



<b>The Faculty of:</b>	Electrical and Computer Engineering
<b>Field of study:</b>	Computer Science
<b>Speciality:</b>	FDA
<b>Study degree (BSc, MSc):</b>	MSc

**COURSE UNIT DESCRIPTION**

<b>Course title:</b>	Parallel and distributed processing
<b>Lecturer responsible for course: Bogdan Kwolek, Assoc. Prof.</b>	
<b>Contacts: phone: 1592</b>	<b>e-mail: bkwolek@prz-rzeszow.pl</b>
<b>Department : Department of Electrical Engineering and Informatics</b>	

Semester	Weekly load	Type of classes				Number of ECTS credits
		L Lectures	C Theoretical Classes	Lb Laboratory	P Project	
6		30		15		3

Course description
<p><b>Lecture:</b>            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><b>Classes:</b></p>
<p><b>Laboratory:</b>            Threads in Java. Synchronization and communication. Sockets, RMI.</p>
<p><b>Project:</b></p>

<b>Objectives of the course</b>
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<p>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.</p>
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<b>Examination method</b>
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Written examination.
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<b>Bibliography</b>
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<p>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</p>
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