INFORMATION SYSTEMS AND DATABASE

Title of Study Programme and Code	Type (compulsory/optional)	Cycle	Year of study when the component is delivered (if applicable)
Information Systems Engineering 6531EX043	Compulsory	1st	3rd year
Semester/trimester when the component is delivered	**Number of ECTS credits allocated**	**Language of instruction**	**Mode of delivery (face-to-face/e-learning/…)**
5th	6 ECTS	English	Face-to-face

Learning outcomes		Study methods	Assessment methods
After completion of the study subject, a student should be able to:		Interactive lecture; Lecture; Practical work; Self-study; Information sources study; Consultations.	Assessment of practical work; Test; Assessment of individual work; Exam.
LO 1	Understand the principles and methods of software design.		
LO 2	Understand and apply the laws protecting information and intellectual property.		
LO 3	Find necessary professional information by using databases and other scientific and engineering information resources.		
LO 4	Assess the information technologies of an organisation, to apply the outcomes of experiments to provide with suggestions for system modernization.		
LO 5	Analyse information and its significance in decision making, to provide practical conclusions of the outcomes.		
LO 6	Project and design information systems and the software that meets the needs of an organisation by creatively applying the methods of analysis, projecting and modelling in informatics engineering field.		
LO 7	Identify and analyse the problems of the provision of information services within an organization and to plan their solution with reference to the impact to the public and the environment, and following the norms of professional ethics and engineering activity.		
LO 8	Modernize the economy of an organisation's information technology.		

Prerequisites
(these courses must be sucessfully completed prior to taking this particular course)

Information Technologies, Programming Fundamentals, Internet Technology

Course content

1. IS components. Taxonomies of IS.
2. Fundamentals of systems engineering. Elements of Information Systems Engineering.
3. IS data repository.
4. Intellectual IS.
5. IS design.

6. Investment analysis of information technology. IT trends and their impact on organizations.
7. Data storage evolution. Database concepts. DB design phases. Database management systems. The data model concept. Volleyball, hierarchical and relational data models.
8. Relational algebra.
9. Subject area sets of objects extraction and modelling. ER-model. Entities, relations and attributes Isolation and identification. DB normal forms and normalization principles.
10. DBMS and functions. DBMS classification, evaluation, and selection. Popular DBMS.
11. Database Development DBMS specific basis.

Recommended or required reading and other learning resources/tools

1. Kendall Kenneth E., Kendall Julie E. (2011). Systems Analysis and Design, 8th Edition. USA: Pearson: https://whyphi.staff.telkomuniversity.ac.id/files/2016/01/ebook-kendall-sad.pdf
2. Shelly Gary B., Rosenblatt Harry J. (2011). Systems Analysis and Design Ninth Edition. USA: Course Technology: http://160592857366.free.fr/joe/ebooks/ShareData/System%20Analysis%20and%20Design%209e%20-%20Shelly%20Cashman.pdf
3. Intelligent Systems: Techniques and Applications. Holand: Shaker Publishing BV: https://warwick.ac.uk/fac/sci/eng/research/grouplist/connectedsystems/comsys/ml/publications/books/evor_hines_et_al_-_intelligent_systems-_techniques_and_applications_-_13th_jun_2008.pdf
4. Elmasri R. (2011). Fundamentals of database systems. Edinburg: Pearson Education Limited: http://iips.icci.edu.iq/images/exam/databases-ramaz.pdf
5. MySQL Tutorial Video: https://www.youtube.com/watch?v=yPu6qV5byu4
6. PHP academy PDO. Internet site: https://www.youtube.com/playlist?list=PLfdtiltiRHWHkDwEoZ29Q9FKtWVjA46HC