GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

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|---|---|---|---|
| Subject name and code | INFORMATION AND KNOWLEDGE MANAGEMENT, PG_00061110 | | |
| Field of study | Management | | |
| Date of commencement of studies | October 2026 | Academic year of realisation of subject | 2027/2028 |
| Education level | second-cycle studies | Subject group | Obligatory subject group in the field of study<br>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 | 3 | ECTS credits | 3.0 |
| Learning profile | general academic profile | Assessment form | exam |
| Conducting unit | Department of Management -> Faculty of Management and Economics -> Faculties of Gdańsk University of Technology | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | prof. dr hab. inż. Edward Szczerbicki | |
| | Teachers | | |

**Lesson types**

| Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
|---|---|---|---|---|---|---|
| Number of study hours | 30.0 | 0.0 | 0.0 | 0.0 | 0.0 | 30 |

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 | 30 | 5.0 | 40.0 | 75 |

**Subject objectives**

Uses modern trends in the field of information and knowledge management and engineering in the era of knowledge-based intelligent systems and the semantic society

**Learning outcomes**

| Course outcome | Subject outcome | Method of verification |
|---|---|---|
| [K7_W02] understands the significance and interrelationships of key components describing economic processes, drawing on in-depth knowledge aligned with major developmental trends in scientific disciplines related to the field of studies. | explains the importance and interdependencies between the key factors of the modern concept of management based on knowledge and information | [SW1] Assessment of factual knowledge |
| [K7_U03] formulates research hypotheses and select appropriate methods for their verification using advanced it tools. | formulates research problems in the area of knowledge management choosing appropriate methods of solving them | [SU4] Assessment of ability to use methods and tools |

**Subject contents**

Course content – lecture
Contemporary intelligent systems based on knowledge
The importance of experience in the formalization and representation of information and knowledge
Methods and techniques of artificial intelligence (AI) in modern intelligent decision support systems
Knowledge as a resource and its role in the semantic socjety
Knowledge representation
Management and knowledge engineering
The concept of experience collection (SOE) and decision DNA (DDNA)
Representation of knowledge through a set of experiences
Ontologies and semantic web
Trust and security and its role and importance in intelligent systems
e-Decision community concept
Challenges of the upcoming fourth industrial revolution (Industry 4.0) and the Internet of Things (IoT) in the area of intelligent management and information and knowledge engineering

**Prerequisites and co-requisites**

**Assessment methods and criteria**

| Subject passing criteria | Passing threshold | Percentage of the final grade |
|---|---|---|
| Oral exam | 50.0% | 100.0% |

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| Recommended reading | Basic literature | E.Szczerbicki, C Sanin (Eds): *Knowledge Management and Engineering with Decisional DNA*, Springer-Verlag Intelligent Systems Reference Library, 2020, pp 260 https://doi.org/10.1007/978-3-030-39601-5<br><br>Huk, M., M. Maleszka, E.Szczerbicki: Intelligent Information and Database Systems: Recent Developments, Springer-Verlag Studies in Computational Intelligence, 2019<br><br>Cesar Sanin, Edward Szczerbicki, Experience Based Knowledge Representation for Internet of Things and Cyber Physical Systems with Case Studies, Future Generation Computer Systems, 2018, DOI: 10.1016/j.future.2018.01.062 |
| | Supplementary literature | Zhang H., Sanin C., and E Szczerbicki, When Neural Networks meet Decisional DNA: A Promising New Perspective for Knowledge Representation and Sharing, Cybernetics and Systems: An International Journal 2016 Vol 47, DOI: 10.1080/01969722.2016.1128776, pp. 140-148<br>M. Bilal Ahmed, Cesar Sanin, Edward Szczerbicki,, Experience-based Decisional DNA (DDNA) to support product development, Cybernetics and Systems: An International Journal 2018 Vol 49, DOI: 10.1080/01969722.2017.1418743 |
| | eResources addresses | |
| Example issues/ example questions/ tasks being completed | What are the three main advantages of using simulation methods to support decision-making processes | |
| Practical activites within the subject | Not applicable | |

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