COURSE DESCRIPTION

1. Information about the programme

1.1 Institution of higher education	**Alexandru Ioan Cuza University of Iasi**
1.2 Faculty	**Faculty of Economics and Business Administration**
1.3 Department	**Department of Accounting, Information Systems and Statistics**
1.4 Field of study	**Business Informatics**
1.5 Level	**Master**
1.6 Study programme/ Qualification	**Software Development and Business Information Systems**

2. Information about the course

2.1 Course name	**Linux System Administration**					
2.2 Course coordinator	**Associate Prof. Sireteanu Napoleon-Alexandru, Ph.D.**					
2.3 Seminar coordinator	**Associate Prof. Sireteanu Napoleon-Alexandru, Ph.D.**					
2.4 Year of study	I	2.5 Semester	II	2.6 Type of assessment	P	2.7 Discipline status	**C**

*C – Compulsory / * E - Elective*

3. Total estimated time (hours alloted to didactic activity per semester)

3.1 Total number of hours per week	3	of which: 3.2 lecture	2	3.3 seminar/lab	1
3.4 Total number of hours in the curriculum	42	of which: 3.5 lecture	28	3.6 seminar/lab	14

Time distribution	hours
Study of the handbook, coursebook, bibliography and notes	30
Additional research in the library, online and on the field	15
Preparation of seminars/labs, homeworks and projects	40
Tutorials	15
Assessment	8
Other activities....................................	

3.7 Total number of self-study hours	108
3.9 Total number of hours per semester	150
3. 10 Number of credits	6

4. Prerequisites (if applicable)

4.1 curriculum-based	• Programming Languages (or similar), Computer Network (or similar)
4.2 competence-based	• Not applicable

5. Conditions (if applicable)

5.1. for lectures	• Lecture rooms shall be provided with video projector

	• Students will attend lectures. Cell phones must be turned off.
5.2. for seminars/labs	• IT services of the faculty will provide a real or virtual machine to act as Linux Server and Linux Clients • Students are invited to bring and use their own laptops: RHEL/CentOS, Apache web server, NFS server • Labs will have enough computers for students not owning a laptop • Lab computets will have installed RHEL and three virtual machines

6. Assimilated specific competences

Professional competences	• C3.1 Detailed understanding of modern, multi-tiered and service oriented information architectures in order to develop and implement business applications (1) • C3.3 Choose and adapt different commercial and open-source solutions in order to fulfill organizational requirements and which are suited to the organizational constraints (3) • C4.1 Gaining detailed knowledge on all aspects of methodological and technological regarding the representation and persistence of data formats, the protocols and means of communication and integration of applications and services within distributed business information systems (1.5)
Transversal competences	• CT3 – Continuous improvement of specific skills and knowledge towards approaching information systems, development of new software technologies and management of information systems. (0.5)

7. Discipline objectives (provided by the assimilated specific competences grid)

7.1 The general objective of the discipline	Acquiring knowledge and skill in areas of system administration common across a wide range of environments and deployment scenarios
7.2 Specific objectives	• Understand and use essential tools for handling files, directories, command-line environments, and documentation • Operate running systems, including booting into different run levels, identifying processes, starting and stopping virtual machines, and controlling services • Configure local storage using partitions and logical volumes • Create and configure file systems and file system attributes, such as permissions, encryption, access control lists, and network file systems • Deploy, configure, and maintain systems, including software installation, update, and core services • Manage users and groups, including use of a centralized directory for authentication • Manage security, including basic firewall and SELinux configuration Using shell scripting to automate system maintenance tasks • Configuring a system to provide networking services, including HTTP/HTTPS, File Transfer Protocol (FTP), Network File System (NFS), Simple Mail Transfer Protocol (SMTP), Secure Shell (SSH) and Network Time Protocol (NTP).

8. Content

8. 1 Lecture	Teaching methods	Observations
Chapter 1. Fundamental Command Line Skills	PPT presentation, explanation, conversation, questioning.	1 lecture
Chapter 2. Virtual Machines and Automated Installations	PPT presentation, explanation, conversation, questioning.	1 lecture
Chapter 3. The Boot Process	PPT presentation, explanation, conversation, questioning.	1 lecture
Chapter 4. Linux Security Levels	PPT presentation, explanation, conversation, questioning.	1 lecture
Chapter 5. Linux Filesystem Administration	PPT presentation, explanation, conversation, questioning.	1 lecture
Chapter 6. Package Management	PPT presentation, explanation, conversation, questioning.	1 lecture
Chapter 7. User Administration	PPT presentation, explanation, conversation, questioning.	1 lectures
Chapter 8. Levels of System Administration	PPT presentation, explanation, conversation, questioning.	2 lectures
Chapter 9. Security, System Services and SELinux	PPT presentation, explanation, conversation, questioning.	1 lecture
Chapter 10. Electronic Mail	PPT presentation, explanation, conversation, questioning.	2 lectures
Chapter 11. The Apache Web Server	PPT presentation, explanation, conversation, questioning.	1 lecture
Chapter 12. Network File System (NFS)	PPT presentation, explanation, conversation, questioning.	1 lecture
Chapter 13. Simple Mail Transfer Protocol (SMTP)	PPT presentation,	1 lecture

	explanation, conversation, questioning.	
Chapter 14. Secure shell (SSH)	PPT presentation, explanation, conversation, questioning.	1 lecture
8. 2 Seminar/lab	Teaching methods	Observations
Virtual Machines Installations	Practical Case Discussion	1 lab
Linux Security Best Practices	Practical Case Discussion	1 lab
Linux Filesystems	Practical Case Discussion	1 lab
Implementing SeLinux	Practical Case Discussion	1 lab
Apache Web Server Configuration	Practical Case Discussion	1 lab
Configure a Postfix Mail Server	Practical Case Discussion	1 lab
Prepare for RHCSA exam	Real-world Exam Case	1 lab

References:

Tommasino, D., Hands-on Guide to the Red Hat Exams: RHCSA and RHCE Cert Guide and Lab Manual, Pearson IT Certification, 2011
RHCSA/RHCE Red Hat Linux Certification Study Guide (Exams EX200 & EX300), 6th Edition, McGraw-Hill Osborne Media, 2011
Vugt, S., Red Hat Enterprise Linux 6 Administration: Real World Skills for Red Hat Administrators, Wiley, 2013
Hradílek, J., Red Hat Enterprise Linux 7.0 Beta, System Administrators Guide, Red Hat, 2014

9. Corroboration of the discipline content with the expectations of epistemic community representatives, professional associations as well as of representative employers in the programme related field.

- The content of this discipline has been decided upon by taking into account both the curricula of some prestigious Western Universities and the demands of the economic environment provided by potential employers, either in the public or in the private IT companies.

10. Assessment

Type of activity	10.1 Assessment criteria	10.2 Assessment methods	10.3 Share of final grade
Grid Test Evaluation			20%
Pratical exam	Real-world RHCSA exam	Presentation, discussion	80%
10.6 Minimum performance standard			
• Setting up three virtual machines and communications between them			

Date of completion	Lecture Coordinator	Seminar Coordinators
15.03.2018	Assoc.Prof. Napoleon-Alexandru Sireteanu, Ph.D.	Assoc.Prof. Napoleon-Alexandru Sireteanu, Ph.D.

Date of approval within the department

Head of Department
Prof. Florin Dumitriu, Ph.D.