GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Sociotechnical perspective on digital transformation, PG_00073977		
Field of study	Economic Analytics		
Date of commencement of studies	October 2025	Academic year of realisation of subject	2026/2027
Education level	second-cycle studies	Subject group	Optional subject group 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	English
Semester of study	4	ECTS credits	3.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Informatics In Management -> Faculty of Management and Economics -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Magdalena Ciesielska	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	30.0	0.0	0.0	0.0	45

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	45	5.0	25.0	75

Subject objectives

The goal of this course is to prepare students for an in-depth analysis of digital transformation from a socio-technical perspective—that is, taking into account the interdependence of people, technology, and processes within an organization. Students learn to assess the economic, legal, ethical, and social consequences of digital implementations, interpret the results of their analyses, and present them persuasively along with recommendations.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_W05] has in-depth knowledge of integrating economic, legal, and ethical aspects in analyses and their application in entrepreneurial activities.	Knows and understands the economic, legal, and ethical aspects of digital transformation, as well as the principles for integrating them into socio-technical analyses of digital implementations in business operations.	[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects
[K7_U04] is able to prepare and convincingly present the results of specialized analyses, providing in-depth interpretation during debates and meetings with various audiences.	Is able to develop and convincingly present the results of a specialized sociotechnical analysis of digital transformation, using organizational analysis models and methods for assessing its social and organizational consequences, with an in-depth interpretation of the results.	[SU2] Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject [SU5] Assessment of ability to present the results of task

Subject contents	Course content – lecture 1. Digital transformation: its essence, drivers and pitfalls. 2. People and technology as one system: origins and principles. 3. Analysing an organisation: sociotechnical models. 4. Technological change in business: the domino effect and side effects. 5. Work and organisations in the digital era: new roles and competencies. 6. Technology acceptance: factors determining the adoption of new tools. 7. The hidden costs of digitalisation. 8. Work and organisations in the digital era: new forms of work and supervision. 9. Data in organisations: promises and pitfalls. 10. Human–AI collaboration. 11. Trust in algorithms and accountability for errors. 12. The limits of digitalisation: law and ethics in business. 13. Inclusive digitalisation: digital exclusion. 14. Successful digital implementation: criteria and indicators. 15. Successful digital implementation: measurement tools. Course content – exercises **Module I: Organisational and implementation diagnosis** • Description of a selected organisation and its digital implementation. • Identification of stakeholders and their roles. • Mapping the elements of the sociotechnical system: people, technology, processes and organisational structure. **Module II: Social and organisational consequences** • Identification of three key consequences of digital implementation. • Analysis of the impact on employees, users and organisational functioning. • Identification of barriers and risks. **Module III: Responsibility and risk** • Analysis of selected issues related to data, AI, privacy or digital inclusion. • Assessment of social, ethical and organisational consequences. • Identification of areas for improvement. **Module IV: Evaluation and recommendations** • Evaluation of the effectiveness of digital transformation from a sociotechnical perspective. • Formulation of three recommendations for improvement. • Proposal of 3–5 indicators for evaluating the effects of digital transformation.
Prerequisites and co-requisites	

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<tr><td>Assessment methods and criteria</td><td colspan="2"><table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>lecture test</td><td>60.0%</td><td>30.0%</td></tr>
<tr><td>case study</td><td>60.0%</td><td>60.0%</td></tr>
<tr><td>presentation of the results</td><td>50.0%</td><td>10.0%</td></tr>
</table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>• Kane, G. C., Phillips, A. N., Copulsky, J. R., & Andrus, G. R. (2019). The Technology Fallacy: How People Are the Real Key to Digital Transformation. MIT Press.
• Westerman, G., Bonnet, D., & McAfee, A. (2014). Leading Digital: Turning Technology into Business Transformation. Harvard Business Review Press.
• Daugherty, P. R., & Wilson, H. J. (2018). Human + Machine: Reimagining Work in the Age of AI. Harvard Business Review Press.</td></tr>
<tr><td>Supplementary literature</td><td>• Vial, G. (2019). Understanding digital transformation: A review and a research agenda. Journal of Strategic Information Systems, 28(2), 118–144. https://doi.org/10.1016/j.jsis.2019.01.003
• Baxter, G., & Sommerville, I. (2011). Socio-technical systems: From design methods to systems engineering. Interacting with Computers, 23(1), 4–17. https://doi.org/10.1016/j.intcom.2010.07.003
• Clegg, C. W. (2000). Sociotechnical principles for system design. Applied Ergonomics, 31(5), 463–477. https://doi.org/10.1016/S0003-6870(00)00009-0
• Sarker, S., Chatterjee, S., Xiao, X., & Elbanna, A. (2019). The sociotechnical axis of cohesion for the IS discipline: Its historical legacy and its continued relevance. MIS Quarterly, 43(3), 695–719. https://doi.org/10.25300/MISQ/2019/13747
• Mumford, E. (2006). The story of socio-technical design: Reflections on its successes, failures and potential. Information Systems Journal, 16(4), 317–342. https://doi.org/10.1111/j.1365-2575.2006.00221.x
• Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. MIS Quarterly, 27(3), 425–478. https://doi.org/10.2307/30036540
• Kellogg, K. C., Valentine, M. A., & Christin, A. (2020). Algorithms at work: The new contested terrain of control. Academy of Management Annals, 14(1), 366–410. https://doi.org/10.5465/annals.2018.0174
• Zuboff, S. (2019). The Age of Surveillance Capitalism. PublicAffairs.</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="2">• Become a Digital Detective – Investigate how technology, people and processes work together in a real organisation.
• Play the Digital Transformation Game – Make management decisions, handle resistance to change and face unexpected challenges.
• Challenge AI: Ethics in Action – Solve real-life dilemmas involving AI, privacy and responsible technology use.</td></tr>
<tr><td>Practical activites within the subject</td><td colspan="2">Not applicable</td></tr>
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