

RTU Course "Systems Analysis and Knowledge Acquisition"

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General data

Code	DSP344
Course title	Systems Analysis and Knowledge Acquisition
Course status in the programme	Compulsory/Courses of Limited Choice
Course level	Undergraduate Studies
Course type	Academic
Field of study	Computer Science
Responsible instructor	Mārīte Kirikova
Volume of the course: parts and credits points	1 part, 2.0 Credit Points, 3.0 ECTS credits
Language of instruction	LV, EN
Annotation	The course concerns systems analysis tasks in the context of information systems development. It focuses on various methods of knowledge acquisition and business and information systems modeling used by the systems analysts for the identification of organizational requirements for new ICT solutions or changes of ICT solutions. Methods included in the course conform to the first three levels of four - level competence framework defined by International Institute of Business Analysis. The course helps also to acquire specific skills, which are indicated in the national professional standard of systems analysts PS 0067. It provides basic theoretical knowledge and practical skills in systems analysis in an integrated manner.
Goals and objectives of the course in terms of competences and skills	The aim of the course is to provide basic knowledge and understanding in systems analysis essential for performing simple systems analysis tasks independently and productive working in systems analysis teams performing complex systems analysis projects. Acquired knowledge, understanding, and competences are the basis for further academic and professional growth in the area of systems analysis as well as for having capability to act in positions that require basic systems analysis skills, e.g. having a position "Systems analyst-programmer".
Structure and tasks of independent studies	Self-dependent works and practical works individually and in groups are for the practical realization to the methods and principles, which are included in the subject.
Recommended literature	1. Kendall K.E. and Kendall J.E. Systems Analysis and Design, PrenticeHall, Inc., 2008, 2005, 1995, 1992, 1988. 2. Ievīte I. un Kirikova M. Diagrammas sistēmu analizē un projektēšanā. 3. Young R. Requirements Engineering Handbook, Artech House, Incorporated, 2003.
Course prerequisites	n/a

Course outline

Theme	Hours
System analysis and knowledge acquisition in information systems development.	1
The spectrum of tasks and responsibilities of systems analysts.	1
Classical methods of knowledge acquisition: document analysis, interviews, observation, questionnaires/surveys.	6
Business systems analysis: business rules analysis, decision analysis, problem tracking.	2
Organization modeling: data, objectives, organizational structures, business processes and requirements modeling.	4
Functional decomposition, data flow diagrams, data dictionaries.	4
Groupwork methods: brainstorming, structured walkthrough, requirements workshops, user stories, etc.	2
Information systems analysis methods: analysis of interfaces, prototyping, non-functional requirements and risk analysis	4
Acceptance and evaluation criteria definition. Evaluation of alternative solutions. Vendor assessment.	4
Software-oriented notations: latest version of the UML in systems analysis; state transition and sequence diagrams.	2
Organization of the systems analysis' process. Ethics of systems analysis.	2

Learning outcomes and assessment

Learning outcomes	Assessment methods
The student understands tasks, methods and ethical principles of systems analysis.	Answers theoretical systems analysis questions at the exam.
Student knows how to acquire knowledge for requirements identification.	In the assignments student demonstrates skills in document analysis, interviewing, observation (ethnographic analysis) and questionnaire design
Student knows how to use groupwork and agile methods for knowledge acquisition about business systems and requirements for ICT solutions.	In the assignments student demonstrates skills in brainstorming, structured walkthrough, user stories acquisition, and other methods.
Student knows and is able to use simple business rule, decision, and problem analysis methods.	In the assignments student demonstrates skills of business rule, decision, and problem analysis.

Student knows how to develop enterprise models.	At the exam enterprise models are correctly developed.
Student knows how to develop complex functional models.	Multi-level data flow diagram and /or business process diagram is correctly developed.
Student knows information systems alternative analysis and evaluation methods.	Answers corresponding questions at the exam.
Student understands the role of software development notations in system analysis.	Answers corresponding questions at the exam.

Study subject structure

Part	CP	Hours per Week			Tests		
		Lectures	Practical	Lab.	Test	Exam	Work
1.	2.0	1.5	0.5	0.0		*	