Study programme(s): Information Technologies

Level: Master

Course title: Research Methods

Lecturer: Zoran D. Budimac

Status: obligatory

ECTS: 7

Requirements: none

Learning objectives

Presentation and development of concepts, organizational structure and deliverables using quantitative and qualitative methods. It is expected that the students will deeply understand ways of organizing, planning, implementing and leading technical research projects.

Learning outcomes

Minimal: At the end of the course, it is expected that the successful student will have the ability of communication and formulating the goals within the scope of a research project; ability to prepare, plan and track technical research project; to demonstrate the knowledge of critical evaluation and analysis of the project.
Optimal: At the end of the course, it is expected that the successful student will have ability of the choice of appropriate research method while collecting data as well as knowledge and experience in procedures for structuring, collecting and processing of data that are needed in a technological environment.

Syllabus

Theoretical instruction

Theoretical approaches to the project – managing the project and management of the quality, communication skills, including presentation skills, literature and patents review, and writing of technical reports. Theoretical fundamentals of research methods, problem analysis and solving techniques, problem structuring methods, qualitative methods of system analysis and evaluation of performances, quantitative methods for collecting and analysis of data, experimental design, analysis of performances, plagiarism, references and health / security issues of research.

Practical instruction

Exercising of covered skills and methods on case studies using some of the software tool for project management.

Literature

1. CLELAND & KING Project management handbook 2nd edition, van Nostrand Reinhold.
2. LAMERS & ARNOLD, Report writing for science, technology and management, Wageningen Agricultural University, 1990.
3. MONTGOMERY DOUGLAS C, introduction to statistical quality control 2nd edition, John Wiley and Sons.
4. STRAKER DAVID, A toolbook for quality improvement and problem solving, Prentice Hall, 1995

Weekly teaching load				Other:
Lectures: 3	Exercises: 2	Other forms of teaching:	Student research:	

Teaching methodology

During lectures a classical teaching methods are applied using projector.. During exercises a case studies are more deeply analyzed. Some aspects and principles are practically covered by software tools. Furthermore, students study individually and more deeply some of the covered topics and report on their findings in written papers.

Grading method (maximal number of points 100)

Pre-exam obligations	**points**	**Final exam**	**points**
Assignments	**60**	Oral exam	**40**