FACULTY OF ENGINEERING
STUDY COURSE DESCRIPTION

Course Title:	**Innovation and Creative Problem Solving**
Course code (LAIS):	**DatZ5018**
Study programme:	**CYBERSECURITY ENGINEERING**
Level of Study programme:	☐ 1st level professional higher education ☐ Professional Bachelor ☒ Professional Master ☐ PhD level
Type of Study programme:	☐ Compulsory course (Part A) ☐ Professional specialization courses (Part B, compulsory) ☐ Professional specialization optional courses (Part B, optional) ☒ Elective courses (Part C)

Course Workload:	**Credits**	**ECTS**	**Academic hours**	**Contact hours**	**Independent work hours**
	2	3	80	24	56

Course Author/ Tutor:	**Sarma Cakula** Academic position scien./acad. degree Professor, Dr.Paed. Consultation: according to the schedule for each semester
Course Form:	Full time
Study year, semester:	2018 /2019 2nd semester
Language:	Latvian
Prerequisites for the Course:	Basic skills in research, information search, processing
Course Summary:	The aim of the study course is to provide in-depth knowledge of creative thinking, creative research methods, critical thinking, problem-solving, and data evaluation in the field of cybersecurity.
Course Methods:	Lectures, practical workshops, seminars, discussions, group work
The Type of Final examination	Exam
Requirements for Credits:	Practical work 60%, final exam 40%
Course Contents:	Types of research in engineering. Qualitative, quantitative research in engineering. Basic key concepts. Sampling methods. Problems. Creative thinking, creative environment constituting factors. Factors that affect creative thinking. Open and closed issues in cyberspace. Creative problem-solving methods, brainstorming, random sampling methods, free associations. EKD modelling for solving cybersecurity issues. Six thinking models and their application for innovation. Data network description methods. Inferential statistics. Statistical tests. Correlation.

Learning Outcomes	**Learning Outcomes**	**The evaluation methods and criteria**
	Knowledge	
	A student **knows, understands and recognizes** various research and problem solving techniques.	lectures, practical classes, seminars, discussions, group work
	Skills	
	A student is **able to apply** appropriate methods for solving problems in cybersecurity areas.	lectures, practical classes, seminars, discussions, group work
	Competency	
	A student is able to **analyse and evaluate** information, problems, security risks, find innovative solutions.	practical classes, seminars, discussions, group work

Course Compulsory literature:	Thomas Vogel. Breakthrough Thinking: A Guide to Creative Thinking and Idea Generation. How Books, 2014, ISBN 13.978-I-4403-3326-2
Course additional literature:	John W. Creswell. Research Design: Qualitative, Quantitative, and Mixed Methods Approaches. Sage Publications, 2009, ISBN 978-1-4129-6556-9
Course approval date:	January 3, 2018 Course last revision date:

Study Course Plan:

Date*	Theme	Academic hours		Study Form
		contact	Independent	

		lessons	work hours	
	Types of research in engineering. Qualitative, quantitative research in engineering. Basic key concepts. Sampling methods. Problems.	8		Lecture, situation analysis, discussions
	Creative thinking, creative environment constituting factors. Factors that affect creative thinking. Open and closed issues in cyberspace. Creative problem-solving methods, brainstorming, random sampling methods, free associations.	8		Lecture, situation analysis, discussions
	EKD modelling for solving cybersecurity issues. Six thinking models and their application for innovation. Data network description methods. Inferential statistics. Statistical tests. Correlation.	6		Lecture, situation analysis, discussions
			56	Group work, practical assignments
		2		Final exam
	Hours total:	*24*	*56*	

* The date is specified before the implementation of the course