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| **Course unit title** | **METHODOLOGY OF RESEARCHES** |
| **Course unit code** | InfT6020 |
| **Type of course unit** | A part – Compulsory part |
| **Level of course unit** | 2nd cycle (Master) |
| **Year of study** | - |
| **Semester** | IV |
| **Number of ECTS credits** | 3 |
| **Name of lecturer(s)** | Alīda Samuseviča, Dr.paed.; Vineta Tomsone, Mg.sc.educ. |
| **Learning outcomes of the course unit** | **Aims of the course**  To give an opportunity to acquire knowledge and master skills, which are needed for planning and carrying out a scientific research  **Objectives of the course**   1. To acquaint with general theory of scientific researches and with features of these researches in information technology field. 2. Provide experience of creative activities, planning and carrying out researches on current themes of information technology.   **Results of the course (competences to be developed)**  Scientific scepticism approach has been developed, to recognise scientific facts, as well as understanding of logic of scientific researches. Students master skills and abilities how to plan researches, gather, process and analyse research data using mathematical statistics methods. |
| **Mode of delivery** | Face-to-face |
| **Prerequisites and co-requisites** | Probability theory and mathematical statistics |
| **Recommended optional programme components** | - |
| **Course contents** | The course imparts basic knowledge in methodology of scientific researches, acquaint with data collection, processing, analysis and results interpretation. Data first stage processing is considered, their image and central tendencies, credibility intervals and statistics credible difference, dispersion's analysis using correlation and regression methods. |
| **Course plan** | |  |  | | --- | --- | | **Theme** | **Sub-theme** | | 1. Methodology analysis' content, features, types and levels. |  | | 2. Scientific investigation methods. |  | | 3. Scientific problem, hypothesis and theory, topicality and novelty of the scientific work. |  | | 4. Structure of scientific publication. |  | | 5. Fundamental notions of mathematical statistics.  6. Ideas and methods, on which is based examine of statistical hypothesis, analysis of correlation and regression.  7. Measurement  8. Processing of statistical data  9. Statistical analysis of tests.  10. Statistical analysis of test elements.  11. Statistical analysis of tests and test elements. | Statistical observation; variants and their types, variation series; average dimension; dispersion; standard deflection; assessment of average dimensions.  Methods of examining hypothesis.  Correlation and regression method.  Mistake classification. Minimization of accidental error dispersion. Randomization of systematically errors.  Individual task  Mapping of the results of tests. Indices of central tendencies. Indices of dispersion. Normal distribution. Comparison of results.  Difficulty level. Resolution. Statistical analysis of multiple choice questions.  Individual task | |
| **Recommended or required reading** | Vincent K. Omachonu, Joel E. Ross. *Principles of Total Quality.*Third Edition,CRCS PRESS Boca Raton London. New York washington, D.C., 2004. |
| **Planned learning activities and teaching methods** | Lectures, seminārs, laboratory work, student's individual work |
| **Assessment methods and criteria** | **Test**  Before taking an examination, students have to participate efficiently in all seminars, hand in a suitable essay, present system of their possible master paper's scientific categories, laboratory works (2) and practical works have to be done.  Students have to be able to use mathematical statistics methods for batching, processing research data, results analysis and for making conclusions. They have to be competent in quality's improvement tools and facilities of their usage. |
| **Language of instruction** | English |
| **Work placement(s)** | N/a |