ANEXA 1

CURRICULUM
Valid for the study cycle 2024-2027
"Aurel Vlaicu" University of Arad

Faculty of Exact Sciences
Department: **Mathematics and Computer Science**
Name of program: **Computer Science (in English)**
Field of studies: **Informatics**
Length of program / number of ECTS credits: **3 years /180 credits**
Type of education: **Full – Time study**
Graduate title earned: **Bachelor in Computer Science**

1. MISSION STATEMENT

The teaching and research mission of the bachelor study programme in question fits the profile and speciality of the Faculty of Exact Sciences. It consists of training and developing profesionals in Computer Science, specialists that will contribute to the competitive advantage in the market for the companies and organizations they will work for.

2. OBJECTIVES

- Training profesionals with strong knowledge according to EU standards;
- Developing the competence in analysing economical and social phenomena and getting the apropriate solutions to various issues in the field;
- Capitalizing on knowledge trannsferred to graduates during certain professional and scientific projects in order to properly address the Romanian and european economic challanges;
- Training skills to develop and use methods, procedures and tools of scientific research, as well as developing in graduates the ability to formulate scientific explanations of economic and social phenomena and processes;
- Stimulating the interest of graduates for continuous professional, scientific and specialized training in order to effectively adapt to the requirements of the knowledge-based society;
- Training of professional communication skills in English, of effective integration in work teams and of multinational or international research.

3. SPECIFIC EDUCATIONAL OBJECTIVES (COMPETENCES TO BE ACQUIRED)

Professional competencies:

C1.Programming in high level programming languages;
C2.Development and maintenance of computer applications;
C3.Using computer tools in interdisciplinary context;
C4.Using the theoretical bases of computers and formal models;
C5.Database design and database management;
C6.Designing and management af computer networks;

Transversal competencies:

CT1.Applying the rules of organized and efficient work, of responsible attitudes towards teaching-scientific field, to value the own creative potential, while respecting the principles and norms of professional ethics.
CT2.Efficient conduct of the activities organized in an inter-disciplynary group and developing the personal communication skills, networking and collaboration with various groups;
CT3.Using of efficient methods and techniques for learning, informing, research and development of the capacity to value knowledge, adapting to the requirements of a dynamic society and communicating in English and in an Internationally widespread language.

4. ACADEMIC CAREER DEVELOPMENT

Bachelor's degree graduates "**Computer Science (in English)**" according to the Romanian Occupational Catalogue (COR – ISCO-08), can be hired in the following positions:

2512 - 251202 – Programmer
2512 - 251204 – Computer system programmer

5. FINAL STIPULATIONS

The Curriculum will be approved, according to the National Education Law 199/2023 by the university Senate and after being signed on each page the President of the Senate. The Curriculum is valid until the next revision. Aproved Curriculum valid for study cycle 2024-2027.

6. ANALYZIS OF THE CURRICULUM

- **In Curriculum** for **Computer Science (in English)** study program the taught disciplines are included with the following weights:

Nr. crt.	Subject Type	Hours /Study program _____		
		Hours	Ratio %	
			Study program ____	ARACIS regulations
1	Fundamentals (DF)	854	44,9%	35-45%
2	Specialty (DS)	770	40,4%	35-50%
3	Complementary (DC)	280	14,7%	10-20%
TOTAL		1904	100%	-

- **The total number of hours of this program is 1848, divided as follows:**

- Compulsory requirements ..... **1904 hours**
- Internship……**120 hours**
- Internship to prepare the Bachelor Thesis ..... **84 hours**

Total……..**1904 hours**

ARACIS regulations (1848 ÷ 2352 hours)

- Curriculum structure, according course types (compulsory and elective):

Course	Hours per curriculum	
	Hours	Ratio %
Compulsory courses	1456	76,5% (ARACIS regulations 70%-83%)
Elective courses	448	23,5% (ARACIS regulations 30%-17%)
TOTAL	1904	100%

- The ratio between lectures and practice (seminars, laboratories, projects, internship) is 1:1,16 (882 hours/1022hours) complying with the ARACIS regulations 1:1+50%.

- The ratio of the facultative disciplines to the total number of hours 11,1%.

- Study program **Computer Science (in English)** and Informatics domain fit the national qualifications in HG 412/2024.

- The courses included in the Curriculum and the subjects studied are perfectly aligned with the Bachelor program (BSc) in **Computer Science (in English)** (HG 412/2024).
- The curriculum of the with the Bachelor program (BSc) program "**Computer Science (in English)**" complies with the European Credit Transfer and Accumulation System (ECTS) and with the Romanian Law 199/2023, art. 54.

