



The Faculty of:	Electrical and Computer Engineering
Field of study:	Computer Science
Speciality:	FZA
Study degree (BSc, MSc):	Eng

COURSE UNIT DESCRIPTION

Course title:	Parallel and distributed processing
Lecturer responsible for course: Bogdan Kwolek, Assoc. Prof.	
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Department : Department of Electrical Engineering and Informatics	

Semester	Weekly load	Type of classes				Number of ECTS credits
		L Lectures	C Theoretical Classes	Lb Laboratory	P Project	
7		15		10	5	4

Course description
<p>Lecture: Classification of parallel systems, topologies of static and dynamic networks, speed-up, Amdahl's and Gustafson's laws, scalability, bottlenecks in parallel computation, classical problems of concurrency. Model PRAM, selected algorithms. Selected platforms and tools: PVM, MPI, sockets, RPC, SMP, cluster of computers. Grid: Open Grid Services Architecture (OGSA), Open Grid Services Architecture (OGSI), Globus Toolkit, Condor. IBM Grid Toolbox. Object oriented programming in parallel/distributed computing: concurrent programming in Java; threads in Java, communication and synchronization, critical section, Remote Method Invocation. CORBA, DCOM. MMX/SSE, Intel Hyper Threading, systolic arrays. Selected parallel algorithms.</p>
<p>Classes:</p>
<p>Laboratory: Threads in Java. Synchronization and communication. Sockets, RMI.</p>
<p>Project:</p>

Objectives of the course

The objective of the Parallel and Distributed Processing is to prepare students to be a part of teams that specify, design, build, implement, manage and use parallel/distributed systems/software. To accomplish this objective, students must understand how to use parallel/distributed technology, including hardware, software, and communication, as basic components of large information systems. This understanding is based on a theoretical grounding as well as on experience in working both individually and in teams to solve software and computation problems.

Examination method

Written examination.

Bibliography

Jones, J. Ohlund; Programowanie sieciowe Microsoft Windows; Wyd. RM, 2000
G. Eddon, H. Eddon; COM+ programowanie; Wyd. RM, 2001
W. R. Stevens; Programowanie zastosowań sieciowych w systemie UNIX, WNT, 1990
E. R. Harold; Java – programowanie sieciowe, Read Me, 2001

Lecturer signature	
Head of Department signature	
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