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	***Computer architecture***				
2.2 Course responsible/lecturer	SL.dr.ing Alexandra Fanca – Alexandra.Fanca@aut.utcluj.ro				
2.3 Teachers in charge of applications	SL.dr.ing Alexandra Fanca – Alexandra.Fanca@aut.utcluj.ro SL.dr.ing. Adela Pop – Adela.Puscasiu@aut.utcluj.ro Conf.dr.ing Dan Goța – Dan.Gota@aut.utcluj.ro				
2.4 Year of study	1	2.5 Semester	1	2.6 Assessment *(E/C/V)*	E
2.7 Type of subject	*DF – fundamental, DD – in the field, DS – specialty, DC – complementary*				DD
	DI – compulsory, DO – 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	Teaching using laptop and projector, interactive course, debate / or online on Teams platform	
Computer basics. Binary representation. Numeric bases conversion.	2		
Internal representation. Fixed point data.	2		
Internal representation. Floating point data.	2		
Arithmetic operations.	2		
Operating systems. Linux.	2		
Basic commands in Linux.	2		
Linux security. User accounts.	2		
Files and directories.	2		
Shell.	4		
TCP/IP basics. Computer networks under TCP/IP.	6		
Bibliography 1. W. Kurt. Linux programming by example. An aparitie: 2000 Cota 498.011 3 2. D.P. Bovet, M. Cesati. Understanding the Linux kernel An aparitie: 2001 Cota 502.550 3. Any Linux book			
8.2 Aplications (seminar/laboratory/project)	No.hours	Teaching methods	Notes
Numeric bases: binary, decimal, hexadecimal. Base conversions.	2	Presentation of examples, demonstrations, discussions, practical applications / or online on Teams platform	Mandatory attendance
Internal representation	2		
Assembling language brief presentation	2		
Basic Linux Commands	2		
Extended commands	2		
Files, directories	2		
Shell files. Instructions	2		
Cycles. Functions.	2		
Networks. IP addresses	2		
Subnets	2		
C programming under Linux	2		
Design and implementation of simple applications	2		
TCP/IP programming	2		
Assessment	2		
Bibliography 1. W. Kurt. Linux programming by example. An aparitie: 2000 Cota 498.011 3 2. D.P. Bovet, M. Cesati. Understanding the Linux kernel An aparitie: 2001 Cota 502.550 3. Any Linux book			

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 standard of performance: Exam grade >= 5 and laboratory grade >=5			

Date of filling in:		**Title Firstname NAME**	**Signature**
6.06.2024	Course	SL.dr.ing. Alexandra FANCA	
	Aplications	Conf.dr.ing Dan GOȚA	
		SL.dr.ing. Adela POP	

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. Mihaela DÎNȘOREANU