1.	**Field of study**	**Data Science and Artificial Intelligence**
2.	Faculty	Faculty of Science and Technology
3.	Academic year of entry	2025/2026 (winter term)
4.	Level of qualifications/degree	first-cycle studies (in engineering)
5.	Degree profile	general academic
6.	Mode of study	full-time

7.	**General information about the module**
Module name	**Engineering Project Laboratory**
Module code	W4_DSAI_S1_PRACINZ1
Number of the ECTS credits	6
Language of instruction	Polish
Purpose and description of the content of education	Celem modułu jest przygotowanie studenta do samodzielnej realizacji projektu inżynierskiego. Moduł integruje zdobytą wiedzę teoretyczną, umiejętności praktyczne oraz kompetencje społeczne, umożliwiając ich zastosowanie w rozwiązywaniu rzeczywistych problemów inżynierskich. Jednocześnie sprzyja pogłębianiu wiedzy specjalistycznej związanej z tematyką realizowanej pracy. W ramach zajęć student samodzielnie definiuje i precyzuje problem projektowy, formułuje cele i założenia projektu, dobiera odpowiednie metody, techniki, narzędzia oraz materiały, planuje działania i opracowuje harmonogram realizacji. Następnie prowadzi działania projektowe zgodnie z ustalonym planem, monitoruje postęp prac oraz wprowadza ewentualne korekty w odpowiedzi na pojawiające się trudności lub zmiany uwarunkowań projektowych. Istotnym elementem modułu jest również dokumentowanie przebiegu prac oraz przygotowanie profesjonalnej prezentacji rezultatów. Pracownia wspiera rozwój takich kompetencji jak odpowiedzialność za realizację zadań, krytyczna analiza własnych działań, korzystanie z informacji zwrotnych oraz współpraca z opiekunem lub ekspertami branżowymi. Moduł przygotowuje studentów do samodzielnego działania w środowisku inżynierskim i wzmacnia ich gotowość do dalszego rozwoju zawodowego.
List of modules that must be completed before starting this module (if necessary)	not applicable

8. Learning outcomes of the module

Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
K01	Jest gotów do krytycznej oceny własnej wiedzy oraz do podejmowania działań w celu jej uzupełnienia, w tym do zasięgania opinii ekspertów.	DSAI_1S_K01	3
K02	Wykazuje otwartość na konstruktywną krytykę oraz umiejętność uwzględniania informacji zwrotnych w celu doskonalenia rozwiązań przyjętych w pracy dyplomowej.	DSAI_1S_K03	3
K03	Jest gotów do przedstawienia wyników własnej pracy inżynierskiej w sposób zrozumiały również dla odbiorców spoza środowiska technicznego, promując znaczenie oraz osiągnięcia data science i sztucznej inteligencji	DSAI_1S_K02	3
U01	Potrafi opracować harmonogram realizacji pracy inżynierskiej, uwzględniając cele projektu, etapy działań, dostępne zasoby oraz ograniczenia czasowe; realizować zaplanowane zadania zgodnie z przyjętym harmonogramem.	DSAI_1S_U02_inż DSAI_1S_U03_inż DSAI_1S_U05 DSAI_1S_U09	2 3 3 3

U02	Potrafi dobrać metody, techniki, narzędzia i materiały niezbędne do rozwiązania problemu inżynierskiego, wynikającego z tematyki realizowanej pracy dyplomowej.	DSAI_1S_U02 DSAI_1S_U03_inż DSAI_1S_U05	3 2 3
U03	Potrafi dokumentować przebieg oraz rezultaty pracy inżynierskiej w sposób uporządkowany i zrozumiały, a także prezentować jej wyniki z wykorzystaniem odpowiednich form i środków przekazu.	DSAI_1S_U07 DSAI_1S_U08	3 3
U04	Potrafi samodzielnie wyszukiwać i wykorzystywać informacje z różnych źródeł wiedzy, w tym literatury naukowej oraz specjalistycznych baz danych, dokonując ich krytycznej analizy, interpretacji i syntezy w kontekście zagadnień związanych z realizowaną pracą.	DSAI_1S_U06	3
W01	Posiada pogłębioną wiedzę specjalistyczną w zakresie zagadnień stanowiących przedmiot pracy dyplomowej inżynierskiej.	DSAI_1S_W02_inż DSAI_1S_W05 DSAI_1S_W07	4 3 3