TIME SKEDULLING OF THE ACADEMIC YEAR (WEEKS)

Year	Didactic activities (weeks)		Exams (weeks)			Internship	Holiday (weeks)		
	Sem. I	Sem. II	Winter session	Summer session	Retake session		Winter	Between semesters	Summer
Year I	14	14	3	3	2	-	2	1	12
Year II	14	14	3	3	2	4	2	1	8
Year III	14	14	3	2	1	84*	2	1	-

* Distributed along the 14 weeks of Sem.II

Practice is organized according to firm rules stated in documents conceived by the Mathematics & Computer Science and approved by the Faculty Council. Practice activities can take place both at faculty's laboratories and certain economic units (based on "practice cnventions").

HOURS PER WEEK OF COMPULSORY AND ELECTIVE COURSES

Year	Semester I (hours/week)	Semester II (hours/week)	
I	23	23	
II	22	22	4 weeks – Internship (120 hours)
III	23	23	84 hours (14 weeks x 6 hours) - Internship to prepare the Bachelor Thesis

7. REQUIREMENTS FOR PASSING, PROMOTION AND COMEBACK

The requirements for passing (admission to the next academic year), promotion or comeback to studies are stated in the RAPS Regulations.

8. THE BACHELOR THESIS

The requirements for preparing, submitting and defending the Master Thesis are stated in the Regulation on the organization and conduct of bachelor/diploma and dissertation examinations.

- Communicating the subjects for the Bachelor Thesis: semester 4
- Preparing the Bachelor Thesis: the semesters 5 and 6
- Submitting and defending the Bachelor Thesis: July – 3rd year
- The final exam consists:
  - Testing the general and specialized knowledge – 5 credits
  - Defending the bachelor's thesis – 5 credits

9. THE ECTS CREDITS ASSOCIATED WITH THE STUDY PROGRAM

- 84 ETC for fundamental disciplines
- 73 ETC for specialty disciplines
- 29 ETC for complementary disciplines

Total 186 ETC

from compulsory courses (included 6 ETC for Sport)

- 142 ETC from compulsory courses
- 44 ETC from elective courses
- 23 ETC from facultative courses

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„Aurel Vlaicu“ University of Arad
Faculty of Exact Sciences
Department: Mathematics and Computer Science
Field: Informatics
Study program: Computer Science (in English)

CURRICULUM
Academic year 2024-2025
Year I

Code	Subject	Course status	S.I./ Sem (hrs)	Hours per week and Evaluation type											
				1st Semester 14 weeks						2nd Semester 14 weeks					
				C	S	L	Pr	Ev	K	C	S	L	Pr	Ev	K
COMPULSORY COURSES															
GlBF1O01	Mathematical and Computational Logic	DF	69	2	-	2	-	Ex	5	-	-	-	-	-	-
GlBF1O02	Computer System Architecture	DF	83	2	-	1	-	Ex	5	-	-	-	-	-	-
GlBF1O03	Differential and Integral Calculus	DF	69	2	2	-	-	Ex	5	-	-	-	-	-	-
GlBF1O04	Fundamentals of Programming	DF	94	2	-	2	-	Ex	6	-	-	-	-	-	-
GlBS1O05	Web Application Development	DS	94	2	-	2	-	Ex	6	-	-	-	-	-	-
GlBC1O06	Sports 1	DC	-	-	2	-	-	C	3	-	-	-	-	-	-
GlBF2O07	Operating System	DF	83	-	-	-	-	-	-	2	-	1	-	Ex	5
GlBS2O08	Numerical calculation	DS	69	-	-	-	-	-	-	2	-	2	-	Ex	5
GlBF2O09	Algebraic Foundations of Computer Science	DF	69	-	-	-	-	-	-	2	2	-	-	Ex	5
GlBF2O10	Fundamental Algorithms	DF	94	-	-	-	-	-	-	2	-	2	-	Ex	6
GlBF2O11	Data Structures	DF	94	-	-	-	-	-	-	2	-	2	-	Ex	6
GlBC2O12	Sports 2	DC	-	-	-	-	-	-	-	-	2	-	-	C	3
	TOTAL			**10**	**4**	**7**	**-**	**-**	**27 +3**	**10**	**4**	**7**	**-**	**-**	**27 +3**
ELECTIVE COURSES															
	Package 1														
GlBC1A13	English 1	DC	47	-	2	-	-	C	3	-	-	-	-	-	-
GlBC1A14	French 1	DC	47	-	2	-	-	C	3	-	-	-	-	-	-
GlBC1A15	German 1	DC	47	-	2	-	-	C	3	-	-	-	-	-	-
	Package 2														
GlBC2A16	English 2	DC	47	-	-	-	-	-	-	-	2	-	-	C	3
GlBC2A17	French 2	DC	47	-	-	-	-	-	-	-	2	-	-	C	3
GlBC2A18	German 2	DC	47	-	-	-	-	-	-	-	2	-	-	C	3
	TOTAL			**-**	**2**	**-**	**-**	**-**	**3**	**-**	**2**	**-**	**-**	**-**	**3**
TOTAL				**10**	**6**	**7**	**-**	**-**	**30 +3**	**10**	**6**	**7**	**-**	**-**	**30 +3**
FACULTATIVE COURSES															
GlBC1F19	History of mathematics	DC	22	1	1	-	-	C	2	-	-	-	-	-	-
GlBC2F20	Volunteering	DC	47	-	-	-	-	-	-	1	1	-	-	C	3

