



RTU Course "Adaptive Data Processing Systems"

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General data

Code	DIP320
Course title	Adaptive Data Processing Systems
Course status in the programme	Compulsory/Courses of Limited Choice
Course level	Undergraduate Studies
Course type	Academic
Field of study	Computer Science
Responsible instructor	Aleksejs Jurenoks
Volume of the course: parts and credits points	1 part, 2.0 Credit Points, 3.0 ECTS credits
Language of instruction	LV, EN
Annotation	Basic Principles of ADPS Design. Application of Business System Planning Method and LIS Technology. Adaptive user dialogue design on the basis of mathematical and linguistic models. Different examples of Adaptive Data Processing Systems are considered: Financial, Banks, Insurance Information Systems.
Goals and objectives of the course in terms of competences and skills	The main goal of the course is to strengthen competence in the field of ADPS development. To present basic principles of ADPS development. To form basic skills in development of ADPS demonstration prototypes based on formalisation of business logics, adaptive user interface design and advanced programming technologies, such as adaptive web navigation.
Structure and tasks of independent studies	To execute practical work in accordance with general implementation plan (step by step). The task includes the selection of application domain to be further analysed, formalisation of business processes, development of general model of ADPS prototype, adaptive user interface design based on mathematical models, development of Web based demonstration prototype with adaptive web navigation.
Recommended literature	1.E.Ginters.Informācijas apstrādes sistēmu lingvistiskais nodrošinājums.-Rīga,1996.-76 lpp. 2. Brusilovsky P., Kobsa A.,Nejdl W. (Eds.) The Adaptive Web Methods and Strategies of Web Personalisation. Springer-Verlag, 2007. - 765 p. 3. IT&T Solutions in Logistics and Maritime Applications. Bluemel E., Strassburger S., Novitsky L. (Eds.), Scientific Proceedings of the eLOGMAR-M Project. JUMI Ltd., 2006. - 166 p.
Course prerequisites	Programming Languages (C++, Delphi, PHP others), Data Bases and Structures, Graph Models

Course outline

Theme	Hours
1. Introduction to Adaptive Data Processing Systems (ADPS)	2
2. ADPS General Model and Development Basic Principles. Introduction to Business System Planning (BSP) Method and LIS	2
3. ORG Diagrams and Environment Identification	2
4. Business Charts for Business Logics Structurisation	4
5. Multi-Level Communication Diagrams. E-R Diagrams in ADPS DB Model Design	4
6. Criteria of Programming Tools Selection for Demonstrator Development	2
7. ADPS Users Adaptive Interface. Application of Graph Models and Pattern Recognition Methods	6
8. ADPS Users Models Classification Algorithm. User Model Definition.	6
9. Demonstrator Development and Investigation. Adaptive Web Navigation	4

Learning outcomes and assessment

Learning outcomes	Assessment methods
Be able to formulate basic principles of ADPS development, to discuss advantages of application of different mathematical models	Successfully passed examination (written form).
Be able to develop independently business processes models using BSP method and LIS Technology	Successfully executed practical assignments.
Be able to use practically mathematical and business models for ADPS development	Successfully executed practical assignments.
Be able to develop demonstration prototype of ADPS using modern technologies, for instance, adaptive web navigation	Successfully developed and presented demonstration prototype.

Study subject structure

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