                                 |                                                          |                                                                                                                                                                                                                                                |                                     |                                                                                   |            |     |
| Learning outcomes                           | Course outcome                                                                                                                                                                                                                                                                                               |                                                          | Subject outcome                                                                                                                                                                                                                                |                                     | Method of verification                                                            |            |     |
|                                             | [K6_U04] performs critical analysis and evaluation of technical solutions and compares design solutions taking into account functional, safety, environmental, economic, and legal criteria                                                                                                                  |                                                          | The student analyses and evaluates technical solutions and workplace organisation, taking into account the principles of ergonomics and occupational health and safety.                                                                        |                                     | [SU1] Assessment of task fulfilment                                               |            |     |
|                                             | [K6_W71] has general knowledge in the fields of humanities, social sciences, economics, or law, including their fundamentals and applications                                                                                                                                                                |                                                          | The student knows the basic social and legal aspects of ergonomics and occupational health and safety, as well as their application in the working environment.                                                                                |                                     | [SW1] Assessment of factual knowledge                                             |            |     |
|                                             | [K6_W05] knows and understands the technical and non-technical determinants of engineering activities, including organizational, economic, environmental, social and legal aspects, such as management, entrepreneurship, intellectual property protection, occupational safety, and sustainable development |                                                          | The student knows and understands the technical, organisational, social and legal aspects of ergonomics and occupational health and safety.                                                                                                    |                                     | [SW1] Assessment of factual knowledge                                             |            |     |
|                                             | [K6_K02] understands the non-technical aspects of a mechanical engineer's activity, including its social consequences and environmental impact; is aware of the responsibility associated with decisions made in engineering practice                                                                        |                                                          | The student understands the social and non-technical consequences of failing to comply with ergonomics and occupational health and safety principles and is aware of the responsibility associated with organising a safe working environment. |                                     | [SK5] Assessment of ability to solve problems that arise in practice              |            |     |

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|----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| Subject contents                                               | Course content – lecture<br><br>Basic concepts and development of ergonomics. Corrective and conceptual ergonomics. The human in the human–machine–environment system. Anthropometry and occupational biomechanics. Physical and mental workload. Principles of ergonomic workplace design. Identification of hazardous, harmful and burdensome factors in the working environment. Occupational risk assessment. Basic legal and organisational requirements concerning occupational health and safety. Prevention of occupational accidents and diseases. Collective and personal protective equipment. Development of safe and ergonomic working conditions. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                               |
| Prerequisites and co-requisites                                | No prerequisites or additional requirements.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                               |
| Assessment methods and criteria                                | Subject passing criteria                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Passing threshold                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Percentage of the final grade |
|                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 60.0%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 100.0%                        |
| Recommended reading                                            | Basic literature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1. Koradecka D.: "Bezpieczeństwo pracy i ergonomia", tom I i II. CIOP, Warszawa, 1997.<br>2. Hempel L.: "Człowiek i maszyna - techniczny model współdziałania", materiały własne, 1984.<br>3. Wykowska M.: "Ergonomia", Wyd Akademii Górniczo-Hutniczej w Krakowie, Kraków, 1994.                                                                                                                                                                                                                                                                                                                                        |                               |
|                                                                | Supplementary literature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1. Bridger R. S., <i>Introduction to Human Factors and Ergonomics</i> , CRC Press, 2018.<br>2. Dul J., Weerdmeester B., <i>Ergonomics for Beginners: A Quick Reference Guide</i> , CRC Press, 2008.<br>3. ISO 6385, <i>Ergonomics Principles in the Design of Work Systems</i> , current edition.<br>4. ISO 10075-1, <i>Ergonomic Principles Related to Mental Workload – Part 1: General Issues and Concepts, Terms and Definitions</i> , current edition.<br>5. Educational resources of the <a href="#">International Labour Organization</a> and the <a href="#">European Agency for Safety and Health at Work</a> . |                               |
|                                                                | eResources addresses                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                               |
| Example issues/<br>example questions/<br>tasks being completed |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                               |
| Practical activities within the subject                        | Not applicable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                               |

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