

**FACULTY OF SOCIETY AND SCIENCE
STUDY COURSE DESCRIPTION**

Course Title:	MODELLING OF BUSINESS PROCESSES SIMULATION				
Course code (LAIS):	DatZ5004				
Study programme:	Business Environment Administration				
Level of Study programme:	<input type="checkbox"/>	1st level professional higher education			
	<input type="checkbox"/>	Professional Bachelor			
	<input checked="" type="checkbox"/>	Professional Master			
	<input type="checkbox"/>	Academic Master			
	<input type="checkbox"/>	PhD level			
Type of Study programme:	<input type="checkbox"/>	Compulsory course (Part A)			
	<input checked="" type="checkbox"/>	Professional specialization courses (Part B, compulsory)			
	<input type="checkbox"/>	Professional specialization optional courses (Part B, optional)			
	<input type="checkbox"/>	Elective courses (Part C)			
Course Workload:	Credits	ECTS	Academic hours	Contact hours	Independent work hours
	2	3	80	24	56
Course Author/ Tutor:	Aigars Andersons				
	Lecturer, MSc. manag., MSc. comp.				
	e-mail: atis.kapenieks@va.lv , aigars.andersons@va.lv				
	Consultation: according to the schedule for each semester				
Study Form:	Full time studies				
Study year, semester:	1 st Year, 2 nd Semester				
Language:	English				
Prerequisites for the Course:	Basics of Business Management, Fundamentals of Financial and Management Accounting, Analysis of Business Administration and Strategies, Fundamentals of Modern Information Technologies.				
Course Summary:	<p>Nowadays businesses are recognizing the value of modelling their business processes. This course covers topics related with the most advanced techniques and tools for simulation modelling, improving and documenting of business processes. During this course students will learn how to use a structured and unified approach to understand business process simulation models at different abstraction levels through their eliciting, analysing, documenting, verification and validating on the base of industry recognized standards. In the practical part of this course students are going to obtain practical skills on business process simulation and analysis to improve business processes and as a result to be able increase the effectiveness of proposed business solutions. The practical business process simulation modelling exercises will be conducted in computer class, specially equipped for the course with advanced software and tools.</p>				
Assessment:	Examination (created, verified and validated business process simulation model for specific business process)				
Requirements for Credits:	<p>1) 50% -examination 2) 20% -tests (2), 3) 30% -attendance of classes, practical work in the auditorium, independent work Exam (final assignment) makes 50% from total study course evaluation. Exam will be evaluated in 10 grades system and it will be recognized as passed only if student's final exam work will be evaluated at least with 4 grades. Before presentation of final exam work student has to submit written final report. If student is unable to pass final exam then it have to repeat this study course once again next year. Tests makes 20% from total study course evaluation. All tests will be evaluated in 10 grades system and they will be recognized as passed only if student's each individual test will be evaluated at least with 4 grades. To achieve a positive evaluation in test student has to prove his knowledge at minimum 40% level from total available score for this test. If student is unable to reach this level during test he has to repeat passing of this text once again.</p>				

