COURSE SYLLABUS

Course code	1120-IN000-ISA-0127
Course name	UNIX Fundamentals
Course version	1900Z
Level of education	first cycle programme
Form and mode of study	full-time study
Study profile	general academic profile
Field of study	Computer Science and Information Systems
Specialisation	-
Organizational unit	The Faculty of Mathematics and Information Science
Implementing unit	The Faculty of Mathematics and Information Science
Course unit	n/a
Course groups	Computer Science, 2nd semester, academic year 2016/2017, groups EA1-EA2,Data Science, II st. - przedmioty obowiązkowe, sem. 1 z 4,Computer Science and Information Systems, Artificial Intelligence, 1st sem. of 4 (summer edition),Computer Science and Information Systems, Artificial Intelligence, 2nd sem. of 4,Przedmioty obowiązkowe, rok 1, Computer Science, stacjonarne I st., MiNI,Computer Science and Information Systems, BSc. - obligatory courses, sem. 2
Course status	Obligatory
Language of the course	English
Study stage code	SI000-S2-ISA-1120
Number of ECTS credits	2

Part I

01. Learning outcomes and the method of conducting classes

Course objective	Course objective: The course is intended for the students unfamiliar with Unix-like operating systems as a preparation for other BSc courses that require advanced Unix knowledge, including: Elements of Operating Systems, Unix Programming and Introduction to TCP/IP Networking. The course aims at introducing basic concepts concerning operating systems of the *nix family, using POSIX-compliant CLI system interface and basic commands, services and utilities. Upon completing the course students should: • have general knowledge on main Unix system branches (System V and BSD, GNU/Linux), POSIX and SUS standards, • have basic knowledge on FLOSS concepts, open and free licenses, * BSD and Linux / GNU systems, • be able to use shell (bash), • know basic Unix commands, • be able to use the Unix help (man pages), • be familiar with mass storage organization and process management, • have elementary knowledge on configuration of Unix systems and the principles of their administration, • be able to manage services (deamons), • be able to schedule tasks with cron and analyze system events with syslog-ng, • be familiar with vim editor, • construct text templates with POSIX BRE/ERE regular expressions, • be able to write simple scripts in bash and AWK, • be able to compile programs written in C from the command line (gcc compiler), use the make program and write simple Makefile files, • use the IDEs installed on lab computers.
Learning outcomes and the method of their verification and assessment	see table "Learning outcomes"

Part I

Forms of classes and the number of hours in the semester	
laboratory	30.00 h

02. ECTS balance		
Number of ECTS credits	2	
Course workload	**Hours**	**ECTS**
Total number of hours and ECTS credits for the course:		
Hours and ECTS credits for courses involving direct participation of academic teachers	30	1.20
Hours and ECTS credits involving student's independent work	30	1.20
Total	60	2.40 (2.00)
Number of hours involving direct participation of academic teachers:		
Hours connected with class participation	30	
Other synchronous hours	0	
Total	30	
Number of hours involving student's independent work:		
Hours for student's independent work	30	

03. Course content	
laboratory	**Using and Customizing GTK-based Desktop Environments. Users, Groups, IDs. Basic Commands. Working in the Bash Shell. Filesystems, File Types, Directory Tree Structure, File Permissions, ACLs. Basic Process Management. Most Critical Edit-To-Configure Files. Using Standard System Daemons (Cron, Syslog, ...). Efficient Text Editing with Vim. Optionally: Bash Programming Fundamentals. Text Processing with Sed. AWK Programming. Introduction to *nix C Programming (Using GCC, Make, GDB, Strace).**

Table: Learning outcomes	
Knowledge	
Outcomes code	W01
Description	Has ordered, theoretically founded background knowledge in the field of operating systems.
Related field-of-study learning outcomes	I1A_W04
Verification methods	laboratory: test:test
Outcomes code	W02
Description	Knows the basic methods, techniques and tools used to solve simple tasks in the field of computer operating systems.
Related field-of-study learning outcomes	I1A_W04
Verification methods	laboratory: test:test
Skills	
Outcomes code	U01
Description	Can obtain information from the literature, databases and other sources, integrate and interpret them, draw conclusions and formulate opinions.
Related field-of-study learning outcomes	I1A_U01
Verification methods	laboratory: assessment of active class participation:graded lab tasks
Outcomes code	U02
Description	Can efficiently process text files (Bash, AWK).
Related field-of-study learning outcomes	I1A_U12
Verification methods	laboratory: assessment of active class participation:graded lab tasks

Part I

Outcomes code	U03
Description	Has the ability to use operating systems on the API level.
Related field-of-study learning outcomes	I1A_U07, I1A_U10
Verification methods	laboratory: test:test
Outcomes code	U04
Description	Is able to formulate a specification of simple systems in regards to hardware, system software and application functional features.
Related field-of-study learning outcomes	I1A_U07
Verification methods	laboratory: test:test
Social competence	
Outcomes code	K01
Description	Knows examples and understands the cause of malfunctioning systems, which have led to serious financial or social losses or to a serious loss of health and even life.
Related field-of-study learning outcomes	I1A_K03
Verification methods	laboratory: test:test

Part II

04. Year and semester of studies	
Year	1900Z
Semester	2

05. Course leader and course teachers	
Course leader	Marek Kozłowski
laboratory	Marek Kozłowski

06. Teaching methods and techniques	
laboratory	Problem-based method, case study, independent problem solving cases during computer labolator.

07. Assessment criteria	
laboratory	Graded lab tasks, final practical test.

08. Prerequisites	
Prerequisites	none

09. Required and recommended reading list	
Required reading	1. Slides for this course available for download in PDF format. 2. D. Myers, Fundamentals of UNIX, Cisco Press , 2004. 3. Æ. Frisch, Essential System Administration, Third Edition, O'Reilly Media, 2002. 4. Any *nix documentation: The Linux Documentation (TLDP) or any main Linux distribution documentation or FreeBSD documentation or Sun Solaris documentation. 5. Man pages and info pages. 6. Official documentation for programs/projects being discussed.

10. Other information	
Other information	-