9. Methods of conducting classes

Code	Category	Name (description)
a05	Lecture methods / expository methods	Explanation/clarification *explication involving the derivation of a predetermined theorem from other, already known ones, in the number of steps specified by the person teaching the course*
b04	Problem-solving methods	Activating method – discussion / debate *an exchange of views supported by substantive arguments leading to a clash of different views, a compromise or the identification of common positions; it proceeds according to previously agreed-upon rules regarding the time, manner and turn-taking as well as the principles of civil discourse; a discussion is not a competition but aims at finding the best solutions or presenting different points of view; its varieties include brainstorming, Oxford-style debate, panel discussion, decision tree, conference discussion; a debate is an orderly dispute between supporters and opponents of a viewpoint, usually specialists in the field or pre-selected representatives of a group dealing with a common problem*
b07	Problem-solving methods	Activating methods: a case study *a comprehensive description of a phenomenon connected with the selected discipline; reflecting the reality, presenting the 'what', 'where' and 'how' of the phenomenon, i.e., all of its key aspects to be discussed in class; used as a reproduction, presentation, discussion or diagnosis of factors that shape the phenomenon or interact with it; an in-depth qualitative analysis and evaluation of a selected phenomenon*
b10	Problem-solving methods	SWOT analysis *a method of analyzing a phenomenon/action/work of an institution, employed to organize information and solve problems; applied in strategic planning, project implementation or solving a business or organizational problem; a universal tool to be used in the initial stage of a strategic analysis which involves sorting information about a problem into four categories: strengths and weaknesses, opportunities and threats; SWOT analysis makes it possible to determine the factors in favour of a project and its chances for success, as well as eliminating or reducing negative factors and threats to the project at the stage of early diagnosis*
d01	Programmed learning methods	Working with a computer *e.g., Webquest; implementation of educational tasks using electronic and digital devices, computer programs and Internet applications; the academic teacher acts as a consultant; students' work is carried out step by step according to the plan laid own by the person teaching the course and following his instructions, and proceeds towards producing the indicated results within the set deadline*
e01	Practical methods	Laboratory exercise / experiment

		[also conducted as fieldwork] a method of practical application of knowledge; implemented in three stages: the recognition of a problem induced by the task content, the formulation of the problem and the attempt to solve it accompanied by the assessment of the effects; the goal is to acquire skills, abilities and habits, and to consolidate the acquired knowledge so that it becomes operational; the laboratory method assumes greater independence of learners than carrying out an experiment
f01	Methods of self-learning	Self-education *a method which involves independent acquisition of knowledge, skills and social competences, extending their scope and quality; complementary to the learning process taking place in class; taking on the task of developing and adjusting qualifications on one's own; self-study*

10. Forms of teaching

Code	Name	Number of hours	Assessment of the learning outcomes of the module	Learning outcomes of the module	Methods of conducting classes
fs01	laboratory classes	45	course work	K01, K02, K03, U01, U02, U03, U04, W01	a05, b04, b07, b10, d01, e01, f01

11. The student's work, apart from participation in classes, includes in particular:

Code	Category	Name (description)	Is it part of the BUNA?
a01	Preparation for classes	Search for materials and review activities necessary for class participation *reviewing literature, documentation, tools and materials as well as the specifics of the syllabus and the range of activities indicated in it as required for full participation in classes*	No
a02	Preparation for classes	Literature reading / analysis of source materials *reading the literature indicated in the syllabus; reviewing, organizing, analyzing and selecting source materials to be used in class*	No
a04	Preparation for classes	Consulting materials complementary to those indicated in the syllabus *agreeing on materials complementary to those indicated in the syllabus, supporting the implementation of tasks resulting from or necessary for class participation*	Yes
a05	Preparation for classes	Production/preparation of tools, materials or documentation necessary for class participation *developing, preparing and assessing the usefulness of tools and materials (e.g. aids, scenarios, research tools, equipment, etc.) to be employed in class or as an aid when preparing for classes*	No
b03	Consulting the curriculum and the organization of classes	Consulting the schedule *getting acquainted with the class schedule, possibly in the presence of the year tutor, in order to optimize participation in classes, including those supplementary to the core subjects listed in the pursued study programme*	Yes
c01	Preparation for verification of learning outcomes	Determining the stages of task implementation contributing to the verification of learning outcomes *devising a task implementation strategy embracing the division of content, the range of activities, implementation time and/or the method(s) of obtaining the necessary materials and tools, etc.*	Yes
c02	Preparation for verification of learning outcomes	Studying the literature used in and the materials produced in class *exploring the studied content, inquiring, considering, assimilating, interpreting it, or organizing knowledge obtained from the literature, documentation, instructions, scenarios, etc., used in class as well as from the notes or other materials/artifacts made in class*	No
c03	Preparation for verification of learning outcomes	Implementation of an individual or group assignment necessary for course/phase/ examination completion *a set of activities aimed at performing an assigned task, to be executed out of class, as an obligatory*	No

		phase/element of the verification of the learning outcomes assigned to the course	
d01	Consulting the results of the verification of learning outcomes	Analysis of the corrective feedback provided by the academic teacher on the results of the verification of learning outcomes *reading through the academic teacher's comments, assessments and opinions on the implementation of the task aimed at checking the level of the achieved learning outcomes*	Yes
d02	Consulting the results of the verification of learning outcomes	Development of a corrective action plan as well as supplementary/corrective tasks *reviewing and selecting tasks and activities enabling the elimination of errors indicated by the academic teacher, their verification or correction resulting in completing the task with at least the minimum passing grade*	Yes

Information on the details of the module implementation in a given academic year can be found in the syllabus available in the USOS system: https://usosweb.us.edu.pl.