ANEXA 1

CURRICULUM
Valid for the study cycle 2021-2024
"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, art.137 (2), 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 2021-2024.

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)	784	42,4%	35-45%
2	Specialty (DS)	770	41,7%	35-50%
3	Complementary (DC)	294	15,9%	10-20%
TOTAL		1848	100%	-

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

- Compulsory requirements.....**1848 hours**
- Internship.....**120 hours**
- Internship to prepare the Bachelor Thesis ..... **84 hours**
- Total.....**1848 hours**

ARACIS regulations (1848 ÷ 2352 hours)

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

Course	Hours per curriculum	
	Hours	Ratio %
Compulsory courses	1386	75% (ARACIS regulations 70%-83%)
Elective courses	462	25% (ARACIS regulations 30%-17%)
TOTAL	1848	100%

- The ratio between lectures and practice (seminars, laboratories, projects, internship) is 1:1,16 (854 hours/994 hours) complying with the ARACIS regulations 1:1+50%.
- **The ratio of the facultative disciplines** (pedagogical training included) to the total number of hours 21,43%.
- Study program **Computer Science (in English)** and Informatics domain fit the national qualifications in HG 1175/2006.
- The courses included in the Curriculum and the subjects studied are perfectly aligned with the Bachelor program (BSc) in **Computer Science (in English)** (HG 1175/2006, HG 676/2007).
- 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 288/2004, alin. 9.

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	-	4	1	10
Year II	14	14	3	3	2	4	4	1	6
Year III	14	14	3	2	1	84*	3	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	22	22	
II	22	22	4 weeks – Internship (112-132 hours)
III	22	22	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 ECTS Regulations, in the Procedure of organizing the didactic activity and students grading and in the Regulation of students' professional activity based on credits transfer.

8. THE BACHELOR THESIS

The requirements for preparing, submitting and defending the Bachelor Thesis are stated in the Methodology regarding the organizing and conducting the final exams.

- Communicating the subjects for the Bachelor Thesis: 1-30 October
- Preparing the Bachelor Thesis: 1st of November – 31st of May
- Submitting and defending the Bachelor Thesis: 15th of June – 15st of July
- 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

- 80 ETC for fundamental disciplines
- 81 ETC for specialty disciplines
- 23 ETC for complementary disciplines

Total 184 ETC

- 136 ETC from compulsory courses (included 4 ETC for Sport)
- 48 ETC from elective courses
- 50 ETC supplementary for diploma
- The disciplines for the program of Psycho-pedagogical training: 30 ETC for level I (initial) to certify the didactic lineare included in the facultative disciplines package. Graduate exam : 5 ETC for level I.

RECTOR
Ramona LILE

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HEAD OF DEPARTMENT
Lorena-Camelia POPA

„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 2021-2022
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	83	2	1	-	-	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 Technologies 1	DS	94	2	-	2	-	Ex	6	-	-	-	-	-	-
GlBC1O06	Sports 1	DC	-	-	2	-	-	C	2	-	-	-	-	-	-
GlBF2O07	Operating Systems	DF	83	-	-	-	-	-	-	2	-	1	-	Ex	5
GlBF2O08	Geometry	DF	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	108	-	-	-	-	-	-	2	-	1	-	Ex	6
GlBC2O12	Sports 2	DC	-	-	-	-	-	-	-	-	2	-	-	C	2
	TOTAL			**10**	**5**	**5**	**-**	**-**	**27 +2**	**10**	**6**	**4**	**-**	**-**	**27 +2**
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**	**7**	**5**	**-**	**-**	**30 +2**	**10**	**8**	**4**	**-**	**-**	**30 +2**
FACULTATIVE COURSES															
GlBF1F19	The Psychology of education	DF	69	2	2	-	-	Ex	5	-	-	-	-	-	-
GlBF2F20	Pedagogy (Pedagogy Basics – Curriculum Theory and Methodology	DF	69	-	-	-	-	-	-	2	2	-	-	Ex	5

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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 2022-2023
Year II

