ANEXA 1

CURRICULUM
Valid for the study cycle 2026-2029
"Aurel Vlaicu" University of Arad

Faculty of Exact Sciences
Department: **Mathematics and Computer Science**
Name of program: **Computer Science**
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 in training high qualified profesionals in the fields of informatics according to „demand and supply" dynamics on the job market and the requirements of Romania's full integration in the EU.

2. OBJECTIVES

- Realizarea Maintaining a high level of scientific training to be transferred to the students in the Mathematics & Computer Science, compatibile with the EU standards and the possibility for them to opt for certain study routes in order to rapidly be integrated into the professional activity;
- Promoting a modern and flexible curriculum, according to european valuesof a socity based on knowledge, favoring the interdisciplinarity and the methodologies of teaching, learning and evaluating, depending on the shape and dynamics of the field;
- Achieving a true quality of the teaching-learning process by making use of some continuously evolving didactical strategies;
- Stimulating the interest to continue the professional training and scientific research in order to efficiently to the requirements of a knowledge-oriented society.

3. COMPETENCIES AND EXPECTED LEARNING OUTCOMES DEVELOPED WITHIN THE STUDY PROGRAM)

Professional competencies:

C1. Create the process diagram
C2. Analyze software specifications
C3. Aligns software to system architectures
C4. Provides technical documentation
C5. Create software
C6. It uses application-specific interfaces
C7. Interact with users to find out their requirements
C8. Develop the prototype for the software
C9. Translates requirements into a visual model
C10. Fix bugs in software
C11. It uses software libraries
C12. Design the user interface
C13. Design the computer system
C14. Create data models
C15. Use computer-aided software engineering tools
C16. Define software architecture
C17. Manage databases
C18. Implements the visual design of websites
C19. Design a computer network
C20. Ensures information security

Transversal competencies:

TC1. Shows initiative
TC2. Give advice to others
TC3. Takes responsibility
TC4. Works in teams

No. crt.	LEARNING OUTCOMES			Courses contributing to achieving the learning outcomes
	Knowledge	Skills	Responsibility and autonomy	
C1. Creates the process diagram				
	The graduate: a) describes the fundamental concepts of algorithms and data structures b) identifies the stages of an IT process c) explains data flow models d) formulates logical structures for implementation	The graduate: a) carries out the steps of analyzing an IT process b) analyzes information from a given system c) performs searches and simulations in specific digital environments	The graduate: a) consistently applies work standards in process design b) demonstrates professionalism in developing algorithmic logic c) applies effective team collaboration techniques	Fundamentals of Programming Data Structures Fundamental Algorithms Object-Oriented Programming Software Engineering
C2. Analyzes software specifications				
	The graduate: aa) selects, explains, and specifies the mathematical foundations applied in computer science b) explains programming paradigms c) identifies software architectures d) describes the stages of software development e) knows modern programming languages	The graduate: a) uses mathematical tools to solve specific problems b) designs functional software applications c) develops web, mobile, and desktop applications d) manages data flows and their persistence	The graduate: a) adheres to coding and testing standards b) collaborates efficiently in development teams c) engages in continuous learning to adapt to new technologies	Mathematical Logic Basics of Mathematical Analysis Graph Algorithms Probability and Statistics Web Application Development Object-Oriented Programming Mobile Application Development Advanced Programming Methods Advanced Programming Techniques Automata and Complexity Formal Languages and Compilers Optimization Techniques Modeling and Simulation Methodology for Bachelor's Thesis Writing Bachelor's Thesis Preparation
C3. Aligns software to system architectures				
	a) describes Computer System Architecture b) understands the impact of architectural decisions on the performance, scalability, reliability, and maintainability of systems c) possesses knowledge of the technologies and frameworks relevant for implementing different architectures d) understands the concepts of Continuous	The graduate: a) designs software components that comply with and optimize the existing system architecture b) collaborates with system architects to ensure the coherence and architectural integrity of software solutions c) uses tools for debugging and analysis	The graduate: a) actively contributes to the definition and evolution of software architecture b) ensures that the developed software solutions comply with the quality and security standards imposed by the architecture c) acts proactively in identifying	Computer System Architecture Operating System Computer Networks Software Engineering Computer Security Optimization Techniques Modeling and simulation