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Legend: C – Lecture; S – Seminar; L – Laboratory; P – Project; SI – Individual Study; Ev – Evaluation; K – Credits;
DF - Fundamentals course; DS – Specialty course; DC – Complementary course

„Aurel Vlaicu“ University of Arad
Faculty of Exact Sciences
Department: Mathematics and Computer Science
Field: Informatics
Study program: Computer Science (in English)

CURRICULUM
Academic year 2025-2026
Year 1I

Code	Subject	Course status	S.I./ Sem (hrs)	Hours per week and Evaluation type											
				1st Semester 14 weeks						2nd Semester 14 weeks					
				C	S	L	Pr	Ev	C	C	S	L	Pr	C	K
COMPULSORY COURSES															
GlBF3O01	Computer Networks	DF	69	2	-	2	-	Ex	5	-	-	-	-	-	-
GlBF3O02	Algorithmics of Graphs	DF	94	2	-	2	-	Ex	6	-	-	-	-	-	-
GlBF3O03	Databases	DF	94	2	-	2	-	Ex	6	-	-	-	-	-	-
GlBS3O04	Object Oriented Programming	DS	69	2	-	2	-	Ex	5	-	-	-	-	-	-
GlBC3O05	Differential Equations and with Partial Derivatives	DC	69	2	2	-	-	Ex	5	-	-	-	-	-	-
GlBF4O06	Probabilities and Statistics	DF	69	-	-	-	-	-	-	2	2	-	-	Ex	5
GlBF4O07	Computational Geometry	DF	69	-	-	-	-	-	-	2	-	2	-	Ex	5
GlBS4O08	Mobile Application Development	DS	69	-	-	-	-	-	-	2	-	2	-	Ex	5
GlBS4O09	Database Management Systems	DS	69	-	-	-	-	-	-	2	-	2	-	Ex	5
GlBS4O10	Specialty Practice	DS	120 hrs (4 week. x 6 hrs x 5 day) taking place after the active conclusion. didactic of the sem. 4											C	2
	TOTAL			**10**	**2**	**8**	**-**	**-**	**27**	**8**	**2**	**6**	**-**	**-**	**22**
ELECTIVE COURSES															
	Package 1														
G1BC3A11	English 3	DC	47	-	2	-	-	C	3	-	-	-	-	-	-
G1BC3A12	French 3	DC	47	-	2	-	-	C	3	-	-	-	-	-	-
G1BC3A13	German 3	DC	47	-	2	-	-	C	3	-	-	-	-	-	-
	Package 2														
G1BC4A14	English 4	DC	47	-	-	-	-	-	-	-	2	-	-	C	3
G1BC4A15	French 4	DC	47	-	-	-	-	-	-	-	2	-	-	C	3
G1BC4A16	German 4	DC	47	-	-	-	-	-	-	-	2	-	-	C	3
	Package 3														
GlBF4A17	Formal languages and compilers	DF	69	-	-	-	-	-	-	2	-	2	-	Ex	5
GlBF4A18	Automatic computability and complexity	DF	69	-	-	-	-	-	-	2	-	2	-	Ex	5
	TOTAL			**-**	**2**	**-**	**-**	**-**	**3**	**2**	**2**	**2**	**-**	**-**	**8**
TOTAL				**10**	**4**	**8**	**-**	**-**	**30**	**10**	**4**	**8**	**-**	**-**	**30**
FACULTATIVE COURSES															
GlBC3F19	History of Computing Systems	DC	22	1	1	-	-	C	2	-	-	-	-	-	-
G1BC4F20	Introduction to entrepreneurship	DC	47	-	-	-	-	-	-	1	1	-	-	C	3