	<p>Attendance of classes, practical work in the auditorium, independent work makes 30% from total score.</p> <p>Student 's individual and auditorium work will be evaluated in 10 grades system regarding the following specific criteria:</p> <p>Outstanding (10) – knowledge, skills and competence exceeds requirements stated for individual work in auditorium and at home and participation in study course seminars;</p> <p>Excellent (9) – knowledge, skills and competence fully corresponds to requirements stated for individual work in auditorium and at home and participation in study course seminars;</p> <p>Very good (8) – there are completed all requirements for individual work in auditorium and at home and participation in study course seminars but level of knowledge, skills and competence does not fully corresponds to required level;</p> <p>Good (7) – there are completed all basic requirements for individual work in auditorium and at home and participation in study course seminars but individual skills of practical use of acquired knowledge must be improved;</p> <p>Almost good (6) – there are completed basic requirements for individual work in auditorium and at home and participation in study course seminars but student has no broader understanding of subject and his/her ability to use theory in practice is sometimes insufficient for complex cases;</p> <p>Satisfactory (5) – there are completed minimal level of requirements for individual work in auditorium and at home and participation in study course seminars but student has no complete understanding of core subject and his/her ability to use theory in practice is insufficient in specific cases;</p> <p>Almost satisfactory (4) – there are completed minimal level of requirements for individual work in auditorium and at home and participation in study course seminars but student has difficulties with understanding of core subject and his/her ability to use theory in practice is insufficient in many cases;</p> <p>Bad (3) – the proven knowledge of student is under the minimal level of requirements for individual work in auditorium and at home and participation in study course seminars, student has difficulties with understanding of subject and his/her ability to use theory in practice is insufficient in the most cases;</p> <p>Very bad (2) – student understand just some separate parts and concepts from subject, the proven knowledge of student is under the critical level of requirements for individual work in auditorium and at home and participation in study course seminars, student has completed just some parts from study course topics;</p> <p>Very, very bad (1) – student does not understand any basic concepts of subject, the proven knowledge of student is under the critical level of requirements for individual work in auditorium and at home and participation in study course seminars, student has completed almost none from study course topics;</p> <p>Not graded (0) – student registered for this course but formally did not attend it.</p> <p>All practical and individual assignments has to be completed in terms and form designated by study course tutors in strict correspondence with study course discipline and ethics. According to the tutor's directions students have to submit all their completed works by uploading them into the folder on Vidzeme University of Applied Sciences electronic study environment.</p> <p>For each submitted work students have to provide clear identification of their surnames and study course details. All copies of submitted works students have to store on their local drives upon full completion of this course with positive individual evaluation. All works have to be worked out in line with requirements of directions and methodologies approved for study direction or specific individual directions made by study course tutors.</p> <p>For students it is allowed to submit final paper and start exam presentation only in case if all other requirements for this are completed.</p>
Abiding by the Academic	Students must abide by the academic and research ethics, Vidzeme University of Applied Sciences Ethics Regulations, incl.:

Ethics	<ul style="list-style-type: none"> – study papers must be independently developed; – the study work should reference all statements, ideas and data used that have been authored by someone else; – appropriate data acquisition methods should be used in the acquisition of data, the research ethics must be respected, empirical data must be collected independently and cannot be distorted or falsified; – the examination must be carried out by the student independently, without the use of supporting materials and/or consultations with other students, unless the lecturer states otherwise. <p>In the event of non-compliance with the academic and research ethics, punishment is imposed in accordance with the ViA Ethics Regulations and the study course must be re-taken, unless the punishment is extramarital.</p>		
Learning Outcomes; the evaluation methods and criteria	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 50%; text-align: left;">Learning Outcomes</th> <th style="width: 50%; text-align: left;">The evaluation methods and criteria</th> </tr> </table>	Learning Outcomes	The evaluation methods and criteria
	Learning Outcomes	The evaluation methods and criteria	
	Knowledge		
	Understand the principles of a business process modelling languages UML, BPMN	Group work, lectures, practical works, case study analysis	
	Understand the dimensions of quality in a process modelling at conceptual and simulation modelling stages.	Group work, lectures, practical works	
	Understand the process and abstraction levels of business process simulation modelling	Lectures, practical works, case study analysis	
	Understand the needs and benefits of business process simulation modelling	Group work, lectures, practical works, case study analysis, tests, exam	
	Understand the social aspects of business process simulation modelling	Lectures, group work, seminars, tests, exam	
	Skills		
	Able to use the modelling language to express and abstract from a realistic business process.	Group work, lectures, practical works, case study analysis, tests, exam	
	Be able to independently assess the level of abstraction of specific business processes and simulation models	Workshops, lectures, practical works, case study analysis	
	Be able to apply a method for modelling business processes in all its stages	Group work, lectures, practical works, seminars, tests, exam	
	Be able to create business process simulation models at different abstraction levels through their eliciting, analysing, documenting, verification and validating on the base of industry recognized standards.	Group work, lectures, practical works, case study analysis, tests, exam	
Competency			
Upon completion of this course students are able to assess the efficiency and effectiveness of a company from a business process perspective, conduct business process simulation modelling, and determine the role of technology in supporting corporate processes.	Group work, lectures, practical works, case study analysis, tests, exam		
Be able to investigate a simple research question related to business process modelling			
Be able to evaluate the business process simulation model and the modelling process as a social process	Group work, practical works, seminars, case study analysis		
For students will be developed intuitive and conceptual understanding about methods and techniques required to analyse, design, implement, automate, and evaluate business processes.	Group work, practical works, seminars, tests, exam		
Course Compulsory literature:	1. Cosenz, F., & Noto, G. (2018). A dynamic business modelling approach to design and experiment new business venture strategies. Long Range Planning, 51(1), 127-140.		