	Integration (CI) and Continuous Delivery (CD) in the context of software architectures		architectural risks and proposing mitigation solutions d) collaborates with other teams to ensure smooth integration and architectural alignment	
C4. Provides technical documentation				
	The graduate: a) knows the types of software documentation (user manual, technical documentation, specifications) b) understands the structure and format of technical documentation c) explains the importance of standardization and clarity in documentation	The graduate: a) writes clear and coherent documentation for software applications b) uses editing and documentation management tools c) adapts technical content for different audiences	The graduate: a) writes documentation in accordance with project requirements b) adheres to quality standards and professional ethics c) takes responsibility for the accuracy of the information provided	Software Engineering Programming environments and tools Bachelor's Thesis Preparation Scientific and professional writing and communication Methodology for Bachelor's Thesis Writing
C5. Create software				
	The graduate: a) explains the software development life cycle b) knows programming languages and paradigms c) identifies types of applications and their purposes	The graduate: a) designs and implements functional software applications b) tests and validates the developed applications c) applies best practices in software development	The graduate: a) meets project deadlines and requirements b) demonstrates initiative and perseverance in completing software products c) applies professional standards throughout the development process	Fundamentals of Programming Advanced programming methods Advanced web programming methods Advanced programming techniques Programming environments and tools Image Processing Optimization Techniques Assembly Language Programming Bachelor's Thesis Preparation
C6. It uses application-specific interfaces				
	The graduate: a) describes types of graphical and command-line interfaces b) understands UX/UI principles c) knows the specific characteristics of software applications	The graduate: a) interacts effectively with application interfaces b) uses menus, forms, and specific commands c) adapts working methods according to the application used	The graduate: a) organizes activities efficiently using software interfaces b) pursues workflow optimization c) adheres to best usage practices	Man-Computer Interfaces Formal languages and compilers Object-Oriented Programming Programming environments and tools Operating System Web technologies
C7. Interact with users to find out their requirements				
	The graduate: a) knows methods for requirements gathering b) understands the importance of communication in requirements definition c) recognizes the differences between	The graduate: a) formulates relevant questions to understand needs b) synthesizes requirements into clear specifications c) documents	The graduate: a) demonstrates empathy and clarity in communication b) takes responsibility for the accuracy of collected requirements c) actively	Software Engineering Artificial Intelligence Bachelor's Thesis Preparation Scientific and professional writing and communication Man-Computer Interfaces

	functional and non-functional requirements	requirements in a structured manner	collaborates with users and stakeholders	
C8. Develop the prototype for the software				
	The graduate: a) knows prototyping methods (low/high fidelity) b) understands the purpose of prototypes in requirements validation c) is familiar with prototyping tools and languages	The graduate: a) creates functional or graphical prototypes b) integrates feedback to improve prototypes c) tests prototypes with users	The graduate: a) meets project deadlines and specifications b) collaborates with the team during early development phases c) proposes innovative solutions for prototypes	Linear Algebra Mathematical Logic Algorithmics of Graphs Operational Research Differential Equations and with Partial Derivatives Man-Computer Interfaces Web technologies Development Software Engineering Man-Computer Interfaces
C9. Translates requirements into a visual model				
	The graduate: a) explains the concepts of visual modeling (UML, ERD) b) recognizes relationships between entities and software components c) understands modeling standards	The graduate: a) uses diagrams to represent systems b) documents visual models for analysis and development c) communicates effectively with the team through graphical models	The graduate: a) ensures the accuracy of produced models b) actively contributes to the requirements analysis phase c) uses recognized notation standards	Software Engineering Databases Database Management Systems Man-Computer Interfaces Bachelor's Thesis Preparation
C10. Fix bugs in software				
	The graduate: a) knows types of errors (compilation, runtime, logical) b) understands the principles of debugging and testing c) describes debugging tools	The graduate: a) identifies and isolates errors in code b) uses development environments and logs for debugging c) implements corrective solutions	The graduate: a) takes responsibility for code quality b) applies systematic debugging methods c) contributes to improving the development process	Advanced programming methods Object-Oriented Programming Advanced programming techniques Numerical calculation Probabilities and Statistics Automata and complexity Artificial Intelligence Assembly Language Programming
C11. It uses software libraries				
	The graduate: a) explains the structure and functionality of software libraries b) knows popular libraries (standard and third-party) c) understands import mechanisms and dependency management	The graduate: a) integrates libraries into software projects b) efficiently uses predefined functions c) documents their usage in code	The graduate: a) responsibly selects libraries suitable for the project b) complies with licenses and terms of use c) contributes to code reuse and maintenance	Advanced programming methods Web technologies Advanced web programming methods Image Processing Introduction to Robotics Software Technologies in Telecommunications
C12. Design the user interface				
	The graduate: a) knows UX/UI design principles	The graduate: a) creates interface mockups and	The graduate: a) takes responsibility for the interface's	Man-Computer Interfaces

