GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Sociotechnical perspective on digital transformation, PG_00073977						
Field of study	Management						
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 aim of the course is to prepare students for an in-depth analysis of digital transformation from a sociotechnical perspective, that is, taking into account the interdependence of people, technology and processes in an organisation. Students learn to assess the economic, legal, ethical and social consequences of digital implementations, to interpret the results of their analyses and to present them convincingly, together with recommendations for management.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[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.	The student is able to prepare and convincingly present the results of a sociotechnical analysis of a selected digital implementation, using organisational analysis models, with an in-depth interpretation of the results and recommendations for management.	[SU1] Assessment of task fulfilment [SU2] Assessment of ability to analyse information [SU5] Assessment of ability to present the results of task
[K7_W05] has in-depth knowledge of integrating economic, legal, and ethical aspects in analyses and their application in entrepreneurial activities.	The student knows and understands the economic, legal and ethical conditions of digital transformation and the principles of taking them into account when analysing and managing digital implementations in an organisation.	[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects

Subject contents

Course content – lecture

1. Digital transformation: essence, drivers and pitfalls.
2. People and technology as one system: origins and principles.
3. How to analyse an organisation: sociotechnical models.
4. Technological change in business: the domino effect and side effects.
5. Work and organisation in the digital era: new roles and competences.
6. Technology acceptance: what makes people use new tools.
7. The hidden costs of digitalisation.
8. Work and organisation 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. Principled digitalisation: digital exclusion.
14. Digital implementation success: criteria and indicators.
15. Digital implementation success: measurement tools.

Course content – exercises

Module I. Diagnosing the organisation and the implementation

- Anatomy of a failure: analysis of an unsuccessful digital implementation.
- A new system in the company – implementation simulation (decision game); choice of organisation and implementation for the project.
- Map of the sociotechnical system of the selected organisation: people, technology, processes, structure, stakeholders.

Module II. Managing people in digital change

- The domino effect: identifying the three most important consequences of the implementation.
- New roles and competences: how digitalisation changes the work of managers and teams.
- A short survey or interview with users of the selected implementation.
- When employees say “no”: role play and a plan for addressing resistance; estimating hidden costs.
- The algorithm as a supervisor: a platform work case; short mid-term presentations.

Module III. Data and artificial intelligence in managerial decisions

- Data in decisions: who creates data, who uses it and why reports do not change decisions.
- Human or algorithm: dividing tasks and decisions in a selected process.
- Who is responsible for an AI error: a case analysis from the board’s perspective.

Module IV. Responsibility and risk

- Checklist: the GDPR and the AI Act in business practice.
- Accessibility test of a selected service from the perspective of different users; identifying areas for improvement.

Module V. Evaluating outcomes and recommendations

- Proposing 3–5 indicators for evaluating the outcomes of the transformation and selecting measurement tools.
- Developing three recommendations for management; final presentations.

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
lecture test	60.0%	30.0%
practical assignments	60.0%	60.0%
presentation of the results	50.0%	10.0%

Recommended reading

Basic literature

1. 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.
2. Westerman, G., Bonnet, D., & McAfee, A. (2014). Leading Digital: Turning Technology into Business Transformation. Harvard Business Review Press.
3. Daugherty, P. R., & Wilson, H. J. (2018). Human + Machine: Reimagining Work in the Age of AI. Harvard Business Review Press.

	Supplementary literature	1. 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 2. 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 3. 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 4. 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 5. 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 6. 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 7. 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 8. Zuboff, S. (2019). The Age of Surveillance Capitalism. PublicAffairs.
	eResources addresses	
Example issues/ example questions/ tasks being completed	• Become a digital detective – discover how technology, people and processes interact in a real organisation. • Simulation game: digital transformation – make managerial decisions and deal with resistance to change and unexpected challenges. • Challenge: ethics in the world of AI – solve real dilemmas related to artificial intelligence, privacy and the responsible use of technology.	
Practical activites within the subject	Not applicable	

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