DOCTORAL SCHOOL OF WROCŁAW UNIVERSITY OF SCIENCE AND TECHNOLOGY

SUPERVISOR DECLARING/CONDUCTING COURSE: dr inż. Mateusz Tykierko
DEPARTMENT: Department of Electronics
SCIENTIFIC DISCIPLINE: Control, electronic and electrical engineering, Technical informatics and telecommunications, Biomedical engineering, Chemical engineering, Civil engineering and transport, Mechanical engineering, Environmental engineering, mining and power engineering, Mathematics, Chemical sciences, Physical sciences

COURSE CARD

Course name in Polish: Nowoczesne techniki informatyczne
Course name in English: Modern Numerical Techniques in Science
Course language: Polish
University-wide general course type*:
The course is intended for all PhD students: YES / ~~NO~~
1) BASIC COURSE
2) SPECIALIST COURSE
3) SEMINAR
4) HUMANISTIC COURSE
5) LANGUAGE

Subject code:

* delete as applicable

	Lecture	Laboratory	Seminar	Mixed forms
Number of hours of organized classes in university (ZZU)		30		
Grading	Exam	crediting with grade	Oral presentation	Exam, inspection, evaluation classes

PREREQUISITES RELATING TO KNOWLEDGE, SKILLS AND OTHER COMPETENCES

1. Basic knowledge of linux operating system
2.

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COURSE OBJECTIVES

C1 Gaining knowledge about usage of HPC system, services and software for data analysis
C2 Gaining knowledge about scientific data management

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SUBJECT EDUCATIONAL EFFECTS

Relating to knowledge:

P8S_WK01 – Knows basic IT tools for conducting data analysis in HPC enviroment
P8S_WK02 – Is able to manage scientific datasets

Relating to skills:

P8S_UK01 – Student can automate data processing

Relating to social competences:

P8S_KO01 – Student is aware of significance of HPC and other services in scientific research.

PROGRAM CONTENTS

Form of classes		Number of hours
Lab1	Introduction to HPC	2
Lab2	Basic usage of Linux systems	2
Lab3	Shell scripting for data analysis automation	2
Lab4	Shell scripting for data analysis automation	2
Lab5	Tools for textual data analysis	2
Lab6	Network protocols for data processing automation	2
Lab7	Calculation results management	2
Lab8	Services in polish IT infrastructure	2
Lab9	Methods of data interactive processing	2
Lab10	Cluster architecture and resources definition	2
Lab11	Job submission in cluster	2
Lab12	Grid architecture and resources definition	2
Lab13	Job submission in cloud/grid	2
Lab14	Tools and services in grid	2
Lab15	Oral presentation and credit	2
	Total hours	**30**

TEACHING TOOLS USED

N1.Lecture: slides and traditional
N2. Computer Lab

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ACHIEVED SUBJECT LEARNING OUTCOMES		
Type of learning outcome	Code of learning outcome	Assessment of learning outcome
F1	P8S_WK01,P8S_WK02 P8S_UK01 P8S_KO01	Checking progress of laboratory tasks and oral presentation
P=F1		

PRIMARY AND SECONDARY LITERATURE

PRIMARY LITERATURE:

[1] M.Garrels, „Introduction to Linux, TLDP, 2010
[2] G. Hager, G. Wellin "ntroduction to High Performance Computing for Scientists and Engineers", Champan & Hall, 2010
[3] C. Newham "Learning the bash Shell: Unix Shell Programming, O'Reilly, 2005
[4]

SECONDARY LITERATURE:

[1] B. Wilkinson „Grid Computing: Techniques and Applications", Chapman & Hall, 2009
[2] J. E. Friedl, "Mastering regular expression", O'Reilly, 2006

SUBJECT SUPERVISOR (NAME AND SURNAME, E-MAIL ADDRESS)

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