	b) explains color theory, spacing, and visual hierarchy c) understands user behavior	prototypes b) optimizes user experience c) conducts usability testing	impact on the user b) collaborates effectively with designers and developers c) complies with accessibility standards	Web Application Development Algorithmics of Graphs
C13. Design the computer system				
	The graduate: a) describes the architectural components of systems b) knows information and functional flows c) understands the relationship between hardware and software	The graduate: a) develops the overall structure of an information system b) identifies necessary resources c) documents the system architecture	The graduate: a) makes strategic decisions in defining the architecture b) contributes to system planning and integration c) evaluates the impact of proposed solutions	Computer System Architecture Software Engineering Automata and complexity Introduction to Robotics Introduction to Blockchain Technologies Software Technologies in Telecommunications Assembly Language Programming Bachelor's Thesis Preparation
C14. Create data models				
	The graduate: a) describes modeling concepts (relational, object-oriented, etc.) b) knows types of relationships between entities c) understands database normalization	The graduate: a) designs conceptual and logical data models b) uses ER diagrams c) optimizes data structure	The graduate: a) maintains data consistency and integrity b) adapts models to application requirements c) applies best practices in data design	Databases Database Management Systems Automata andcomplexity Formal languages and compilers
C15. Use computer-aided software engineering tools				
	The graduate: a) identifies categories of CASE tools b) describes functionalities such as modeling, code generation, and automated testing c) knows the advantages of automating the development process	The graduate: a) uses tools for UML modeling, testing, or integration b) manages versions and source code c) integrates tools into the development lifecycle	The graduate: a) adheres to workflows and project configurations b) optimizes processes using tools c) contributes to software product quality	Basics of Mathematical Analysis Software Engineering Image Processing Bachelor's Thesis Preparation Object-Oriented Programming Web technologies
C16. Define software architecture				
	The graduate: a) describes types of architectures (monolithic, SOA, microservices) b) understands design principles (modularity, separation of concerns) c) knows architectural patterns	The graduate: a) designs application architecture b) documents software components and their relationships c) analyzes and justifies architectural decisions	The graduate: a) makes decisions based on scalability, maintainability, and performance b) works in teams to define the architecture c) ensures the consistency of the final solution	Software Engineering Introduction to Robotics Introduction to Blockchain Technologies Bachelor's Thesis Preparation Advanced web programming methods Advanced programming techniques
C17. Manage databases				

