Rzeszów University of Technology

The Faculty of:	Faculty of Electrical and Computer Engineering
Field of study:	Electrical Engineering
Speciality:	
Study degree (BSc, MSc):	First circle full time studies

COURSE UNIT DESCRIPTION

Course title:	Linux and Unix network operating systems
Lecturer responsible for course: dr. Tomasz Rak **Contacts: phone: 48178651767** **e-mail: trak@prz-rzeszow.pl**	
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**	
6	2	25			25	2

Course description

Lecture:
Linux like a younger Unix "brother": history, distributions, short instalation examples (Unix, Linux), init and system processes, run levels, modes, configuration files, chkconfig/ntsysv. System logs (syslog, /var/log/messages), at and cron commands. --- Programs instalation and instalation problems: RPM, DEB and source. Sources patching.

Filesystems: types, mounting, access rights, repair, block and character devices, links, masks, directory and files structure, low level disk access, inode, /proc, suid, chroot, quota. --- Text terminal: shell, ssh (keys generating), telnet, scp.

Shell programming (scripts): write, start up, verification (variables, commands, symbols, expressions, filters (grep, egrep and fgrep), awk, redirect i/o, operators and functions), instructions, graphics in shell. --- GCC compiler (examples).

Programming with PERL (examples): scripts, variables, instructions, text files service. --- Network: commands, interfaces (wireless), configuration files, tcpd, traffic shaping, fiters.

Tcpdump: formula, traffic interpretation (ICMP, TCP, UDP). --- Construction, configuration and use of router: communication between subnets.

Firewall: security politics, packet filters, iptables, rules, security scripts, masquerading (SNAT and DNAT). --- Linux server configuration: Apache2 (directives, virtual servers, certification generating, user homepage, access passwords, error pages).

Linux server configuration: proFTPD (directives, limited transfer, commands, ftp client). --- Linux server

configuration: DHCP (dhcpd.conf, lease, IP with MAC, dhcp client).

Linux server configuration: DNS (zone files, access control lists, reverse zone, servers: cache DNS, authoritative and forwarding, master and slave servers, nslookup, host, dig). --- Linux server configuration: Postfix (alliases, configuration, conservation, mail boxes, restrictions, client - mail).

Linux server configuration: Samba (section parameters, demons). --- Linux server configuration: Proxy (Squid).

Classes:

Laboratory:

Project:
Preparation of projects on the chosen or invented theme in 1 or 2 students project groups.

Objectives of the course
Student should obtain theoretical knowledge and practical understanding of Linux network operating system administration and configuration. Possibility of practical configuration Linux network services. Helpful materials http://trak.prz-rzeszow.pl/.
Examination method
Preparation of theoretical or practical project about Linux network operating system.

Bibliography
Lal K., Rak T., Kościółek S.: SUSE Linux Enterprise Server. Administracja usługami serwera. Księga eksperta, HELION, 2008; Rak T.: Tworzenie sieci komputerowej. Ćwiczenia praktyczne, HELION, 2006; Lal K., Rak T.: Linux. Komendy i polecenia. Praktyczne przykłady, HELION, 2005;Lal K., Rak T.: Linux a technologie klastrowe, MIKOM, 2005; Lal K., Rak T.: Wprowadzenie do użytkowania systemów Unix i Linux, OFICYNA WYDAWNICZA POLITECHNIKI RZESZOWSKIEJ, Materiały pomocnicze, Rzeszów, 2004; Lal K., Rak T.: Po prostu własny serwer internetowy, HELION, 2002; Mitnick K., Simon W. L.: Sztuka podstępu. Łamałem ludzi, nie hasła, Helion, 2003; http://dug.net.pl/texty/przeplyw.pdf; http://linuxnews.pl; http://www.linux.pl.

Lecturer signature	
Head of Department signature	
Dean signature	