

**Subject card**

<b>Subject name and code</b>	Coding Lab, PG_00178490						
<b>Field of study</b>	Informatics and Econometrics						
<b>Date of commencement of studies</b>	October 2026	<b>Academic year of realisation of subject</b>			2027/2028		
<b>Education level</b>	Bachelor's studies	<b>Subject group</b>			Obligatory subject group in the field of study Optional subject group Subject group related to scientific research in the field of study		
<b>Mode of study</b>	part-time studies	<b>Mode of delivery</b>			at the university		
<b>Year of study</b>	2	<b>Language of instruction</b>			Polish		
<b>Semester of study</b>	4	<b>ECTS credits</b>			3.0		
<b>Learning profile</b>	academic	<b>Assessment form</b>			credit		
<b>Conducting unit</b>	Department of Business Informatics -> Faculty of Management -> Rector						
<b>Name and surname of lecturer (lecturers)</b>	<b>Subject supervisor</b>		mgr inż. Dawid Jereczek				
	<b>Teachers</b>						
<b>Lesson types</b>	<b>Lesson type</b>	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	<b>Number of study hours</b>	0.0	0.0	24.0	0.0	0.0	24
	E-learning hours included: 0.0						
<b>Learning activity and number of study hours</b>	<b>Learning activity</b>	Participation in didactic classes included in study plan		Participation in consultation hours		Self-study	SUM
	<b>Number of study hours</b>	24		1.0		50.0	75
<b>Subject objectives</b>	The aim of the course is to develop students' practical programming skills and to deepen the knowledge acquired in previous courses on algorithms and programming. During the laboratory sessions, students independently design, implement, and test computer programs while solving complex problems in the field of computer science.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[liEL3_U12] The student can design and implement IT systems to enhance business operations and effectively utilize modern ICT technologies for management and business communication.	The student is able to design and implement simple and complex computer applications that support business operations. The student can use modern programming languages, libraries, and ICT tools to carry out practical IT projects. The student is able to integrate information systems with databases and other data sources to support decision-making and analytical processes within organizations. The student can apply good software engineering practices (version control, testing, documentation) to ensure the high quality of developed solutions.	[SU5] implementation of a problem task [SU6] demonstration of practical skills [SU8] observation of student's independent or team work
	[liEL3_U02] Students can select or construct econometrics, informatics or statistics tools and apply them to describe and solve economic and social problems.	The student is able to select appropriate programming tools and information technologies to solve specific economic and social problems. The student can use programming languages and analytical libraries to carry out tasks related to modeling and forecasting economic phenomena. The student is able to design and implement applications that support economic analysis as well as data processing and visualization.	[SU5] implementation of a problem task [SU6] demonstration of practical skills [SU8] observation of student's independent or team work
Subject contents	<p>Advanced structural and object-oriented programming techniques: designing and implementing more complex applications using OOP paradigms (encapsulation, inheritance, polymorphism).  Design and implementation of data structures: dynamic lists, stacks, priority queues, trees (including BST and AVL trees), graphs (graph representations, graph traversal algorithms).  Integration of applications with relational databases: data model design, transaction handling, implementation of CRUD operations, use of parameterized queries.  Algorithmic complexity and efficiency: code profiling and optimization, analysis of memory usage and execution time.  Data processing and analysis: parsing data from various formats (JSON, XML, CSV), processing unstructured data (text), performing operations on data sets.  Team project development: individual or group project work on an application supporting a real-world business or economic process or problem from requirements analysis, through implementation and testing, to presentation of the final solution.</p>		
Prerequisites and co-requisites	<p>Basic knowledge of algorithms and data structures</p> <p>Understanding of basic concepts of databases and SQL</p> <p>Ability to use basic programming environments (IDE)</p> <p>Basic knowledge of software engineering (version control, testing, code documentation)</p>		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Laboratory tasks	51.0%	50.0%
	Semester project	51.0%	50.0%

Recommended reading	Basic literature	<p>Piotr Wróblewski, <i>Algorytmy, struktury danych i techniki programowani</i>, Helion</p> <p>Steve McConnell, <i>Code Complete: A Practical Handbook of Software Construction</i>, Microsoft Press.</p> <p>Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest, Clifford Stein, <i>Introduction to Algorithms</i>, MIT Press.</p> <p>Materiały wykładowe,</p>
	Supplementary literature	<p>Martin Fowler, <i>Refactoring: Improving the Design of Existing Code</i>, Addison-Wesley.</p> <p>Stack Overflow, GitHub Discussions jako źródła wiedzy społecznościowej.</p>
	eResources addresses	
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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