	The graduate: a) describes types of Database Management Systems b) explains concepts of database administration and security c) understands concepts of backup, replication, and transactions	The graduate: a) creates, modifies, and maintains databases b) optimizes queries and data structures c) applies security policies	The graduate: a) ensures data confidentiality and integrity b) applies backup and recovery policies c) maintains system performance	Databases Database Management Systems Specialty Practice
C18. Implements the visual design of websites				
	The graduate: a) knows markup languages and styles (HTML, CSS) b) understands concepts of responsive design c) recognizes elements of visual identity	The graduate: a) creates attractive and functional interfaces b) integrates visual components with application logic c) optimizes the website for different devices	The graduate: a) complies with branding and accessibility requirements b) applies current web standards c) collaborates with design and back-end teams	Web Application Development Man-Computer Interfaces Algorithmics of Graphs Web technologies
C19. Design a computer network				
	The graduate: a) describes network topologies, protocols, and components b) understands the OSI and TCP/IP models c) explains concepts of addressing, routing, and security	The graduate: a) designs a network infrastructure suitable for the application b) uses simulation and configuration tools c) optimizes network performance and security	The graduate: a) applies protective measures for the infrastructure b) documents the network architecture c) collaborates within administration teams	Computer Networks Computer Security Cryptography Modeling and simulation Software Technologies in Telecommunications
C20. Ensures information security				
	The graduate: a) knows the concepts of cryptography, authentication, and integrity b) describes types of attacks and protection methods c) understands policies and legislation in the field	The graduate: a) implements protection measures and access control b) uses detection and prevention tools c) drafts security policies	The graduate: a) acts responsibly in data protection b) complies with legislation and best practices c) actively participates in audits and inspections	Computer Security Cryptography Mathematical Logic Linear Algebra Basics of Mathematical Analysis Software Technologies in Telecommunications Modeling and simulation Ethics and Academic Integrity
TC1. Shows initiative				
	The graduate: a) will demonstrate knowledge about the importance of personal initiative in learning, projects, and professional development b) knows ways to identify opportunities for improvement, innovation, or collaboration	The graduate: a) identifies problems or needs in a professional or educational context and proposes solutions b) efficiently manages time, effort, and resources to achieve set objectives c) actively engages in the learning process, seeking additional sources of information	The graduate: a) can act autonomously in planning and executing their own projects b) can take initiative in new contexts, demonstrating perseverance and self-confidence c) contributes constructively to team dynamics	Basics of Mathematical Analysis Artificial Intelligence Fundamental Algorithms Databases Computer Networks Modeling and simulation Introduction to entrepreneurship Modeling and simulation Advanced programming methods

		and deepening knowledge	through ideas, proposals, and proactive interventions	Introduction to Blockchain Technologies Bachelor's Thesis Preparation
TC2. Give advice to others				
	The graduate: a) knows techniques of active listening, constructive feedback, and clear communication b) knows ways to identify the needs and problems of interlocutors	The graduate: a) offers suggestions regarding the best course of action b) makes clear, practical, and context-adapted recommendations to team members c) encourages collaboration and knowledge sharing within the team or community	The graduate: a) can be a mentor for others b) maintains confidentiality and respect in collegial relationships c) recognizes the limits of own expertise and recommends appropriate resources or experts	Basics of Mathematical Analysis Linear Algebra Fundamentals of Programming Mathematical Logic Numerical calculation Volunteering Mathematical Complements
TC3. Takes responsibility				
	The graduate: a) knows the concept of individual and collective responsibility in professional and academic contexts b) understands the importance of assuming responsibility for work quality, meeting deadlines, and adhering to standards c) knows the relevant ethical and professional standards in the field	The graduate: a) accepts responsibility and accountability for their own professional decisions and actions b) respects deadlines and commitments undertaken c) communicates transparently and promptly about progress, difficulties, or encountered issues	The graduate: a) is prepared to assume responsibilities b) critically reflects on their own actions and their impact on results and the team c) independently manages complex tasks with a high level of responsibility	Data Structures Operating System Mobile Application Development Cryptography Computer Security Probabilities and Statistics Database Management Systems Image Processing Assembly Language Programming Ethics and Academic Integrity Bachelor's Thesis Preparation Business Management Entrepreneurship – economic and financial aspects
CT4. Works in teams				
	The graduate: a) has knowledge of the principles, dynamics, roles, and specific responsibilities within a work team b) knows techniques of interpersonal communication and collaboration c) is able to use digital tools that support teamwork	The graduate: a) collaborates effectively with other team members to achieve common goals b) communicates clearly, listens actively, and provides constructive feedback c) uses digital collaborative tools to organize and coordinate team work d) contributes to the constructive resolution of conflicts and the maintenance of a	The graduate: a) participates actively and responsibly in diverse teams, with autonomy and initiative b) understands and respects individual and collective roles and responsibilities c) supports and promotes effective collaboration within the team	English 1,2,3,4 Sports 1,2 Data Structures Fundamental Algorithms Computer Networks Specialty Practice Artificial Intelligence Scientific and professional writing and communication Advanced web programming methods Volunteering Software Technologies in Telecommunications History of Computing Systems

		positive work environment		

4. ACADEMIC CAREER DEVELOPMENT

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

251201 – Analyst
251202 – Programmer
252101 – Database Administrator,
251305 - Web Content Manager
252301 – Computer Network Administrator
252908 – ICT Security Administrator

5. FINAL STIPULATIONS

The Curriculum will be approved, according to the 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 2026-2029.

