DESCRIPTION OF A STUDY COURSE – SYLLABUS

Title of a course	**Data and Process Modelling**				
Study programme	**Professional undergraduate study Information Science**				
Status of a course	Obligatory				
Year of study	2	**Semester (Winter/Summer)**	W	**ECTS credits**	6

Goals of a course

Acquiring knowledge and competencies in modelling data and processes used in the information system development and software development processes. Acquiring knowledge and competencies about using the Entities and Relationships method for conceptual data modelling, and performing logical modelling by creating a Relational Data Model. Acquiring knowledge and competencies in modelling the business system process by creating a Business Function Decomposition model and developing a Data Flow Diagram.

Conditions for enrolling course

Fundamentals of Informatics, Logical Elements of Information

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

Outcome 2: Apply business information system design methods.
Outcome 4: Develop an application solution for the Internet and desktop environment.
Outcome 11: Apply mathematical and statistical methods in information science.
Outcome 12: Apply engineering methods and principles in information science.

Expected learning outcomes on a level of a course

1. Explain concepts related to data and process modelling.
2. Explain the concepts of EVA data model and relational data model, and explain the application of relational operators in the relational model.
3. Describe the procedures of creating a data model.
4. Draw and explain a conceptual data model using the entity-attribute-value method (EVA data model).
5. Distinguish the concepts of the EVA data model and the Relational data model (RM), describe the rules and transform EVA into RM.
6. Explain the reasons for normalization and construct a normalized relational model.
7. Describe the concepts and structure of business processes and data flow diagrams decomposition.
8. Draw and explain process decomposition diagrams and business system data flow diagrams.

Content of a course

About modelling in general. Conceptual, logical and physical modelling. Basic concepts of data modelling. Historical outline of the development of data models. Areas of application. Approaches to data modelling. Methods of data modelling. Object-links model. Classical and expanded relational model. Normalization. Relation between relational model and object-links model. Dynamic modelling and business rules. Basic concepts of process modelling. Data flowchart. Diagram of action, tree and decision table. Link between data model and process model. Application of tools in data and process modelling.

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.