FUNDAMENTALS OF SYSTEMS ENGINEERING

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/…)**
5st	3 ECTS	English	face-to-face

Learning outcomes		Study methods	Assessment methods
After completion of the study subject, a student should be able to:		Lectures; Explanation of concepts; Analysis of problems solved; Individual solution of problems; Group tasks.	Writen Exam; Tests; Defence of individual homework.
LO 1	Understand development principles, methods and stages of the information system.		
LO 2	Know and apply in practice the laws of information and copyright protection.		
LO 3	Search for information about the organization's information technology.		
LO 4	Gather, systematize and analyse information about organization's information technologys.		
LO 5	Evaluate gathered information and data, processed it.		
LO 6	Analyse ICT innovations and their impact on business.		
LO 7	Develop consumer-oriented software and information system.		
LO 8	Deal with engineering problems encountered when working in a team.		
LO 9	Analyse the organization's information and communication technologies.		
LO10	Recognize and will address emerging problems in use of ICT in organization.		

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

Informatics, Algorithmization and Programming, Computer Architcture and Organization, Computer Networks, Internet Technologies

Course content

1. System engineering concept.
2. Ethics and professional responsibility.
3. Approach of program systems life-cycle. Different life cycle models and their evaluation criteria.

4. Concepts of requirements engineering. Types of requirements, the formulation, specification and evaluation.
5. Goals of system design. Methodology of the design.
6. Realization of software systems. Object-oriented modeling.
7. The main software system testing methods.
8. Documentation of software system.

Recommended or required reading and other learning resources/tools

1. Roger S. Pressman (2001). Software engineering. A practitionier`s approach. McGraw Hill.
2. Software engineering handbook http://www.swebok.org.
3. Ian Sommervile. Software engineering
http://www.comp.lancs.ac.uk/computing/resources/IanS
4. Software engineering institute http://www.sei.cmu.edu/