	<p>2. Greasley, A. (2017). Simulation modelling for business. Routledge.</p> <p>3. Van Der Aalst, W. M. (2015). Business process simulation survival guide. In Handbook on Business Process Management 1 (pp. 337-370). Springer, Berlin, Heidelberg.</p>
Course additional literature:	<p>1. Alotaibi, Y. (2016). Business process modelling challenges and solutions: a literature review. Journal of Intelligent Manufacturing, 27(4), 701-723.</p> <p>2. Laguna, M., & Marklund, J. (2018). Business process modeling, simulation and design. Chapman and Hall/CRC.</p> <p>3. Heinrich, R., Merkle, P., Henss, J., & Paech, B. (2017). Integrating business process simulation and information system simulation for performance prediction. Software & Systems Modeling, 16(1), 257-277.</p> <p>4. Hettinger, L. J., Kirlik, A., Goh, Y. M., & Buckle, P. (2015). Modelling and simulation of complex sociotechnical systems: Envisioning and analysing work environments. Ergonomics, 58(4), 600-614.</p> <p>5. Fischer, M., Imgrund, F., Kolb, J., Janiesch, C., Rosenkranz, C., & Winkelmann, A. (2019, January). The Road to Success: Recommendations for the Design of Successful Business Process Modeling Initiatives. In Proceedings of the 52nd Hawaii International Conference on System Sciences.</p>
Course confirmation date:	06.01.2020.
Date of course description update:	

Study Course Plan:

Date	Theme	Academic hours		Study Form/ Organization of independent work of students and task description
		Contact hours	Independent work hours	
<i>The date is specified before the implementation of the course</i>	Topic 1. System analysis and business modelling. Analysis and synthesis. Models and modelling. Models types: conceptual, physical, functional, mathematical models. Goals of using models in management. Fundamental terms of control theory and business process management.	4	4	Lectures, seminar, individual work in groups, case studies
	Topic 2. Business process management Abstraction concepts. From business functions to business processes shift. Approaches within BPM: people, technology. Business process management life-cycle: design, modelling, execution, monitoring, optimization.	4	4	Lectures, seminar, individual work in groups
	Topic 3. Process modelling concepts Classification of process models. Elements of a process model. Activity models. Modelling process data. Modelling organization. Modelling operation. Processes and tasks. Routing of tasks: sequential, parallel, conditional, iterative.	4	4	Lectures, seminar, individual work in groups, case studies
	Topic 4. Industry standards for business modelling. Object-oriented approach to modelling. IDEF standards. ARIS methodology. Visual business modelling languages. Unified Modelling Language (UML). Business Process Modelling Notation (BPMN). Text-based business modelling languages: Business Process Executable Language (BPEL).	4	8	Lectures, seminar, individual work in groups, case studies, test
	Topic 5. Business process modelling IT solutions BPM: IT tools and technologies. Service-oriented	4	12	Lectures, seminar, individual work in



	architecture (SOA). Capabilities of STELLA, Simantics System Dynamics, Insight Maker for modelling and implementing business processes.			groups, case studies
	Topic 6. Business process simulation modelling and analysis. Verification, validation. Defining the purpose of simulation. Explaining simulation terminology. Describing element behavior in simulations. Defining simulation attributes. Running a simulation with local and global simulation attributes. Simulation results analysis.	2	4	Lectures, test, seminar, individual work
	Working on and submission of the exam assignment, presentation in auditorium	2	20	Examination paper and presentation
	Hours total:	24	56	