



Subject card

Subject name and code	Techniques web , PG_00060223						
Field of study	Technical Physics						
Date of commencement of studies	October 2026	Academic year of realisation of subject				2028/2029	
Education level	first-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	3	Language of instruction				Polish	
Semester of study	5	ECTS credits				3.0	
Learning profile	general academic profile	Assessment form				assessment	
Conducting unit	Division of Theoretical Physics and Quantum Informaton -> Institute of Physics and Applied Computer Science -> Faculty of Applied Physics and Mathematics -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Paweł Syty					
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	30.0	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	Introduce students to the basic internet technologies, i.e. methods of creating websites - using both core technologies and frameworks and content management systems (CMS).						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K6_U02] is able to analyse and solve complex and non-standard scientific and technical problems using appropriate analytical, computational, numerical, simulation or experimental methods.	The student is able to carry out a thorough analysis of the problem to be solved and then solve it using cloud-based solutions.			[SU2] Assessment of ability to analyse information [SU1] Assessment of task fulfilment		
	[K6_U03] possesses programming skills in a selected language and the ability to use selected software packages.	The student is able to independently prepare a cloud-based website on a selected topic, using selected technologies and tools.			[SU1] Assessment of task fulfilment [SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools		
	[K6_K01] demonstrates readiness for continuous learning and updating knowledge in physics and related fields, critically evaluating it and recognising its importance in solving practical and theoretical problems.	The student is aware of changes in internet technologies and the need for continuous professional development.			[SK5] Assessment of ability to solve problems that arise in practice		

Subject contents	<p>Course content – lecture</p> <p>Web standards, website availability (WCAG, ATAG)</p> <p>HTML 5 (with particular emphasis on what's new in relation to older versions)</p> <p>CSS - Cascading Style Sheets</p> <p>Introduction to the PHP language, with particular emphasis on objectivity from version 5.x and the new possibilities of version 7.x</p> <p>HTTP protocol, Internet architecture</p> <p>MVC pattern, example in PHP, layered structure of web applications</p> <p>Template systems on the example of a selected PHP and JavaScript template</p> <p>Website security, including data security</p> <p>Supporting languages / technologies: XML, XSL, XPath, XSLT</p> <p>Document Object Model (DOM)</p> <p>JavaScript language, JSON format, jQuery library, templates (Handlebars / pug)</p> <p>Server-side JavaScript: Node.js environment, React vs AngularJS vs Angular library, Electron platform</p> <p>AJAX technology (including AJAX Push / Comet), providing indexing / positioning of pages</p> <p>Basic Apache configuration (.ht * files, mod_rewrite)</p> <p>Using frameworks, e.g. Django (Python language), Ruby on Rails (Ruby language), ASP.NET (.NET languages), Bootstrap</p> <p>Using ready-made CMS systems, eg Wordpress, creating your own themes</p> <p>Internet of Things (IoT) - intelligent buildings, RFID / NFC, communicating embedded systems based on microcontrollers</p> <p>Cloud computing</p>											
	<p>Course content – project</p> <p>Students create a website that uses the technologies learned at the lecture.</p> <ol style="list-style-type: none"> 1. Choosing a topic, a sketch of the layout of the pages of the website. 2. Creating a page layout (HTML + CSS). 3. Creating an administration panel in PHP. 4. JavaScript elements on the page. 5. XML handling elements. 6. Applications of AJAX technology. 7. Implementation of the website based on the selected framework. 											
Prerequisites and co-requisites												
Assessment methods and criteria	<table border="1"> <thead> <tr> <th>Subject passing criteria</th> <th>Passing threshold</th> <th>Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td>Passing the lecture</td> <td>50.0%</td> <td>30.0%</td> </tr> <tr> <td>Passing the project</td> <td>50.0%</td> <td>70.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	Passing the lecture	50.0%	30.0%	Passing the project	50.0%	70.0%
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Recommended reading	Basic literature	<p>Jon Duckett, HTML and CSS: Design and Build Websites, John Wiley & Sons 2017</p> <p>David Flanagan, JavaScript: The Definitive Guide: Master the World's Most-Used Programming Language, O'Reilly 2021</p> <p>Matt Zandstra, PHP Objects, Patterns, and Practice, Apress 2017</p>										
	Supplementary literature	<p>Brian Messenlehner, Jason Coleman, Building Web Apps with WordPress: WordPress as an Application Framework, O'Reilly 2021</p> <p>Ethan Brown, Web Development with Node and Express: Leveraging the JavaScript Stack, O'Reilly 2020</p>										
	eResources addresses											
Example issues/ example questions/ tasks being completed	Preparation of a website on a selected topic, using selected technologies.											
Practical activities within the subject	Not applicable											

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