COURSE UNIT DESCRIPTION

Course unit title	Course unit code
WWW DEVELOPMENT TECHNOLOGIES	

Lecturer (s)	Department where course unit is delivered
Assoc. prof. dr. Ilona Veitaitė	Kaunas Faculty Institute of Social Sciences and Applied Informatics

Cycle	Level of course unit	Type of the course unit
First	1	Compulsory

Mode of delivery	Semester or period when the course unit is delivered	Language of instruction
Auditorium and self-work	3, 5 semesters	English

Prerequisites and corequisites	
Prerequisites: Introduction to Programming; Algorithm Theory and Data Structures	**Corequisites:** Information Systems and Databases; Programming Languages and Object-Oriented Programming

Number of ECTS credits allocated	Student's workload	Contact work hours	Individual work hours
5	130	52	78

Purpose of the course unit: program competencies to be developed		
After the course, student will be able to understand, analyze, and apply the leading technologies of Internet information systems development and their practical application methods.		
Learning outcomes of a course unit	**Teaching and learning methods**	**Assessment methods**
Will be able to prepare and configure the environment necessary for the development of Web information systems. Will be able to apply necessary Web application development tools and technologies in practice. Will be able to apply PHP and essential tools and technologies for developing dynamic Web applications in practice, as well as to use database management system capabilities in web solutions.	Lectures, practical tasks, lab works. Literature analysis	Paper, lab works defense, exam.

Course content: breakdown of the topics	Contact work hours							Individual work hours and tasks	
	Lectures	Consultations	Seminars	Practice classes	Laboratory	Practice	All contact work	Individual work	Tasks
WWW: WWW – World Wide Web and basics of web pages development; HTML, CSS technologies; HTML 5, DHTML technologies.	2			6			**8**	**10**	Literature analysis; practical work; individual work on assigned tasks; practical exercises
Web Engineering: Modern Web Application Development.	4			6			**10**	**10**	Literature analysis; practical work; individual work on

									assigned tasks; practical exercises
Web Development: PHP Basics; PHP Basics/ Web Development: PHP Advanced; PHP Frameworks for Modern Web Developers: Laravel; Databases: MySQL; MariaDB; SQL - language for storing, manipulating and retrieving data in databases; JavaScript and JavaScript Frameworks: jQuery; AngularJS; React; Web Frontend Development: Bootstrap an HTML, CSS, and JavaScript framework for developing responsive, mobile-first websites	6			20			26	20	Literature analysis; practical work; individual work on assigned tasks; practical exercises
Web-Based Hacking: Servers and Applications; Web Security: Web application security; Student Presentation of Papers	4						4	22	Literature analysis; practical work; individual work on assigned tasks; practical exercises
Exam		4					4	16	
Total	**16**	**4**		**32**			**52**	**78**	

Assessment strategy	Comparative weight percentage	Date of examination	Assessment criteria
Practical Work I	20%	6-7 week	Each student has to create his personal webpage, its contents, topics, and structure, and design can be related with any field; to prepare a presentation of created personal webpage and report. A created personal page must meet the following requirements defined in the practical work description.
Practical Work II	20%	14-15 week	Group of students must create own page/system to process specific data (use DB), its contents, thematic, and structure and design may vary; prepare a presentation of created page/system and report. The developed system must meet the following requirements defined in the practical work description.
Paper	20%	4-16 week	Recommended content of the paper: 1. Introduction; 2. Definition of the technology; 3. Description of technological principles; 4. Describe the possible methods of protection; 5. Examples – provide a few interesting cases from real life; 6. Provide demonstration using VM (virtual machines); 7. Statistics; 8. Conclusions; According provided requirements, prepare PPT and introduce paper in 10-15 minutes. Also, prepare a written report.
Exam	40%	Exam Session	Exam can be taken only if all practical tasks are done. The exam covers the whole theoretical and practical material. The assessment on the 10-point scale according to the assessment criteria of the VU.
Final Grade = PW1*0,2+PW2*0,2+P*0,2+E*0,4		**Exam grade must be ≥5**	

In cases where the Assessment Strategy is a written assignment (paper, report, project, etc.) and the Assessment Criteria do not include the defence or oral presentation of that paper, the lecturer shall, in order to make sure that generative artificial intelligence (AI) tools (ChatGPT, etc.) have not been used in the preparation of the written assignment. (i.e. the content of the essay is not generated by an AI tool), he/she shall have the right to ask follow-up questions and, if necessary, to modify or cancel the assessment of the assignment.

In case of external studies: Final Grade = PW1*0,2+PW2*0,4+ E*0,4

Author	Year	Title	Number of a periodical publication or publication Volume	The place of publication and publisher or online link
Required reading				
Learning PHP, MySQL, & JavaScript 5th Edition By Robin Nixon (O'Reilly 2018); http://lpmj.net/5thedition/				
PHP Cookbook, 3rd Edition Solutions & Examples for PHP Programmers; By Adam Trachtenberg, David Sklar; Publisher: O'Reilly Media; Release Date: July 2014 Pages: 818				
Web Engineering: The Discipline of Systematic Development of Web Applications; Gerti Kappel, Birgit Proll, Siegfried Reich, Werner Retschitzegger // ISBN: 3-89864-234-8; 2006 by John Wiley & Sons Ltd. All				
Pressman, Roger S. Web engineering: a practitioner's approach / Roger S. Pressman, David Lowe. — 1st ed.; ISBN 978–0–07–352329–3 — ISBN 0–07–352329–1; 2009 by The McGraw-Hill Companies				
Hacking Exposed Web Applications, Third Edition 3rd Edition by Joel Scambray, Vincent Liu, Caleb Sima // 2010 McGraw-Hill Education; ISBN-10: 0071740643; https://www.safaribooksonline.com/library/view/hacking-exposed-web/9780071740647/				
Pro PHP Security From Application Security Principles to the Implementation of XSS Defenses Second Edition; Snyder, Chris, Myer, Thomas, Southwell, Michael; 2010; eBook ISBN 978-1-4302-3319-0				
Security for Web Developers: USING JAVASCRIPT, HTML, AND CSS; By John Mueller; 2016 O'Reilly Media; http://shop.oreilly.com/product/0636920041429.do				
WEB SECURITY A White Hat Perspective; Hanqing Wu and Liz Zhao; 2015 by Taylor & Francis Group, LLC; International Standard Book Number-13: 978-1-4665-9262-9 (eBook - PDF) https://www.crcpress.com/Web-Security-A-WhiteHat-Perspective/Wu-Zhao/p/book/9781466592612				
Recommended reading				
PHP - http://php.net/manual/en/				
Bootstrap 4.1 - https://getbootstrap.com/docs/4.1/getting-started/introduction/				
MariaDB - https://mariadb.org/learn/				
React - https://reactjs.org/tutorial/tutorial.html				
AngularJS - https://docs.angularjs.org/tutorial/step_02				
jQuery - https://api.jquery.com/				
Laravel - https://laravel.com/docs/5.7				
PHP - https://www.w3schools.com/php/default.asp				
JS - https://www.w3schools.com/js/				
Bootstrap - https://www.w3schools.com/bootstrap/default.asp				
jQuery - https://www.w3schools.com/jquery/default.asp				
AngularJS - https://www.w3schools.com/angular/default.asp				
PHP - http://php.net/manual/en/				