Syllabus

1. Data about the program of study

1.1 Institution	Technical University of Cluj-Napoca
1.2 Faculty	Automation and Computer Science
1.3 Departament	Automation
1.4 Field of study	Systems Engineering
1.5 Cycle of study	Bachelor of Science
1.6 Program of study/Qualification	Automation and Applied Informatics (English)
1.7 Form of education	Full time
1.8 Code	3

2. Data about the subject

2.1 Subject name		Com	omputer architecture				
2.2 Course responsible/lec	turer		Profdr.ing. Honoriu Vălean – Honoriu.Valean@aut.utcluj.ro				
2.3 Teachers in charge of a	pplic	ations	SL.dr.ing Alexandra Fanca – Alexandra.Fanca@aut.utcluj.ro ns SL.dr.ing. Adela Pop – Adela.Puscasiu@aut.utcluj.ro Conf.dr.ing Dan Gota – Dan.Gota@aut.utcluj.ro				
2.4 Year of study	1	2.5 Semes	ter	1	2	2.6 Assessment (E/C/V)	Е
2.7 Type of subject DI – compulsory, D		al, DD – in the field, DS – specialty, DC – complementary			DD		
		D0 –)O – elective, Dfac – optional			DI	

3. Estimated total time

3.1 Number of hours per week	4	of which:	Course	2	Seminar	0	Laboratory	2	Project	0
3.2 Number of hours per semester	56	of which:	course	28	Seminar	0	Laboratory	28	Project	0
3.3 Individual study										
(a) Manual, lecture material and notes, bibliography									28	
(b) Supplementary study in the library, online and in the field									14	
(c) Preparation for seminars/laboratory works, homework, reports, portfolios, essays								14		
(d) Tutoring									10	
(e) Exams and tests									3	
(f) Other activities:										
3.4 Total hours of individual study (sum of (3.3(a)3.3(f))) 69										
3.5 Total hours per semester (3.2+3.4) 125										
3.6 Number of credit points 5										

4. Pre-requisites (where appropriate)

4.1 Curriculum	-						
4.2 Competence	-						

5. Requirements (where appropriate)

5.1. For the course	-
5.2. For the applications	-

6. Specific competences

6.1 Professional competences	C1
	Operating with basic concepts of mathematics, physics, measurement
	science, mechanical engineering, chemical engineering, electrical engineering
	in systems engineering
	C1.1
	Using the concepts, theories and methods of the fundamental sciences of
	systems engineering in professional communication
	C1.3

	Solving common problems of systems engineering by identifying the appropriate techniques, principles, methods and application of mathematics, with emphasis on numerical methods.
6.2 Cross competences	

7. Course objectives

7.1 General objective	understanding the structure and the operating mode of a computer
7.2 Specific objectives	understanding the computer architecture
	understanding internal data representation
	understanding the role of an OS
	understanding the basics of Linux

