DESCRIPTION OF A STUDY COURSE – SYLLABUS

Title of a course	**Modular Software Engineering**				
Study programme	**Specialist professional graduate study of Information Technology in Business Systems – Major: Software Engineering in Business Systems**				
Status of a course	Obligatory				
Year of study	2	**Semester (Winter/Summer)**	W	**ECTS credits**	4

Goals of a course

Acquire competencies for the development of computer programs in a modular multilayer architecture.

Conditions for enrolling course

No conditions

Learning outcomes on a level of a study programme which includes course

Outcome 1: Apply information and communication systems design methods.
Outcome 3: Apply software engineering principles in the development of information systems.
Outcome 6: Apply appropriate tools in the implementation of information and communication systems.
Outcome 7: Apply methods and techniques for creating and managing databases.
Outcome 8: Apply methods and techniques for managing security and data protection in information and communication systems.
Outcome 12: Use modular software engineering in the implementation of business information systems.
Outcome 14: Organize and lead teamwork in the field of business information systems.
Outcome 17: Present development and software solutions within a business organization.

Expected learning outcomes on a level of a course

1. Apply object-oriented approach in the software solution analysis phase.
2. Apply object-oriented approach in the software solution design phase.
3. Create a modular multi-layer software solution architecture.
4. Create a software solution based on models from the analysis and design phase, and with a modular multi-layer architecture.
5. Compile project documentation of software solution development with modular multi-layer architecture.

Content of a course

Principles and technologies of modular software engineering. Object-oriented methodology. Modelling: object, dynamic, functional. Development of program support. Unified Modelling Language (UML). Component-oriented programming architecture. Goals of component-oriented architecture. Multi-layer programming architecture. Component-standards, link to UML, development of object-oriented components. Development of software system with modular software engineering. Comparative analysis of traditional and object paradigm. Common Object Request Broker Architecture (CORBA). Advanced concepts of distributed computing. JavaBeans (Enhanced JavaBeans). Principles of designing JavaBeans.

Teaching modes	☒ lectures ☐ auditory exercises ☒ seminars and workshops ☐ distance learning ☐ field classes ☒ individual assignments ☐ multimedia and network ☐ laboratory ☐ supervisor's work ☐ other _____

Grading, evaluation and monitoring of students' work continuously during lectures and exams

Grading is based upon evaluation course's learning outcomes' adoption. Grading is performed continuously during lectures and/or during exam, in compliance with the provisions of Regulation on the assessment of students.