GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	AI Technology Deep Dive, PG_00069766		
Field of study	AI Technology Deep Dive		
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	1	Language of instruction	English
Semester of study	2	ECTS credits	3.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Software Engineering -> Faculty of Electronics Telecommunications and Informatics -> Wydziały Politechniki Gdańskiej		
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	30.0	0.0	15.0	0.0	0.0	45

E-learning hours included: 0.0

eNauczanie source addresses:

Moodle ID: 1595 AI Technology Deep Dive 2025
https://enauczanie.pg.edu.pl/2025/course/view.php?id=1595

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:

- Provide students with an in-depth understanding of the core technologies behind artificial intelligence, including machine learning, deep learning, and natural language processing.
- Explore the architecture, algorithms, and frameworks used to build modern AI systems.
- Develop practical skills in designing, training, and evaluating AI models using real-world datasets and tools.
- Analyze the limitations, risks, and ethical implications of AI technologies in various domains.
- Prepare students to critically assess and apply AI solutions in research, industry, and innovation contexts.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_U07] can apply advanced methods of process and function support, specific to the field of study	Student has practical skills in designing, training, and evaluating AI models using real-world datasets and tools, as well as skills to analyze the limitations, risks, and ethical implications of AI technologies in various domains.	[SU1] Ocena realizacji zadania
[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	Student has in-depth understanding of the core technologies behind artificial intelligence, including machine learning, deep learning, and natural language processing, knows the architecture, algorithms, and frameworks used to build modern AI systems.	[SW3] Ocena wiedzy zawartej w opracowaniu tekstowym i projektowym

<table>
<tr><td>Subject contents</td><td>- Building Trustworthy AI Enterprise Solutions
- Building AI Solutions using Advanced Algorithms and Open Source Frameworks
- Ethical Considerations for GenAI
- AI for Sustainability

- Retrieval Augmented Generation with LangChain
- Energy Demand Forecasting with IBM Granite Time Series
- Generative AI in action
- Build your first Gen AI Application the Right Way</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>Prerequisites include programming and Python basic skills.</td></tr>
<tr><td>Assessment methods and criteria</td><td><table><tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr><tr><td>Ocena poprawności</td><td>50.0%</td><td>100.0%</td></tr></table></td></tr>
<tr><td>Recommended reading</td><td><table><tr><td>Basic literature</td><td>Andreas C. Muller, Sarah Guido "Machine learning, Python i data science", 2023, Helion</td></tr><tr><td>Supplementary literature</td><td>Hadelin de Ponteves, "Sztuczna inteligencja : błyskawiczne wprowadzenie do uczenia maszynowego, uczenia ze wzmocnieniem i uczenia głębokiego", 2021, Helion</td></tr><tr><td>eResources addresses</td><td></td></tr></table></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td></td></tr>
<tr><td>Practical activites within the subject</td><td>Not applicable</td></tr>
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