6. ANALYZIS OF THE CURRICULUM

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

No.crt.	Subject Type	Hours /Study program	Ratio % Study program
1	Fundamentals (DF)	798	36,5%
2	Specialty (DS)	1148	52,6%
3	Complementary (DC)	238	10,9%
TOTAL		2184	100%

- The total number of hours of this program is 2184, divided as follows:

- Compulsory requirements……..**2184 hours**
- Specialty Practice ……**112 hours**
- Bachelor's Thesis Preparation……...….**84 hours**

Total……..**2184 hours**

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

Course	Hours per curriculum	
	Hours	Hours
Compulsory courses	1792	82%
Elective courses	392	18% (ARACIS regulations min 10%)
TOTAL	2184	100%

- The ratio between lectures and practice (seminars, laboratories, projects, internship) is 1:1,44 (896 hours/1288 hours) complying with the ARACIS regulations min 1:1.
- The ratio of the facultative disciplines to the total number of hours 6,9%.
- Study program **Computer Science** and Informatics domain fit the national qualifications in HG 191/2026.
- The courses included in the Curriculum and the subjects studied are perfectly aligned with the Bachelor program (BSc) in **Computer Science** (HG 191/2026).

- The curriculum of the with the Bachelor program (BSc) program "**Computer Science**" 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)			Practica	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	112*	2	1	8
Year III	14	14	3	2	1	84**	2	1	-

* The practical hours are included in the 26 hours of teaching activities per week in semesters 3 and 4
** For the preparation of the bachelor's thesis, distributed over the 14 weeks of semester II

Practice is organized according to firm rules stated in documents conceived by the Mathematics - Computer Science department 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	26	26	
II	26	26	The 112 practical hours are included in the 26 weekly hours per semester.
III	26	26	

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

- 68 credits in fundamental disciplines
- 90 credits in specialized disciplines
- 22 credits in complementary disciplines

Total 180 ETC

- 145 credits in compulsory disciplines
- 35 credits in optional disciplines
- 16 credits in elective disciplines

RECTOR
Dr.Habil. Ramona LILE

DEAN
Professor, PHD Sorin-Florin NĂDĂBAN

HEAD OF DEPARTMENT
Associate Professor, PhD Lorena Camelia POPA

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Faculty of Exact Sciences
Department: Mathematics and Computer Science
Field: Informatics
Study program: Computer Science

