COURSE UNIT DESCRIPTION

Course unit title	Code
E-service development principles and infrastructure solutions	

Annotation
The studies of the subject are focused on the efforts to educate specialists who will be able to analyze the main principles, methods and methodologies of e-service development, will be able to formulate requirements for the infrastructure of e-service development, and will be able to design the infrastructure of the e-service system in selected application areas

Lecturer(s)	Department, Faculty
Coordinating: Prof. dr. Dalė Dzemydienė **Other: Prof. dr. Sigita Turskienė**	Šiauliai Academy

Study cycle	Type of the course unit
First cycle studies	Compulsory / Individual studies

Mode of delivery	Semester or period when it is delivered	Language of instruction
Face-to-face, distance and blended learning	3 Semester	Lithuanian/English

Requisites	
Prerequisites: have basic knowledge of Algorithm theory and Information management	**Co-requisites (if relevant):** basics of databases, creating web pages

Number of ECTS credits allocated	Student's workload (total)	Contact hours	Individual work
5	133	56	77

Purpose of the course unit: program competences to be developed		
To develop the competencies to analyze the main principles, methods and methodology of e-service development, to examine the infrastructure of e-service development in various application areas, to develop the competences of designing and creating the real solutions for e-service system infrastructure.		
Learning outcomes of the course unit	**Teaching and learning methods**	**Assessment methods**
Will be able to analyze and apply tools for designing of e-service systems	Lecture, discussion, analytical analysis of literature and presentation of results, case study; Presentation of project results	Report of presentation. Exam
Will be able to formulate requirements for e-services infrastructure according to the needs of the chosen field of application.	Lecture, discussion, analytical analysis of literature and presentation of results	Performance of practical computer works. Exam
Will know the main stages of creating e-services and their implementation process and will be able to critically evaluate the results obtained at each stage and test	Lecture, discussion, analytical analysis of literature and presentation of results in computer laboratory work	Completion of practical computer work tasks, settlement of individual or group project requirements Performance of practical computer-based tasks. Presentation of individual or group project requirements. Exam

them according to the required criteria		
Will be able to collect, critically analyze and systematize theoretical material about the principles, tools and components of designing and implementing e-services	Lecture, discussion, analytical analysis of literature, computer laboratory works. Individual or group project.	Performance of practical computer-based tasks. Presentation of individual or group project requirements. Exam
Will be able to design the main infrastructure for e-service realization in the selected field of application and perform its evaluation, will be able to present generalized conclusions.	Lecture, discussion, case study. Presentation of project results	Performance of practical computer-based tasks. Presentation of individual or group project requirements. Exam

Course content: breakdown of the topics	**Contact hours**							**Individual work: time and assignments**	
	Lectures	Tutorials	Seminars	Workshops	Laboratory work	Internship/work placement	**Contact hours, total**	**Individual work**	**Assignments**
1. Basic design principles and infrastructure components of e-services	2				2		4	4	Analysis of literature sources and discussion of results, analysis of case studies and presentation
2. Standardized ICT tools for the realization of e-services and their integration	2				2		4	4	Analysis of literature sources, preparation of design tools for tasks of practical work
3. E-services design: needs of users, requirements of system, computer-based design environments and basics of object-oriented design	2				2		4	4	Development of a model of e-service data structures.
4. Stages of design and development of e-services and analysis of obtained results	2				2		4	4	Analysis of literature sources, tasks of computer based practical work with design systems
5. Analysis of the infrastructure for the realization of public e-services, the infrastructure of e-governance and services provided by “one-stop-shop” principle	4				4		8	4	Task performance - presentation of e-service activity diagrams
6. E-service performance scenarios, diversity and integrity of service implementation	2				2		4	6	Case presen-tation, design of e-service scenarios
7. Impact of e-services on business, business management systems and integrative infrastructural solutions	4				4		8	4	Analysis of literature sources, tasks of design and, presentation

									of e-service activity diagrams
8. Realization of e-services based on cloud computing technologies	2				2		4	10	Presentation of the requirements of the individual project for the e-services system
9. E-signature, methods of its implementation, e-document management systems	2				2		4	4	Case analysis, discussion of e-services and implementation examples
10. Smart services and their implementation solutions	2				2		4	4	Presentation of the results of an individual or group project
11. Infrastructure solutions, implementation of e-services systems in applied areas	4				4		8	10	
12. Course overview, and preparation for exam							2	19	Consultation
Total	**28**				**28**		**56**	**77**	

Assessment structure

Assessment strategy	Weight %	Deadline	Assessment criteria
Completion of computer practical tasks	20	During the Semester	The results of the given tasks are evaluated, in a 10-point system
Individual or group project	30	At the end of the Semester	The quality of performance, compliance with requirements and the ability to correctly convey design structures are assessed, in a 10-point system
Exam	50	At the end of the Semester	The assessment of theoretical knowledge is carried out according to pre-presented questions covering the course material, the completeness and accuracy of the answers, the innovativeness of the presented examples and systems are assessed, in a 10-point system

Recommended literature

Author	Publishing year	Title	Issue of a periodical or volume of a publication; pages	Publishing house or internet site
Required reading				
Dalė Dzemydienė, Ramutė Naujikienė, Ramūnas Dzindzalieta	2016	Elektroninių paslaugų įgyvendinimo sprendimai.		Registrų Centras. Vilnius.: https://repository.mruni.eu/handle/007/16716
Terry Felke-Morris	2018	Web Development and Design Foundations with HTML5.		Amazon com https://www.amazon.com/Development-Design-Foundations-Computer-Science/dp/0134801148
Zhaohui Wu, Shuiguang Deng, Jian Wu	2015	Service Computing. Concepts, Methods and Technology		Elsevier, https://www.elsevier.com/books/service-computing-concept-method-and-technology/wu/978-0-12-802330-3
Recommended reading				
E. paslaugos patogesniam gyvenimui. IVPK	2019	El. paslaugos patogesniam gyvenimui. Viešųjų ir administracinių el. paslaugų, sukurtų ES struktūrinės		https://ivpk.lrv.lt/uploads/ivpk/documents/files/IVPK_leidiniai/e_paslaugos_patogesniam%20gyvenimui%202013.pdf

		paramos lėšomis, naudotojo vadovas		
Dzemydienė, Dalė; Maskeliūnas, Saulius; Dzemydaitė, Giedrė; Miliauskas, Arūnas	2016	Semi-automatic service provision based on interaction of data warehouses for evaluation of water	Informatica.	Vilnius : Vilniaus universitetas https://informatica.vu.lt/journal/INFORMATICA/article/830/info
Julie C. Meloni	2017	PHP, MySQL ir Apache. All in one. 4th Edition		Kaunas,“Smaltijos“ leidykla