RTU Course "Service Science, Management, and Engineering"

33000 Datorzinātnes, informācijas tehnoloģijas un enerģētikas fakultāte

General data

Code	DE0754
Course title	Service Science, Management, and Engineering
Course status in the programme	Compulsory/Courses of Limited Choice
Responsible instructor	Mārīte Kirikova
Academic staff	Gundars Alksnis Pēteris Rudzājs
Volume of the course: parts and credits points	1 part6.0 ECTS credits
Language of instruction	LV, EN
Abstract	The study course covers the service-oriented approaches in business and information systems and software engineering. It concerns vertical (inside the enterprise) and horizontal (inter-organisational) service provision situations. The emphasis is put on new innovative service development. The course comprises service design methods, basics of building service-oriented architectures, and other topics of service engineering. Students will experiment with various service development and running technologies. They will learn approaches to service governance according to the most popular service management methods and standards. Students are expected to have basic knowledge in business process modelling, systems theory, and portfolio management. The course concerns also scientific research advances in service-orientation.
Goals and objectives of the course in terms of competences and skills	The aim of the study course is to provide theoretical knowledge and practical skills in the systematic design, development and management of business and software services. Tasks of the study course: - to introduce the new service science, management and engineering discipline; - to outline the basic principles of service-oriented architecture; - to give an insight into cloud computing services; - to strengthen the skills of compiling scientific literature on the study course topics.
Structure and tasks of independent studies	Individual and group assignments that are relevant to the study course topics. As part of it, students have to familiarize themselves with issues discussed in scientific articles, prepare presentations, perform practical tasks, and also prepare for the exam.
Recommended literature	Obligātā / Obligatory: 1. Robin G. Qiu. Service Science: The Foundations of Service Engineering and Management. Wiley, 2014. 2. Paul P. Maglio, et al. Handbook of service science. New York: Springer, 2010. 3. Bill Hefley, Wendy Murphy (eds.). Service science, management and engineering: Education for the 21st century. New York: Springer, 2008. Papildu / Additional: 1. Thomas Erl, Robert Cope, Amin Naserpour. Cloud computing design patterns. New York: Prentice-Hall, 2015. 2. Thomas Erl. Service-Oriented Architecture: Analysis and Design for Services and Microservices. 2nd Ed. New York: Prentice-Hall, 2016. 3. IBM Academic Initiative Courseware.
Course prerequisites	Suggested: Business process modelling, systems theory, portfolio management

Course contents

Content	Full- and part-time intramural studies		Part time extramural studies	
	Contact Hours	Indep. work	Contact Hours	Indep. work
Introduction to Service Science, Management, and Engineering (SSME).	4	6	0	0
Service innovation management and productivity.	4	6	0	0
Service research.	4	6	0	0
Introduction to global service company management.	4	6	0	0
Software architecture and service orientation.	4	6	0	0
Service-oriented architecture (SOA) overview and entry points.	4	6	0	0
SOA design principles. Services modelling.	4	6	0	0
Services identification.	4	6	0	0
Services specification and design.	4	6	0	0
Services realization and implementation.	4	6	0	0
SOA and standards. Designing Web services.	4	6	0	0
Outsourcing and services.	4	6	0	0
Service governance. The ITIL overview.	4	6	0	0
Student presentation on selected topics.	8	12	0	0
Examination.	4	6	0	0
Total:	64	96	0	0

Learning outcomes and assessment

Learning outcomes	Learning outcomes assessment methods and assessment criteria
Is able to explain basic principles, pros, and cons of the SSME and SOA; recognizes elements of SOA infrastructure and SOA life cycle.	A written examination that includes theoretical questions as well as situation description for which the student should suggest service-based improvement for the business process. Criteria: according to the answers provided.
Can assess and explain the necessity (or the opposite) of service introduction according to organisational goals and enterprise/business architecture.	A written examination. Criteria: according to the answers provided.
Using service development tools is able to integrate services into the business process by choosing the services which are most suitable to the business goals of the enterprise.	Independently completed assignments. Criteria: according to the implemented tasks.
Is able to monitor service performance of business processes, identify the need for performance improvement, and suggest a service improvement plan.	Independently completed assignments. Criteria: according to the implemented tasks.

Course tests

Tests	% of final assessment
Hands-on labs and assignments	30
Selected topic presentation	20
Examination	40
Bonus (for submitting all assignments)	10
Total:	100

Course planning

Part	Semester			CP	Academic hours			Tests		
	Autumn	Spring	Summer		Lectures	Practical	Lab.	Test	Exam	Work
1.	*	*		6.0	32.0	32.0	0.0		*	