Study programmes: Master studies - Informatics

Course name: R314 - Parallel algorithms

Lecturers: Miodrag Živkovic and other teachers of the Department of Computing and Informatics

Status: Optional

ECTS: 8

Attendance prerequisites: There are no prerequisites

Course aims: Acquiring basic knowledge of parallel algorithms.

Course outcome: Upon completion of the course, the student is able to design and analyze parallel algorithms on various parallel architectures.

Course content:

- Introduction to Parallel Computing
- Parallel Programming Platforms
- Principles of Parallel Algorithm Design
- Basic Communication Operations
- Programming Using the Message-Passing Paradigm,
- Programming Shared Address Space Platforms
- Dense Matrix Algorithms
- Sorting
- Graph Algorithms
- Search Algorithms for Discrete Optimization Problems
- Dynamic Programming
- Fast Fourier Transform

Literature:

1. A. Grama, A. Gupta, G. Karypis, V. Kumar, Introduction to Parallel Computing, Second Edition, Addison Wesley, 2003.

(the teacher can choose another relevant current literature)

Number of hours: 7	**Lectures: 2**	**Tutorials: 3**	**Laboratory: -**	**Research: 2**

Teaching and learning methods: Frontal, group, individual and practical.

Assessment (maximal 100 points)

Course assignments	**points**	**Final exam**	**points**
Lectures	-	Written exam	-
Exercises / Tutorials	-	Oral exam	-
Colloquia	30	Written-oral exam	70
Essay / Project	-		