CURRICULUM
Academic year 2026-2027
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															
GlAF1O01	Mathematical Logic	DF	56	2	-	2	-	Ex	4	-	-	-	-	-	-
GlAF1O02	Computer System Architecture	DF	56	2	-	2	-	Ex	4	-	-	-	-	-	-
GlAF1O03	Basics of Mathematical Analysis	DF	84	2	2	-	-	Ex	5	-	-	-	-	-	-
GlAF1O04	Fundamentals of Programming	DF	84	2	-	2	-	Ex	5	-	-	-	-	-	-
GlAS1O05	Web Application Development	DS	70	2	-	3	-	Ex	5	-	-	-	-	-	-
GlAC1O06	Ethics and Academic Integrity	DC	42	1	-	-	-	V	2						
GlAC1O07	Sports 1	DC	28	-	2	-	-	V	2	-	-	-	-	-	-
GlAF2O08	Operating System	DF	84	-	-	-	-	-	-	2	-	2	-	Ex	5
GlAS2O09	Web technologies	DS	84	-	-	-	-	-	-	2	-	2	-	Ex	5
GlAF2O10	Linear Algebra	DF	84	-	-	-	-	-	-	2	2	-	-	Ex	5
GlAF2O11	Fundamental Algorithms	DF	70	-	-	-	-	-	-	2	-	3	-	Ex	5
GlAF2O12	Data Structures	DF	70	-	-	-	-	-	-	2	-	3	-	Ex	5
GlAC2O13	Sports 2	DC	28	-	-	-	-	-	-	-	2	-	-	V	2
	TOTAL			**11**	**4**	**9**	**-**	**-**	**27**	**10**	**4**	**10**	**-**	**-**	**27**
ELECTIVE COURSES															
	Package 1														
GlAC1A14	English 1	DC	56	-	2	-	-	V	3	-	-	-	-	-	-
GlAC1A15	French 1	DC	56	-	2	-	-	V	3	-	-	-	-	-	-
GlAC1A16	German 1	DC	56	-	2	-	-	V	3	-	-	-	-	-	-
	Package 2														
GlAC2A17	English 2	DC	56	-	-	-	-	-	-	-	2	-	-	V	3
GlAC2A18	French 2	DC	56	-	-	-	-	-	-	-	2	-	-	V	3
GlAC2A19	German 2	DC	56	-	-	-	-	-	-	-	2	-	-	V	3
	TOTAL			**-**	**2**	**-**	**-**	**-**	**3**	**-**	**2**	**-**	**-**	**-**	**3**
TOTAL				**11**	**6**	**9**	**-**	**-**	**30**	**10**	**6**	**10**	**-**	**-**	**30**
FACULTATIVE COURSES															
GlAC1F20	Mathematical Complements	DC	28	1	1	-	-	V	2	-	-	-	-	-	-

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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

CURRICULUM
Academic year 2027-2028
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	K	C	S	L	Pr	Ev	K
COMPULSORY COURSES															
GlAF3O01	Computer Networks	DF	84	2	-	2	-	Ex	5	-	-	-	-	-	-
GlAF3O02	Algorithmics of Graphs	DF	98	2	-	1	-	Ex	4	-	-	-	-	-	-
GlAF3O03	Databases	DF	84	2	-	2	-	Ex	5	-	-	-	-	-	-
GlAS3O04	Object Oriented Programming	DS	84	2	-	2	-	Ex	5	-	-	-	-	-	-
GlAC3O05	Scientific and professional writing and communication	DC	28	1	-	1	-	V	2	-	-	-	-	-	-
GlAF4O06	Probabilities and Statistics	DF	84	-	-	-	-	-	-	2	2	-	-	Ex	5
GlAS4O07	Advanced web programming methods	DS	84	-	-	-	-	-	-	2	-	2	-	Ex	5
GlAS4O08	Mobile Application Development	DS	84	-	-	-	-	-	-	2	-	2	-	Ex	5
GlAS4O09	Database Management Systems	DS	84	-	-	-	-	-	-	2	-	2	-	Ex	5
GlAS4O10	Programming environments and tools	DS	84	-	-	-	-	-	-	2	-	2	-	Ex	5
GlAS4O11	Specialty Practice	DS	112 hours of practice											V	2
	TOTAL			**9**	**-**	**8**	**-**	**-**	**22**	**10**	**2**	**8**	**-**	**-**	**27**
ELECTIVE COURSES															
	Package 1														
G1AC3A12	English 3	DC	56	-	2	-	-	V	3	-	-	-	-	-	-
G1AC3A13	French 3	DC	56	-	2	-	-	V	3	-	-	-	-	-	-
G1AC3A14	German 3	DC	56	-	2	-	-	V	3	-	-	-	-	-	-
	Package 2														
GlAS4A15	Automata and complexity	DS	98	2	-	1	-	Ex	5	-	-	-	-	-	-
GlAS4A16	Formal languages and compilers	DS	98	2	-	1	-	Ex	5	-	-	-	-	-	-
	Package 3														
G1AC4A17	English 4	DC	56	-	-	-	-	-	-	-	2	-	-	V	3
G1AC4A18	French 4	DC	56	-	-	-	-	-	-	-	2	-	-	V	3
G1AC4A19	German 4	DC	56	-	-	-	-	-	-	-	2	-	-	V	3
	TOTAL			**2**	**2**	**1**	**-**	**-**	**8**	**-**	**2**	**2**	**-**	**-**	**3**
TOTAL				**11**	**2**	**9**	**-**	**-**	**30**	**10**	**4**	**8**	**-**	**-**	**30**
FACULTATIVE COURSES															
GlAC3F20	History of Computing Systems	DC	28	1	1	-	-	V	2	-	-	-	-	-	-
G1AC4F21	Introduction to entrepreneurship	DC	56	-	-	-	-	-	-	1	1	-	-	V	3

