

Course title: Methodology of scientific research in IT		
Teacher(s): Danijela M. Milošević, Veljko V. Aleksić, Marjan D. Milošević		
Course status: Compulsory		
Number of ECTS credits: 10		
Condition: None		
Course objectives Gaining understanding of general concepts of scientific research methodology and acquiring knowledge of basic scientific research techniques especially adapted to the scientific fields of the state-of-the-art technologies which are rapidly developing.		
Learning outcomes The student will be introduced to scientific theories and research methods that are relevant to the field of research in information technology. The student will be able to identify key research issues, formulate a research question, plan and implement a research project, demonstrate understanding of the limits and possibilities of research in information technology as well as to gain experience in writing scientific work in accordance with academic integrity, as well as ethics code and principles.		
Contents <i>Theoretical classes</i> Scientific theories and sources of information, repositories. Ethical frameworks of scientific research. Methods and stages in the process of scientific research. Methods of collecting scientific information. Comparison and classification of scientific resources. Specifics of the approach in fast growing scientific field of information technologies. Analysis and synthesis of scientific opinion. Induction and deduction as methods of cognition of scientific thinking. Defining problems and subjects of research, planning research. Data collection and processing. Hypothesis testing and simulation. Scientific reasoning. Criteria for evaluating research results. Systematization and presentation of research results. Patents. Intellectual property. <i>Practical teaching</i> Search and collection of various sources of scientific material in the field of IT. Selection, processing and presentation of results. Development of research plan and concept of scientific work.		
Recommended literature [1] Bjekić, D. (2010), Methods of scientific research and communication, Čačak, Technical faculty. [2] Vuković, M., Štrbac, N. (2019), Methodology of scientific research, Bor, ISBN 978-86-6305-086-0, Technical faculty Bor, University of Belgrade. [3] Ryhan Ebad (2013). Research Methodology in Computer Science, Centrum Press, India. [4] <i>Geetanjali V. Kale and J. Jayanth</i> , (2019), Research Methodology, A Practical and Scientific Approach, ISBN 9780815385615, Chapman and Hall/CRC [5] Laura Palazzani (2019) Innovation in Scientific Research and Emerging Technologies: A Challenge to Ethics and Law, ISBN 978-3030167325, Springer		
Number of active classes: 7	Theory: 5	Practice: 2
Teaching methods Verbal and discussions, practical workshops, online discussions, collaborative learning. The subject is supported with online course.		
Evaluation (maximum number of points 100) Activities during teaching process: 10 points Project work: 40 Final part of the exam: 50 points		