



RTU Course "Information Systems and CASE Tools"

12307 Sistēmu teorijas un projektēšanas katedra

General data

Code	DSP450
Course title	Information Systems and CASE Tools
Course status in the programme	Compulsory/Courses of Limited Choice
Course level	Post-graduate Studies
Course type	Academic
Field of study	Computer Science
Responsible instructor	Eiduks Jānis
Volume of the course: parts and credits points	1 part, 4.0 Credit Points, 6.0 ECTS credits
Language of instruction	LV, EN
Possibility of distance learning	Not planned
Abstract	System development objectives. Data flows. Designing data storage structures. ER diagrams. Process design. Structure charts. Action diagrams. Quality criteria of models. Designing dialogues. CASE tools. Project management. Strategic planning.
Goals and objectives of the course in terms of competences and skills	1. Adoption of database design and development technologies. 2. Adoption of different data conceptual models design. 3. Adoption of data conceptual model transformations to database logical and physical models. 4. CASE tools and its possibilities. 5. Integrated Development Environments database design possibilities. 6. Object – relations mapping facilities. 7. Refactoring facilities. 8. Multicriterial approach to database design. 9. Optimization of SQL queries.
Structure and tasks of independent studies	1. Design of data conceptual model and transform it to logical and physical database model. 2. Use CASE tool for database design. 3. Use IDE for database design and refactoring. 4. Perform SQL queries optimization.
Recommended literature	<ol style="list-style-type: none"> 1. C.J. Date. An introduction to database systems. Addison-Wesley. 2. C.J.Date. Database in depth. Relational theory for practitioners. O` Reilly, 2005. 3. Hector Garcia-Molina, Jeffrey D.Ullman, Jennifer Widom. Database Systems: the complete book. Prentice Hall, 2002. 4. Thomas M.Connolly, Carolyn E. Begg. Database Systems. A Practical approach to design, implementation and management. Addison-Wesley, 2003. 5. Rebecca Riordan. Designing Relational database systems. Microsoft Press, 1999. 6. Michael J. Hernandez. Database design for mere mortals. A hands-on guide to relational database design. Addison Wesley, 2003. 7. Robert J. Muller. Database design for smarties. Using UML for data modeling. Morgan Kaufman, 1999. 8. Oracle. Data modelling and relational database design. Course Code 20000C12, 2001. 9. I.T. Hawryszkiewicz. Introduction to system analysis and design. Prentice Hall, 2000. 10. Lilian Hobbs, Susan Hilson, Shilpa Lawande. Oracle 9i R2 data warehousing. Digital Press, 2002. 11. Joe Celko`s. SQL for smarties: advaced SQL programming. Morgan Kaufman, 2000. 12. Sanjay Mishra, Alan Beaulien. Mastering Oracle SQL. O` Reilly, 2002.
Course prerequisites	Fundamentals of relational and object-relational databases.

Course outline

Theme	Hours
Multicriteriality in database design	2
Advanced database design technologies	2
Data storage systems of universal databases	2
Data conceptual models	4
Transformations of data conceptual models	4
CASE tools possibilities	2
Advanced CASE tools	4
Extensions of data existing conceptual models	2
Database design in Integrated Development Environments	2
Object-relation mapping implementations	2
SQL queries optimization	4
Meta-data use in information system design	2

Learning outcomes and assessment

Learning outcomes	Assessment methods
The student understands how to design of data conceptual model and transform it to logical and physical database model	Total mark = 0.6 * total assessment of practical works + 0.4 * examination mark

The student knows how to use CASE tool for database design	Total mark = 0.6 * total assessment of practical works + 0.4 * examination mark
The student knows how to use IDE for database design and refactoring	Total mark = 0.6 * total assessment of practical works + 0.4 * examination mark
The student knows how to perform SQL queries optimization	Total mark = 0.6 * total assessment of practical works + 0.4 * examination mark

Study subject structure

Part	CP	ECTS	Hours per Week			Tests		
			Lectures	Practical	Lab.	Test	Exam	Work
1.	4.0	6.0	2.0	0.0	2.0		*	