

Bialystok University of Technology									
Field of study	Computer Science							Degree level and programme type	Engineer's degree full-time programme
Specialization/ diploma path	---							Study profile	academic
Course name	Web Applications Development in Java							Course code	FCS-00046
								Course type	obligatory
Forms and number of hours of tuition	L	C	LC	P	SW	FW	S	Semester	2
	30				30			No. of ECTS credits	6
Entry requirements	Object Oriented Programming (FCS-00012), Computer Networks (FCS-00026), Introduction to Databases (FCS-00096),								
Course objectives	Familiarize students with the architecture of the Web, a model of its operation and basic protocols. Presentation of the concept of web applications, cross-programming techniques and practices used within the framework of an information network. Gain knowledge and skills in creating web applications with Java EE specification (Java Servlets, Java Server Pages, Spring).								
Course content	<p>Lecture:</p> <ol style="list-style-type: none"> 1. Web applications in Java. Servlets, application context, cookies, session. Events model. JSP. 2. Managing of servlet container. Security of applications. 3. Servlet Container. XML (eXtended Markup Language). Concepts of structurally and semantically correct document. Namespaces. Syntax Description Document (XML Schema). 4. Architecture REST (Representational state transfer) Web 5. Servlet based frameworks: Spring MVC+Thymeleaf. <p>Laboratory:</p> <ol style="list-style-type: none"> 1. Preparation of developer and production environment of applications. Managing of servlet container. 2. Implementation o Java based web application. Data exchange among the application components. Application context, cookies, session. Events model. JSP. 3. Processing and validation of documents and XML schemes. 4. MVC pattern. Rest interface, databases. 5. Web application development based on frameworks: Spring. Spring Boot, annotations, dependency injection. 								
Teaching methods	talk, lecture problem, brainstorming, programming, subject exercises, project method,								
Assessment method	Lecture - written exam; specialized workshop - Web application projects in Spring technology.								
Symbol of learning outcome	Learning outcomes							Reference to the learning outcomes for the field of study	
LO1	discusses the architecture of the Web, identifies and explains the principles of operation of protocols and standards for the environment.							K_W09	
LO2	knows the principles of design and web application development							K_W09	
LO3	knows the popular technologies used to create web applications. Is able to select the right technology to the specifics of the project.							K_W09	
LO4	able to carry out testing of Web application components and diagnose errors.							K_W06 K_U09	
LO5	able to design and implement a web application in selected technology and the needs of the user.							K_U09 K_U11	
LO6	able to install and configure the environment necessary to run the Web application (server and tools required on the client side).							K_U08	
Symbol of learning outcome	Methods of assessing the learning outcomes							Type of tuition during which the outcome is assessed	
LO1	exam							L	
LO2	exam							L	
LO3	exam							L	
LO4	implementation of projects and laboratory tasks							L, Sw	
LO5	project and laboratory tasks implementation							Sw	
LO6	project and laboratory tasks implementation							Sw	
Student workload (in hours)							No. of hours		
Calculation	1 - Attendance at lectures - 15x2							30	
	2 - Attendance at classes - 15x2							30	
	3 - Preparation for laboratories - 15x1							15	
	4 - Performance of projects tasks (with presentation) -							30	
	5 - Participation in student-teacher sessions -							5	
	6 - Performance of projects tasks (with presentation) -							30	
	7 - Preparation for the lecture test -							10	
TOTAL:							150		
Quantitative indicators							HOURS	No. of ECTS credits	
Student workload - activities that require direct teacher participation							65 (5)+(2)+(1)	2.6	
Student workload - practical activities							105 (6)+(4)+(3)+(2)	4.2	
Basic references	<ol style="list-style-type: none"> 1. https://docs.oracle.com/javaee/7/index.html 2. https://spring.io/ 3. Standards: XML, Xpath, XSLT, XML Schema, HTML, XHTML, CSS itd. dostępne pod adresem www.w3c.org 4. Java EE technologies: www.oracle.com/technetwork/java/javaee/tech/index.html 								
Supplementary references	1. W3C Specifications								
Organisational unit conducting the course	Department of Information Systems and Computer Networks							Date of issuing the programme	
Author of the programme	dr inż. Urszula Kuźelewska							Feb. 17, 2022	

L - lecture, C - classes, LC - laboratory classes, P - project, SW - specialization workshop, FW - field work, S - seminar