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															
GIBS3O01	Object Oriented Programming	DS	69	2	-	2	-	Ex	5	-	-	-	-	-	-
GIBF3O02	Databases	DF	94	2	-	2	-	Ex	6	-	-	-	-	-	-
GIBF3O03	Computer Networks	DF	69	2	-	2	-	Ex	5	-	-	-	-	-	-
GIBC3O04	Differential Equations and with Partial Derivatives	DC	69	2	2	-	-	Ex	5	-	-	-	-	-	-
GIBF4O05	Probabilities and Statistics	DF	69	-	-	-	-	-	-	2	2	-	-	Ex	5
GIBS4O06	Visual Programming Environments	DS	69	-	-	-	-	-	-	2	-	2	-	Ex	5
GIBS4O07	Mobile applications Development	DS	69	-	-	-	-	-	-	2	-	2	-	Ex	5
GIBS4O08	Database management systems	DS	69	-	-	-	-	-	-	2	-	2	-	Ex	5
GIBS4O09	Specialization 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			**8**	**2**	**6**	**-**	**-**	**21**	**8**	**2**	**6**	**-**	**-**	**22**
ELECTIVE COURSES															
	Package 1														
G1BC3A10	English 3	DC	47	-	2	-	-	C	3	-	-	-	-	-	-
G1BC3A11	French 3	DC	47	-	2	-	-	C	3	-	-	-	-	-	-
G1BC3A12	German 3	DC	47	-	2	-	-	C	3	-	-	-	-	-	-
	Package 2														
G1BC4A13	English 4	DC	47	-	-	-	-	-	-	-	2	-	-	C	3
G1BC4A14	French 4	DC	47	-	-	-	-	-	-	-	2	-	-	C	3
G1BC4A15	German 4	DC	47	-	-	-	-	-	-	-	2	-	-	C	3
	Package 3														
GIBF3A16	Algorithmics of graphs	DF	94	2	-	2	-	Ex	6	-	-	-	-	-	-
GIBF3A17	Artificial intelligence	DF	94	2	-	2	-	Ex	6						
	Package 4														
GIBF4A18	Formal Languages and Compilers	DF	69	-	-	-	-	-	-	2	-	2	-	Ex	5
GIBF4A19	Automatic computability and complexity	DF	69	-	-	-	-	-	-	2	-	2	-	Ex	5
	TOTAL			**2**	**2**	**2**	**-**	**-**	**9**	**2**	**2**	**2**	**-**	**-**	**8**
TOTAL				**10**	**4**	**8**	**-**	**-**	**30**	**10**	**4**	**8**	**-**	**-**	**30**
FACULTATIVE COURSES															
GIBF3F20	Pedagogy II Theory and methodology of training. Theory and methodology of training	DF	69	2	2	-	-	Ex	5	-	-	-	-	-	-
GIBC4F21	History of Computing Systems	DC	69	-	-	-	-	-	-	2	2	-	-	C	5

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Faculty of Exact Sciences
Department: Mathematics and Computer Science
Field: Informatics
Study program: Computer Science (in English)

CURRICULUM
Academic year 2023-2024
Year III

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															
GlBS5O01	Programming environments and tools	DS	69	2	-	2	-	Ex	5	-	-	-	-	-	-
GlBF5O02	Security of computer systems	DF	69	2	-	2	-	Ex	5	-	-	-	-	-	-
GlBS6O03	Checking and validating software applications	DS	94	-	-	-	-	-	-	2	-	2	-	Ex	6
GlBS6O04	Cryptography	DS	94	-	-	-	-	-	-	2	-	2	-	Ex	6
GlBC6O05	Ethics and academic integrity	DC	36							1	-	-	-	C	2
GlBS6O06	Man-Computer Interfaces	DS	94	-	-	-	-	-	-	2	-	2	-	Ex	6
GlBS6O07	Writing and Editing the Diploma Thesis	DS	41	-	-	-	-	-	-	-	-	6	-	C	5
	TOTAL			**4**	**-**	**4**	**-**	**-**	**10**	**7**	**-**	**12**	**-**	**-**	**25**
ELECTIVE COURSES															
	Package 1														
GlBS5A08	Operational research	DS	83	2	-	1	-	C	5	-	-	-	-	-	-
GlBS5A09	Computational Geometry	DS	83	2	-	1	-	C	5	-	-	-	-	-	-
	Package 2														
GlBS5A10	Design of graphical interfaces	DS	69	2	-	2	-	Ex	5	-	-	-	-	-	-
GlBS5A11	Web Technologies 2	DS	69	2	-	2	-	Ex	5	-	-	-	-	-	-
	Package 3														
GlBC5A12	Scientific and professional writing and communication	DC	69	2	-	2	-	C	5	-	-	-	-	-	-
GlBC5A13	Business concepts in IT	DC	69	2	-	2	-	C	5	-	-	-	-	-	-
	Package 4														
GlBS5A14	Computer Graphics	DS	83	2	-	1	-	Ex	5	-	-	-	-	-	-
GlBS5A15	Developing Computer Games	DS	83	2	-	1	-	Ex	5	-	-	-	-	-	-
	Package 5														
GlBS6A16	Computer Science project management	DS	83	-	-	-	-	-	-	2	-	1	-	C	5
GlBS6A17	Parallelism and competition	DS	83	-	-	-	-	-	-	2	-	1	-	C	5
	TOTAL			**8**	**-**	**6**	**-**	**-**	**20**	**2**	**-**	**1**	**-**	**-**	**5**
TOTAL				**12**	**-**	**10**	**-**	**-**	**30**	**9**	**-**	**13**	**-**	**-**	**30**
FACULTATIVE COURSES															
GlBC5F18	Professional Ethics and Intellectual Property (Legal Informatics)	DC	83	2	1	-	-	C	5	-	-	-	-	-	-
GlBS5F19	Didactics of Informatics	DS	69	2	2	-	-	Ex	5	-	-	-	-	-	-
GlBS5F20	Computer Assisted Teaching	DS	22	1	1	-	-	Ex	2	-	-	-	-	-	-
GlBS5F21	Pedagogical practice in compulsory pre-university education (1)	DS	33	-	3	-	-	C	3	-	-	-	-	-	-
GlBC6F22	Mathematical modeling	DC	83	-	-	-	-	-	-	2	1	-	-	Ex	5
GlBF6F23	Classroom Management	DF	47	-	-	-	-	-	-	1	1	-	-	C	3

GIBS6F23	Pedagogical practice in compulsory pre-university education (2)	DS	8	-	-	-	-	-	-	-	3	-	-	C	2
Final Assessment: *Psycho-pedagogical training program in order to certify the competencies for the teaching profession* - Level I											Exam			5 credits	

The student who has accumulated the **184** 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 **194** 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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