

**SYLLABUS**  
**University year 2021-2022**  
**Year of study I / Semester I**

**1. Information on academic programme**

1.1. University	„1 Decembrie 1918” University of Alba Iulia
1.2. Faculty	Faculty of Exact Sciences and Engineering
1.3. Department	Informatics, Mathematics and Electronics
1.4. Field of study	Computer Science
1.5. Cycle of study	Undergraduate
1.6. Academic programme / Qualification	Computer Science / 251201, 251203, 251204

**2. Information of Course Matter**

2.1. Course	Computer Systems Architecture			2.2. Code	CSE101		
2.3. Course Leader	Lect. Univ. Dr. Cucu Ciprian						
2.4. Seminar Tutor	Asist. Univ. Drd. Boca Liana						
2.5. Academic Year	I	2.6. Semester	I	2.7. Type of Evaluation (E – final exam/ CE - colloquy examination / CA -continuous assessment)	E	2.8. Type of course (C– Compulsory, Op – optional, F - Facultative)	O

**3. Course Structure**

3.1. Weekly number of hours	4	3.2. course	2	3.3. seminar, laboratory	2
3.4. Total number of hours in the curriculum	56	3.5. course	28	3.6. seminar, laboratory	28
Allocation of time:					hours
Individual study of readers					40
Documentation (library)					25
Home assignments, Essays, Portfolios					27
Tutorials					-
Assessment					2
Other activities .....					-

3.7 Total number of hours for individual study	94
3.9 Total number of hours in the curriculum	150
3.10 Number of ECTS **	6

\* 3.9. = 3.4. + 3.7.; numărul total de ore pe semestru trebuie calculat în funcție de nr. de credite (3.9.) și de volumul de muncă aferent unui credit (1 credit = 25 ore conform Ghidului de aplicare a ECTS).

\*\* 3.10. = numărul de credite prevăzut a fi atribuit disciplinei prin planul de învățământ.

**4. Prerequisites (where applicable)**

4.1. curriculum-based	NA
4.2. competence-based	NA

**5. Requisites (where applicable)**

5.1. course-related	Room equipped with video projector / board / Microsoft Teams Platform
5.2. laboratory-based	Laboratory – computers / Microsoft Teams Platform

**6. Specific competences to be acquired (chosen by the course leader from the programme general competences grid)**

Professional competences	C6.1. Identificarea conceptelor si modelelor de baza pentru sisteme de calcul si retele de calculatoare. C6.2. Identificarea si explicarea arhitecturilor de bază pentru organizarea și gestiunea sistemelor si a retelelor.
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Transversal competences	NA
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## 7. Course objectives (as per the programme specific competences grid)

7.1 General objectives of the course	- Learning fundamental concepts regarding computer systems architecture
7.2 Specific objectives of the course	- Ability to recognize computer system components - Ability to develop basic applications using assembly

## 8. Course contents \*

8.1 Course	Teaching methods	Hours
1. Architecture, architecture types, Von Neumann architecture details	Lecture, discussions, presentation	2
2. Numbering systems: binary, decimal, hexadecimal. Conversions, operations.	Lecture, discussions, presentation	2
3. Logical gates. Transforming electrical impulse in operations. Binary adder	Lecture, discussions, presentation	2
4. The PC: system buses, CPU, coprocessor etc	Lecture, discussions, presentation	2
5. Memory segmentation	Lecture, discussions, presentation	2
6. CPU registers and memory addressing	Lecture, discussions, presentation	4
7. Assembly programming language: description, assembler variants, instructions	Lecture, discussions, presentation	4
8. Assembly programming: BIOS / DOS services	Lecture, discussions, presentation	4
9. Assembly programming: VIDEO modes	Lecture, discussions, presentation	4
<b>References</b>		
1. Joldeş Remus, Emil Olteanu, <i>Arhitectura Calculatoarelor, Vol. 2, Instrucţiunile Familiei de microprocesoare 80X86</i> , Editura UAI, Seria Didactica 2006.		
2. Joldeş Remus, Cucu Ciprian, Domşa Ovidiu, Tulbure Adrian, Joldeş Iulian, Despa Otilia, <i>Limbaajul de asamblare prin exemple - Îndrumator</i> , Editura UAI, Seria Didactica 2008.		
3. Tanenbaum, A., <i>Sisteme de operare modernă – Ediția a II-a</i> , Editura Byblos, Bucureşti 2004.		
4. Muscă Gheorghe, <i>Programarea în limbaj de asamblare</i> , Seria: Limbaje și tehnici noi de programare, Editura TEORA, Bucureşti, 1997, pp.1-33, pp.34- 101, pp.123-167. Manualul a fost reeditat și în 1998 și în 1999.		
5. Somnea D., Vlăduț T., <i>Programarea în Assembler</i> , Seria: Calculatoare personale, Editura Tehnică, Bucureşti, 1992, pp. 8-15, pp. 16-32, pp. 35-67, pp. 68-84, pp. 85-108, pp. 109-113, pp. 114- 120, pp. 121-134, pp. 140-146, pp. 147-182, pp. 183-209.		
<b>8.2. Seminars-laboratories</b>		
1. Working environment – DOSBox, TASM.	Discussion, presentation	1
2. DOS commands	Discussion, presentation, exercises	2
3. Numbering bases, conversions, operations	Discussion, presentation, exercises	2
4. Evaluation Quizz	Quizz	1
5. Hardware components	presentation	2
6. Using TASM, TLINK and the TD debugger	exercises	2

