ROMANIAN ACADEMY - SCOSAAR
DOCTORAL SCHOOL OF ENGINEERING, MECHANICAL, COMPUTER SCIENCES

DISCIPLINE SHEET

Name of subject: parallel and distributed computing
Course holder: Vlad Olaru
Year of studies: I

Number of hours per week/Verification/Credits		
Course	**Form of examination**	**Credits**
2 hours per week	Exam	15

A. OBJECTIVES OF THE COURSE (The objectives are formulated in terms of professional skills):

General objective of the subject	General knowledge of high performance computing (parallel and distributed computing)
Specific objectives:	1. Acquiring the material taught in the course; 2. The ability to use the presented results in new contexts; 3. The knowledge and skills acquired in this discipline will form the basis of future scientific and didactic research activities.

B. TERMS (where applicable)

of the course	•

C. SPECIFIC COMPETENCES ACCUMULATED
(Regards the competences ensured by the study program of which the discipline is a part)

Professional skills	- Knowing and mastering the principles of parallel and distributed computing - The ability to use the acquired knowledge in subsequent professional activities.
Transversal skills	Knowledge of the major implications of high-performance computing models in the broader field of computer science, with preferred application to the field of automatic learning.

***D.* THE CONTENT OF THE DISCIPLINE**

a) Course

Chapter	**Contents**	**Nr. ore**
1.	Parallel computing architectures	2
2.	Representation of parallel algorithms using directed acyclic graphs	6
3.	Parallelization of iterative methods for solving systems of linear equations	6
4.	Topologies of processor interconnection networks for parallel computing	4
5.	Matrix calculation operations on various parallel computing	4

	topologies		
6.	Synchronous and asynchronous parallel algorithms		6
		Total hours	**28**

E. ASSESSMENT (The methods, forms of assessment and their weight in determining the final grade are specified. The minimum performance standards are indicated, related to the skills defined in point A. Objectives of the discipline)

Type of activity	**Evaluation criterias**	**Evaluation methods**	**Weight of the final grade**
Course	Acquiring the knowledge acquired in the course	Written exam	100
The results of the subject evaluation are expressed by the following qualifications: "Very good"; "Good"; "Satisfactorily"; "Unsatisfactory". The grades "Very good", "Good" and "Satisfactory" allow the doctoral student to obtain the credits.			

F. METHODOLOGICAL REMARKS

Lecture combined with dialogue. Use of modern teaching aids (ppt). Course support.

G. BIBLIOGRAPHY

D. P. Bertsekas, J. N. Tsitsiklis, *Parallel and Distributed Computation: Numerical Methods*, Athena Scientific/MIT, 2015

G. Golub, J. M. Ortega, *Scientific Computing: An Introduction with Parallel Computing*, Academic Press, 2014

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