8. Contents

8.1 Lecture	No.hours	Teaching methods	Notes
General structure of a computer. Hierarchical architecture	2		
Computer basics. Binary representation. Numeric bases conversion.	2		
Internal representation. Fixed point data.	2	Teaching using	
Internal representation. Floating point data.	2	laptop and	
Arithmetic operations.	2	projector,	
Operating systems. Linux.	2	interactive	
Basic commands in Linux.	2	course, debate /	
Linux security. User accounts.	2	or online on	
Files and directories.	2	Teams platform	
Shell.	4		
TCP/IP basics. Computer networks under TCP/IP.	6		
 W. Kurt. Linux programming by example. An aparitie: 2000 Cota 49. D.P. Bovet, M. Cesati. Understanding the Linux kernel An aparitie: 2 3. Any Linux book 	8.011 3 2001 Cota 50	2.550	1
8.2 Aplications (seminar/laboratory/project)	No.hours	methods	Notes
Numeric bases: binary, decimal, hexadecimal. Base conversions.	2		
Numeric bases: binary, decimal, hexadecimal. Base conversions. Internal representation	2 2		
Numeric bases: binary, decimal, hexadecimal. Base conversions. Internal representation Assembling language brief presentation	2 2 2		
Numeric bases: binary, decimal, hexadecimal. Base conversions. Internal representation Assembling language brief presentation Basic Linux Commands	2 2 2 2 2	Presentation of	
Numeric bases: binary, decimal, hexadecimal. Base conversions. Internal representation Assembling language brief presentation Basic Linux Commands Extended commands	2 2 2 2 2 2	Presentation of examples,	
Numeric bases: binary, decimal, hexadecimal. Base conversions. Internal representation Assembling language brief presentation Basic Linux Commands Extended commands Files, directories	2 2 2 2 2 2 2 2	Presentation of examples, demonstrations,	
Numeric bases: binary, decimal, hexadecimal. Base conversions. Internal representation Assembling language brief presentation Basic Linux Commands Extended commands Files, directories Shell files. Instructions	2 2 2 2 2 2 2 2 2 2 2	Presentation of examples, demonstrations, discussions,	Mandatory
Numeric bases: binary, decimal, hexadecimal. Base conversions. Internal representation Assembling language brief presentation Basic Linux Commands Extended commands Files, directories Shell files. Instructions Cycles. Functions.	2 2 2 2 2 2 2 2 2 2 2 2	Presentation of examples, demonstrations, discussions, practical	Mandatory attendance
Numeric bases: binary, decimal, hexadecimal. Base conversions.Internal representationAssembling language brief presentationBasic Linux CommandsExtended commandsFiles, directoriesShell files. InstructionsCycles. Functions.Networks. IP addresses	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Presentation of examples, demonstrations, discussions, practical applications / or	Mandatory attendance
Numeric bases: binary, decimal, hexadecimal. Base conversions. Internal representation Assembling language brief presentation Basic Linux Commands Extended commands Files, directories Shell files. Instructions Cycles. Functions. Networks. IP addresses Subnets	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Presentation of examples, demonstrations, discussions, practical applications / or online on Teams	Mandatory attendance
Numeric bases: binary, decimal, hexadecimal. Base conversions. Internal representation Assembling language brief presentation Basic Linux Commands Extended commands Files, directories Shell files. Instructions Cycles. Functions. Networks. IP addresses Subnets C programming under Linux	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Presentation of examples, demonstrations, discussions, practical applications / or online on Teams platform	Mandatory attendance
Numeric bases: binary, decimal, hexadecimal. Base conversions.Internal representationAssembling language brief presentationBasic Linux CommandsExtended commandsFiles, directoriesShell files. InstructionsCycles. Functions.Networks. IP addressesSubnetsC programming under LinuxDesign and implementation of simple applications	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Presentation of examples, demonstrations, discussions, practical applications / or online on Teams platform	Mandatory attendance
Numeric bases: binary, decimal, hexadecimal. Base conversions.Internal representationAssembling language brief presentationBasic Linux CommandsExtended commandsFiles, directoriesShell files. InstructionsCycles. Functions.Networks. IP addressesSubnetsC programming under LinuxDesign and implementation of simple applicationsTCP/IP programming	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Presentation of examples, demonstrations, discussions, practical applications / or online on Teams platform	Mandatory attendance
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Numeric bases: binary, decimal, hexadecimal. Base conversions.Internal representationAssembling language brief presentationBasic Linux CommandsExtended commandsFiles, directoriesShell files. InstructionsCycles. Functions.Networks. IP addressesSubnetsC programming under LinuxDesign and implementation of simple applicationsTCP/IP programmingAssessmentBibliography	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Presentation of examples, demonstrations, discussions, practical applications / or online on Teams platform	Mandatory attendance
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9. Bridging course contents with the expectations of the representatives of the community, professional associations and employers in the field

The course is useful for any occupation in IT industry.

10. Evaluation

Activity type	Assessment criteria	Assessment methods	Weight in the final grade
Course	Evaluation of the acquired skills, attendance, activity within classes	Written exam	60%
Seminar	-		
Laboratory	Evaluation of the practical skills, attendance, activity within labs	Practical exam	40%
Project			
Minimum standar	rd of performance: Exam grade >= 5 and labor	ratory grade >=5	

	Title Firstname NAME	Signature
Course	Prof.dr.ing. Honoriu VALEAN	
Aplications	SL.dr.ing. Alexandra FANCA	
	SL.dr.ing. Adela POP	
	Conf.dr.ing Dan GOȚA	
	Course Aplications	Title Firstname NAME Course Prof.dr.ing. Honoriu VALEAN Aplications SL.dr.ing. Alexandra FANCA SL.dr.ing. Adela POP Conf.dr.ing Dan GOȚA

Date of approval by the Department Board

Head of Departament Prof.dr.ing. Honoriu VĂLEAN

Date of approval by the Faculty Council

Dean Prof.dr.ing. Liviu Cristian MICLEA