GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Technology in action: AI, data science, cybersecurity, PG_00070181		
Field of study	Informatics, Automatic Control, Cybernetics and Robotics		
Date of commencement of studies	February 2025	Academic year of realisation of subject	2025/2026
Education level	second-cycle studies	Subject group	
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	2	Language of instruction	English The course is based on original IBM teaching materials and is conducted entirely online.
Semester of study	3	ECTS credits	3.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Software Engineering -> Faculty of Electronics Telecommunications and Informatics -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Agnieszka Landowska	
	Teachers	dr hab. inż. Agnieszka Landowska	

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	45.0	0.0	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	0.0	0.0	45

Subject objectives

The aim of the course is to familiarize students of non-IT majors with IT issues that are useful to virtually every engineer today. The scope covers the basics of cybersecurity, the basics of data engineering, and the basics of artificial intelligence, including generative artificial intelligence.

The course is based on IBM original didactic metrials and is conducted fully online.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_W10] knows and understands, to an increased extent, the basic processes occurring in the life cycle of equipment, objects and technical systems, as well as methods of supporting processes and functions, specific to the field of study	The student understands data processing, cybersecurity issues, and the basics of artificial intelligence	[SW1] Assessment of factual knowledge
[K7_U07] can apply advanced methods of process and function support, specific to the field of study	The student knows the basic methods of data processing, ensuring cybersecurity, and applying artificial intelligence	[SU1] Assessment of task fulfilment

Subject contents

Course content – lecture
1. AI Fundamentals
- basic terms (artificial intelligence, machine learning, generative AI)
- ethical considerations for gen AI
- building trustworthy AI solutions
2. Data science Fundamentals
- basic terms and methods used in data engineering
3. Cybersecurity Fundamentals
- basic terms and methods used in data engineering
- cybersecurity with gen AI

Prerequisites and co-requisites

The course is not intended for students majoring in computer science and data engineering.

<table>
<tr><td>Assessment methods and criteria</td><td colspan="3"><table><tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr><tr><td>Stopień realizacji modułów</td><td>60.0%</td><td>100.0%</td></tr></table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td colspan="2">The course is based on IBM original didactic metrials and is conducted fully online.
https://sb-auth.skillsbuild.org</td></tr>
<tr><td>Supplementary literature</td><td colspan="2">1. Cyberjutsu : cyberbezpieczeństwo dla współczesnych ninja, Ben McCarty, Wydawnictwo Naukowe PWN, 2022, Warszawa
2. Generatywna sztuczna inteligencja z ChatGPT i modelami OpenAI : podnieś swoją produktywność i innowacyjność za pomocą GPT3 i GPT4 / Valentina Alto, Helion, 2024, Gliwice</td></tr>
<tr><td>eResources addresses</td><td colspan="2"></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="3">1. What is a difference between machine learning and artificial intelligence
2. Which ethical aspects you should consider in AI based sustems
3. What are te main rules of individual security online</td></tr>
<tr><td>Practical activites within the subject</td><td colspan="3">Not applicable</td></tr>
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