GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Techniques web , PG_00060223		
Field of study	Technical Physics		
Date of commencement of studies	October 2025	Academic year of realisation of subject	2027/2028
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] analyzes and solves simple scientific and technical problems, based on possessed knowledge, using analytical, numerical, simulation and experimental methods	The student is able to analyse a problem to be solved and then solve it.	[SU2] Assessment of ability to analyse information [SU1] Assessment of task fulfilment
[K6_U03] knows programming languages and can use basic 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] understands the need to learn and improve professional and personal competencies, inspires and organizes other people's learning process	The student is aware of changes in technology and the need for further training.	[SK5] Assessment of ability to solve problems that arise in practice

<table>
<tr><td>Subject contents</td><td>Course content – lecture
Web standards, website availability (WCAG, ATAG)
HTML 5 (with particular emphasis on what's new in relation to older versions)
CSS - Cascading Style Sheets
Introduction to the PHP language, with particular emphasis on objectivity from version 5.x and the new possibilities of version 7.x
HTTP protocol, Internet architecture
MVC pattern, example in PHP, layered structure of web applications
Template systems on the example of a selected PHP and JavaScript template
Website security, including data security
Supporting languages / technologies: XML, XSL, XPath, XSLT
Document Object Model (DOM)
JavaScript language, JSON format, jQuery library, templates (Handlebars / pug)
Server-side JavaScript: Node.js environment, React vs AngularJS vs Angular library, Electron platform
AJAX technology (including AJAX Push / Comet), providing indexing / positioning of pages
Basic Apache configuration (.ht * files, mod_rewrite)
Using frameworks, e.g. Django (Python language), Ruby on Rails (Ruby language), ASP.NET (.NET languages), Bootstrap
Using ready-made CMS systems, eg Wordpress, creating your own themes
Internet of Things (IoT) - intelligent buildings, RFID / NFC, communicating embedded systems based on microcontrollers
Cloud computing

Course content – project
Students create a website that uses the technologies learned at the lecture.
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.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td></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>Passing the project</td><td>50.0%</td><td>70.0%</td></tr>
<tr><td>Passing the lecture</td><td>50.0%</td><td>30.0%</td></tr>
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<tr><td>Recommended reading</td><td>
<table>
<tr><td>Basic literature</td><td>Jon Duckett, HTML and CSS: Design and Build Websites, John Wiley & Sons 2017
David Flanagan, JavaScript: The Definitive Guide: Master the World's Most-Used Programming Language, O'Reilly 2021
Matt Zandstra, PHP Objects, Patterns, and Practice, Apress 2017</td></tr>
<tr><td>Supplementary literature</td><td>Brian Messenlehner, Jason Coleman, Building Web Apps with WordPress: WordPress as an Application Framework, O'Reilly 2021
Ethan Brown, Web Development with Node and Express: Leveraging the JavaScript Stack, O'Reilly 2020</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
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<tr><td>Example issues/ example questions/ tasks being completed</td><td>Preparation of a website on a selected topic, using selected technologies.</td></tr>
<tr><td>Practical activites within the subject</td><td>Not applicable</td></tr>
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