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CURRICULUM
Academic year 2026-2027
Year III

Code	Subject	Course status	S.I./ Sem (hrs)	Hours per week and Evaluation type											
				1st Semester 14 weeks						2st Semester 14 weeks					
				C	S	L	Pr	Ev	C	C	S	L	Pr	C	K
COMPULSORY COURSES															
GlBF5O01	Artificial Intelligence	DF	58	2	-	1	-	Ex	4	-	-	-	-	-	-
GlBS5O02	Advanced programming methods	DS	69	2	-	2	-	Ex	5	-	-	-	-	-	-
GlBF5O03	Computer Security	DF	69	2	-	2	-	Ex	5	-	-	-	-	-	-
GlBS6O04	Software engineering	DS	94	-	-	-	-	-	-	2	-	2	-	Ex	6
GlBS6O05	Advanced programming techniques	DS	94	-	-	-	-	-	-	2	-	2	-	Ex	6
GlBC6O06	Ethics and academic integrity	DC	36							1	-	-	-	C	2
GlBS6O07	Writing and Editing the Diploma Thesis	DS	41	-	-	-	-	-	-	-	-	6	-	C	5
	TOTAL			**6**	**-**	**5**	**-**	**-**	**14**	**5**	**-**	**10**	**-**	**-**	**19**
ELECTIVE COURSES															
	Package 1														
GlBC5A08	Scientific and professional writing and communication	DC	58	2	-	1	-	C	4	-	-	-	-	-	-
GlBC5A09	Business concepts in IT	DC	58	2	-	1	-	C	4	-	-	-	-	-	-
	Package 2														
GlBS5A10	Operational Research	DS	58	2	-	1	-	C	4	-	-	-	-	-	-
GlBS5A11	Logical programming	DS	58	2	-	1	-	C	4	-	-	-	-	-	-
	Package 3														
GlBS5A12	Computer Graphics	DS	58	2	-	1	-	Ex	4	-	-	-	-	-	-
GlBS5A13	Programming environments and tools	DS	58	2		1		Ex	4						
	Package 4														
GlBS5A14	Machine learning	DS	58	2	-	1	-	Ex	4	-	-	-	-	-	-
GlBS5A15	Man-Computer Interfaces	DS	58	2	-	1	-	Ex	4	-	-	-	-	-	-
	Package 5														
GlBS6A16	Cryptography	DS	94	-	-	-	-	-	-	2	-	2	-	Ex	6
GlBS6A17	Parallel, concurrent and distributed programming	DS	94	-	-	-	-	-	-	2	-	2	-	Ex	6
	Package 6														
GlBS6A18	Optimization Techniques	DS	83	-	-	-	-	-	-	2	-	2	-	C	5
GlBS6A19	Modeling and simulation	DS	83	-	-	-	-	-	-	2	-	2	-	C	5
	TOTAL			**8**	**-**	**4**	**-**	**-**	**16**	**4**	**-**	**4**	**-**	**-**	**11**
TOTAL				**14**	**-**	**9**	**-**	**-**	**30**	**9**	**-**	**14**	**-**	**-**	**30**
FACULTATIVE COURSES															
GlBC5F20	Professional Ethics and Intellectual Property (Legal Informatics)	DC	22	1	1	-	-	C	2	-	-	-	-	-	-
GlBC5F21	Entrepreneurship – economic and financial aspects	DC	47	1	1	-	-	C	3	-	-	-	-	-	-
GlBC6F22	Mathematical modeling	DC	83	-	-	-	-	-	-	2	1	-	-	Ex	5
GlBC6F23	Business Management	DC	47	-	-	-	-	-	-	1	1	-	-	C	3

The student who has accumulated the **186** credits through the promotion of the three years of Bachelor's Degree obtains a **Certificate of Graduation in Computer Science (in English) (without a Bachelor's Exam).**

Activity	Evaluation	Credits
Final exam for the Bachelor's degree	Exam	10

The student who has accumulated the **196** credits by promoting the three years of Bachelor's degree studies and the **Bachelor's Exam receives the Bachelor's Degree in Computer Science (in English).**

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