7. Assembly programming: basic instructions, advanced instructions, DOS functions, using the stack	exercises	12
8. Evaluation Quizz	Quizz	1
9. Assembly programming: video mode, procedures, macros	exercises	3
10. Finalizing laboratory work	Discussion	2

#### References

1. Joldeş Remus, Emil Olteanu, *Arhitectura Calculatoarelor, Vol. 2, Instrucţiunile Familiei de microprocesoare 80X86*, Editura UAI, Seria Didactica 2006.
2. Joldeş Remus, Cucu Ciprian, Domşa Ovidiu, Tulbure Adrian, Joldeş Iulian, Despa Otilia, *Limbaajul de asamblare prin exemple - Îndrumator*, Editura UAI, Seria Didactica 2008.
3. Tanenbaum, A., *Sisteme de operare modernă – Ediția a II-a*, Editura Byblos, Bucureşti 2004.
4. Muscă Gheorghe, *Programarea în limbaj de asamblare*, Seria: Limbaje și tehnici noi de programare, Editura TEORA, Bucureşti, 1997, pp.1-33, pp.34- 101, pp.123-167. Manualul a fost reeditat și în 1998 și în 1999.
5. Somnea D., Vlăduţ T., *Programarea în Assembler*, Seria: Calculatoare personale, Editura Tehnică, Bucureşti, 1992, pp. 8-15, pp. 16-32, pp. 35-67, pp. 68-84, pp. 85-108, pp. 109-113, pp. 114- 120, pp. 121-134, pp. 140-146, pp. 147-182, pp. 183-209.

#### 9. Corroboration of course contents with the expectations of the epistemic community's significant representatives, professional associations and employers in the field of the academic programme

NA

#### 10. Assessment

Activity	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Percentage of final grade
10.4 Course	Correct knowledge of concepts	<i>Final quizz (on PC) with questions and exercises</i>	50%
10.5 Seminar/laboratory	Ability to programm in assembly	<i>The two quizzes plus all the assignments during the semester.</i>	50%
10.6 Minimum performance standard: - Minimum grade 5 for each of the evaluations, based on criteria - Taking the exam în the regular evaluation session (the first one) depends on class attendance: either 10 labs attended OR a minimum of 6 labs attended and completing several extra assignments aş recovery			

Submission date

Course leader signature

Seminar tutor signature

Date of approval by Department

Department director signature

**ANNEX TO SYLLABUS****b. Assesment – for a better grade**

<b>Activity</b>	<b>10.1 Evaluation criteria</b>	<b>10.2 Evaluation methods</b>	<b>10.3 Percentage of final grade</b>
10.4 Course	Answering questions, solving exercises	Quiz with theory and exercises	100 %
10.5 Seminar/laboratory	NA	NA	NA
<b>10.6 Standard minim de performanță</b>			
A minimal grede of 5, according to quizz criteria			
Data completării	Semnătura titularului de curs	Semnătura titularului de seminar	

**c. Evaluare – restanță**

<b>Activity</b>	<b>10.1 Evaluation criteria</b>	<b>10.2 Evaluation methods</b>	<b>10.3 Percentage of final grade</b>
10.4 Course	Answering questions, solving exercises	Quiz with theory and exercises	100 %
10.5 Seminar/laborator	NA	NA	NA
<b>10.6 Standard minim de performanță:</b>			
A minimal grede of 5, according to quizz criteria			
Data completării	Semnătura titularului de curs	Semnătura titularului de seminar	

\*Formulare orientativă