



## RTU Course "Network Databases and Databanks"

13107 null

### General data

Code	TRL415
Course title	Network Databases and Databanks
Course status in the programme	Compulsory/Courses of Limited Choice
Responsible instructor	Aleksandrs Ipatovs
Academic staff	Jānis Klūga
Volume of the course: parts and credits points	1 part, 3.0 Credit Points, 4.5 ECTS credits
Language of instruction	LV, EN
Annotation	The study course is intended mainly for web database management system design and development methods, the application of which is intended in the segment of electronic transport systems and telematics. The study course includes the theory of relational databases, practical classes and laboratory work, where the following material will be acquired: database design, creation and optimization, basics of SQL language.
Goals and objectives of the course in terms of competences and skills	The aim of the study course is to improve skills to develop and successfully use web databases in solving the tasks of the electronic transport system. The tasks of the study course are to improve skills: <ol style="list-style-type: none"> <li>1. To normalize data relations.</li> <li>2. To create an infological model for a specific task.</li> <li>3. To create and update a database.</li> <li>4. To sort and index data.</li> <li>5. To develop database processing programmes.</li> <li>6. To work with SQL queries.</li> </ol>
Structure and tasks of independent studies	To use interactive learning resources, in addition study materials during the study course. In order to assess the achievement of the student's independent task, the participants of the study course every time organize lectures, laboratory and independent works.
Recommended literature	<p>Obligātā/Obligatory:</p> <ol style="list-style-type: none"> <li>1. Hogan, Rex. A Practical Guide to Database Design. Second edition. Boca Raton, FL: CRC Press, Taylor &amp; Francis Group, 2018, 413 lpp.</li> <li>2. Andy Harris PHP/MySQL Programming. USA. Premier Press. 2004 – 384p.</li> <li>3. Abraham Silberschatz, Henry F. Korth, S. Sudarshan. Database system concepts. 7th edition, international student edition. New York: McGraw-Hill Education, 2020, 1344 lpp</li> <li>4. Boicovs, V., Determinants of Service Model of Latvian Transport System, in Rīgas Tehniskās universitātes zinātniskie raksti. 6. sērija. Mašīnu zinātne un transports (Scientific Proceedings of RTU. Series 6: Science of Machines and Transport), Riga: RTU, 2004, pp. 123–127.</li> </ol> <p>Papildu/Additional:</p> <ol style="list-style-type: none"> <li>1. Paul DuBois. MySQL Cookbook. USA. O'REILLY. 2003. -1056p.</li> <li>2. Auzers, K. and Boicovs, V., Upgrade Project of Wireless Network Architecture of Business, Information Technologies, Management and Society, 2008, vol. 1, no. 1, pp. 94–101.</li> <li>3. Boicovs, V.N., Heterogeneity Factors in Stochastic Mass Service Systems, Automatic Control and Computer Sciences, 2009, vol. 43, no. 3, pp. 123–128.</li> <li>4. V.N. Boicovs. The Investigation of Possible Errors in Equivalencing Models of Mass Service Systems with Heterogeneous Requests. ISSN 0146-4116, Automatic Control and Computer Sciences. Vol. 43. No.6, Allerton Press, Inc., 2009. pp. 28-35.</li> </ol>
Course prerequisites	Basic programming skills.

### Course contents

Content	Full- and part-time intramural studies		Part time extramural studies	
	Contact Hours	Indep. work	Contact Hours	Indep. work
Theoretical bases of databases.	7	7	0	0
Database management systems and principles of database planning.	15	15	0	0
Database design.	15	15	0	0
Database optimization algorithms.	15	15	0	0
Methods of transport database design, management and organization.	8	8	0	0
<b>Total:</b>	<b>60</b>	<b>60</b>	<b>0</b>	<b>0</b>

### Learning outcomes and assessment

Learning outcomes	Assessment methods
Able to orientate in database technologies types and other theoretical issues.	Complete and defend practical works. Test.
Able to project relational databases for a specific task.	Complete and defend practical works. Test.
Able to design, install, configure and maintain a database management system.	Complete and defend practical works. Test.

Able to ensure the reliability and security of the database and data bank. Able to customize databases for specific tasks.	Complete and defend practical works. Test.
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***Evaluation criteria of study results***

Criterion	%
Lecture activity	10
Tests	30
Practical works	60
Total:	100

***Study subject structure***

Part	CP	Hours per Week			Tests		
		Lectures	Practical	Lab.	Test	Exam	Work
1.	3.0	2.0	0.0	1.0	*		