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Faculty of Exact Sciences
Department: Mathematics and Computer Science
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CURRICULUM
Academic year 2028-2029
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	K	C	S	L	Pr	Ev	K
COMPULSORY COURSES															
GlAF5O01	Artificial Intelligence	DF	84	2	-	2	-	Ex	5	-	-	-	-	-	-
GlAS5O02	Advanced programming methods	DS	84	2	-	2	-	Ex	5	-	-	-	-	-	-
GlAS5O03	Cryptography	DS	84	2	-	2	-	Ex	5	-	-	-	-	-	-
GlAS5O04	Numerical calculation	DS	84	2	-	2	-	Ex	5	-	-	-	-	-	-
GlAC5O05	Methodology for Bachelor’s Thesis Writing	DC	84	-	-	2	-	V	2	-	-	-	-	-	-
GlAF6O06	Computer Security	DF	84	-	-	-	-	-	-	2	-	2	-	Ex	5
GlAS5O07	Software engineering	DS	84	-	-	-	-	-	-	2	-	2	-	Ex	5
GlAS6O08	Advanced programming techniques	DS	84	-	-	-	-	-	-	2	-	2	-	Ex	5
GlAS6O09	Bachelor’s Thesis Preparation	DS	56	-	-	-	-	-	-	-	-	6	-	V	5
	TOTAL			**8**	**-**	**10**	**-**	**-**	**22**	**6**	**-**	**12**	**-**	**-**	**20**
ELECTIVE COURSES															
	Pachet 1														
GlAS5A10	Optimization Techniques	DS	56	2	-	2	-	Ex	4	-	-	-	-	-	-
GlAS5A11	Modelling and Simulation	DS	56	2	-	2	-	Ex	4	-	-	-	-	-	-
	Pachet 2														
GlAS5A12	Image Processing	DS	56	2	-	2	-	Ex	4	-	-	-	-	-	-
GlAS5A13	Man-Computer Interfaces	DS	56	2	-	2	-	Ex	4	-	-	-	-	-	-
	Pachet 3														
GlAS5A14	Introduction to Robotics	DS	84	-	-	-	-	-	-	2	-	2	-	Ex	5
GlAS5A15	Introduction to Blockchain Technologies	DS	84	-	-	-	-	-	-	2	-	2	-	Ex	5
	Pachet 4														
GlAS5A16	Software Technologies in Telecommunications	DS	84	-	-	-	-	-	-	2	-	2	-	Ex	5
GlAS5A17	Assembly Language Programming	DS	84	-	-	-	-	-	-	2	-	2	-	Ex	5
	TOTAL			**4**	**-**	**4**	**-**	**-**	**8**	**4**	**-**	**4**	**-**	**-**	**10**
TOTAL				**12**	**-**	**14**	**-**	**-**	**30**	**10**	**-**	**16**	**-**	**-**	**30**
FACULTATIVE COURSES															
GlAS5F18	Entrepreneurship – economic and financial aspects	DS	56	1	1	-	-	V	3	-	-	-	-	-	-
GlAC6F19	Volunteering	DC	56	-	-	-	-	-	-	-	2	-	-	V	3
GlAC6F20	Business Management	DC	56	-	-	-	-	-	-	1	1	-	-	V	3

The student who has accumulated the **180** credits by promoting the three-year bachelor's degree obtains a Graduate Certificate in Computer Science (without a bachelor exam).

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

The student who has accumulated the **190** credits by promoting the three years of Bachelor's degree studies and the Bachelor's Degree exam earns a Bachelor's Degree in Computer Science.

RECTOR	DEAN	HEAD OF DEPARTMENT
Dr.Habil. Ramona LILE	**Professor, PHD Sorin-Florin NĂDĂBAN**	**Associate Professor, PhD Lorena Camelia POPA**

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