MODELLING AND IMPLEMENTATION OF BUSINESS APPLICATIONS

Faculty of Computer Science				
Study programme:	**Computer Science**		Degree level:	**Engineer's degree full-time programme**
Specialization	**---**		Diploma path:	**2026/2027W - 2026/2027S**
Module name:	**Modelling and Implementation of Business Applications** (Programowanie aplikacji biznesowych w oparciu o platformę Java)			
Module type:	**obligatory**	**Semester: 1**	ECTS:**5**	Module ID:**FCS-00045**
No. of hrs in semester:	Lecture (L) - **30** Classes(C) - **0** Specialization workshop (SW) - **30** Project (P) - **0** Laboratory classes (LC) - **0** Seminar (S) - **0**			
Prerequisites	-			

Aims and objectives:	Introduction to Java Enterprise Edition platform/ Jakarta platfomr and development of business applications. Using multi-tier architecture with technologies available in Java EE/ Jakarta EE platform.		
Forms of teching activities::	lecture, specialization workshop,	Assessment:	Evaluation must be relevant to the intended learning outcomes:
			Lecture - written test and/or assesment of pratice tasks Practice laboratory - assessment of tasks.
Module content:	Lecture: Introduction to application architecture on the Java EE/Jakarta EE platform. Data access: JDBC, DAO/DTO design patterns, Object Relational Mapping, programmatic and declarative transaction handling. Business (logic) layer: components and services in the logic layer, elements of aspect programming. Presentation layer: solutions based on MVC pattern in Java EE platform. Application security models. Practice laboratory: Introduction to tools for developing applications on the Java EE platform. Introduction to application servers. Implementation of access to relational databases, creating components realizing application logic and implementation of the presentation layer using Java EE/Jakarta EE platform technologies.		
Teaching methods:	programming, lecture problem,		

Learning outcomes

Symbol	Specify min. 4, max. 8 learning outcomes in the following order: knowledge – skills – competence. Each learning outcome must be verifiable	Reference to the programme learning outcomes of education
LO1	Knows how to design, develop and test application using Java EE platform.	
LO2	Knows techniques for developing networked applications using technologies in Java EE platform technologies.	
LO3	Designs, implements and test programs and their components according to requirements with technologies and tools using Java Enterprise Edition platform.	
LO4	Designs and implements networked applications using Java EE platform.	

No. of learning outcome	Methods of assessing the learning outcome	Type of teaching activities (if more than one) during which the outcome is assessed
LO1	Written test.	W
LO2	Written test.	W
LO3	Assessment of tasks.	Ps
LO4	Assessment of tasks.	Ps

Student's workload (in hours)	**1** - Attendance at lectures	None	30
	2 - Attendance at laboratories		30
	3 - Performance of projects tasks (with presentation)	None	55
	4 - Participation in student-teacher sessions	None	10
		TOTAL:	**125**

Quantitative indicators	Student's workload - activities that require direct teacher participation: (1)+(2)+(4)	70	**ECTS** 2.8
	Student's workload connected with practical classes (3)+(2)	85	3.4

Basic references:	1. Java EE platform documentation : www.oracle.com 2. Jakarta EE platform documentation: https://jakarta.ee. 3. Java EE patterns: http://www.corej2eepatterns.com/
Further reading	1. Junit documentation: https://junit.org/junit5/ 2. Maven documentation: https://maven.apache.org/ 3. IntelliJ IDE documentation: https://www.jetbrains.com/opensource/idea/

Unit:	Software Department	Lecturer/ instructor	
	31st March 2026	Author of the programme:	dr inż. Marcin Adamski

Date of issuing the programme:			

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