ANEXA 1

CURRICULUM
Valid for the study cycle 2025-2028
"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 and Computational Logic Graph Algorithms Combinatorics Elements Probability and Statistics Web Application Development Object-Oriented Programming Mobile Application Development Advanced Programming Methods Advanced Programming Techniques Automata, Computability, and Complexity Formal Languages and Compilers Optimization Techniques Modeling and Simulation 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 Integration (CI) and Continuous Delivery (CD)	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 architectural risks and proposing mitigation	Computer System Architecture Operating System Computer Networks Software Engineering Computer Security Parallel, concurrent and distributed programming Optimization Techniques Modeling and simulation

	in the context of software architectures		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
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 programming techniques Programming environments and tools Parallel, concurrent and distributed programming Optimization Techniques 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
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 functional and non-functional requirements	The graduate: a) formulates relevant questions to understand needs b) synthesizes requirements into clear specifications c) documents requirements in a structured manner	The graduate: a) demonstrates empathy and clarity in communication b) takes responsibility for the accuracy of collected requirements c) actively collaborates with users and stakeholders	Software Engineering Inteligența artificială 1, 2 Machine learning Bachelor's Thesis Preparation Scientific and professional writing and communication
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	Algebraic Foundations of Computer Science Geometry Mathematical and Computational Logic Algorithmics of Graphs Operational Research Differential Equations and with Partial Derivatives Man-Computer Interfaces Web Application Development Software Engineering
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 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 Automatic computability and complexity Artificial Intelligence1,2
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 Logical programming Computer Graphics
C12. Design the user interface				
	The graduate: a) knows UX/UI design principles b) explains color theory, spacing, and visual hierarchy c) understands user behavior	The graduate: a) creates interface mockups and prototypes b) optimizes user experience c) conducts usability testing	The graduate: a) takes responsibility for the interface's impact on the user b) collaborates effectively with designers and developers	Man-Computer Interfaces Web Application Development Machine learning Algorithmics of Graphs Operational Research

			c) complies with accessibility standards	Algebraic Foundations of Computer Science
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 Automatic computability and complexity Parallel, concurrent and distributed 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 Automatic computability and complexity 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	Software Engineering Bachelor's Thesis Preparation Object-Oriented Programming
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 Logical programming Bachelor's Thesis Preparation 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 Computer Graphics Man-Computer Interfaces Geometry Algorithmics of Graphs
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
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 and Computational Logic Algebraic Foundations of Computer Science Differential and Integral Calculus Elements of Combinatorics 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 and deepening knowledge	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 through ideas, proposals, and proactive interventions	Artificial Intelligence 1,2 Fundamental Algorithms Software matematic 1 Databases Computer Networks Computer Graphics Elements of Combinatorics Introduction to entrepreneurship Modeling and simulation Operational Research Geometry Advanced programming methods Bachelor's Thesis Preparation Business concepts in IT
TC2. Give advice to others				
	The graduate: a) knows techniques of	The graduate: a) offers suggestions	The graduate: a) can be a mentor for	Differential and Integral Calculus

	active listening, constructive feedback, and clear communication b) knows ways to identify the needs and problems of interlocutors	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	others b) maintains confidentiality and respect in collegial relationships c) recognizes the limits of own expertise and recommends appropriate resources or experts	Algebraic Foundations of Computer Science Fundamentals of Programming Mathematical and Computational Logic Operational Research 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 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 positive work environment	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 1,2 Scientific and professional writing and communication Operational Research Business concepts in IT Volunteering History of mathematics History of Computing Systems

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 2025-2028.

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)	980	44,9%
2	Specialty (DS)	924	42,3%
3	Complementary (DC)	280	12,8%
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	1708	78,2%
Elective courses	476	21,8% (ARACIS regulations min 10%)
TOTAL	2184	100%

- The ratio between lectures and practice (seminars, laboratories, projects, internship) is 1:1,4 (910 hours/1274 hours) complying with the ARACIS regulations min 1:1.
- The ratio of the facultative disciplines to the total number of hours 0,64%.
- Study program **Computer Science** and Informatics domain fit the national qualifications in HG 412/2025.
- The courses included in the Curriculum and the subjects studied are perfectly aligned with the Bachelor program (BSc) in **Computer Science** (HG 412/2025).
- 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 I and II
** 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

- 83 credits in fundamental disciplines
- 70 credits in specialized disciplines
- 27 credits in complementary disciplines

Total 180 ETC

- 137 credits in compulsory disciplines
- 43 credits in optional disciplines
- 19 credits in elective disciplines

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

CURRICULUM
Academic year 2025-2026
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 and Computational Logic	DF	56	2	-	2	-	Ex	4	-	-	-	-	-	-
GlAF1O02	Computer System Architecture	DF	56	2	-	2	-	Ex	4	-	-	-	-	-	-
GlAF1O03	Differential and Integral Calculus	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	Numerical calculation	DS	84	-	-	-	-	-	-	2	-	2	-	Ex	5
GlAF2O10	Algebraic Foundations of Computer Science	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	-	-	-	-	-	-
GlAC2F21	History of mathematics	DC	56	-	-	-	-	-	-	1	1	-	-	V	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

CURRICULUM
Academic year 2026-2027
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	84	1	-	1	-	Ex	4	-	-	-	-	-	-
GlAF3O03	Databases	DF	84	2	-	2	-	Ex	5	-	-	-	-	-	-
GlAS3O04	Object Oriented Programming	DS	84	2	-	2	-	Ex	5	-	-	-	-	-	-
GlAC3O05	Differential Equations and with Partial Derivatives	DC	84	2	2	-	-	Ex	5	-	-	-	-	-	-
GlAF3O06	Elements of Combinatorics	DF	56	1	1	-	-	V	3	-	-	-	-	-	-
GlAF4O07	Probabilities and Statistics	DF	84	-	-	-	-	-	-	2	2	-	-	Ex	5
GlAF4O08	Geometry	DF	84	-	-	-	-	-	-	2	-	2	-	Ex	5
GlAS4O09	Mobile Application Development	DS	84	-	-	-	-	-	-	2	-	2	-	Ex	5
GlAS4O10	Database Management Systems	DS	84	-	-	-	-	-	-	2	-	2	-	Ex	5
GlAS4O11	Specialty Practice	DS	112 hours of practice											V	2
	TOTAL			**10**	**3**	**7**	**-**	**-**	**27**	**8**	**2**	**6**	**-**	**-**	**22**
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														
G1AC4A15	English 4	DC	56	-	-	-	-	-	-	-	2	-	-	V	3
G1AC4A16	French 4	DC	56	-	-	-	-	-	-	-	2	-	-	V	3
G1AC4A17	German 4	DC	56	-	-	-	-	-	-	-	2	-	-	V	3
	Package 3														
GlAS4A18	Computer Graphics	DS	84	-	-	-	-	-	-	2	-	2	-	Ex	5
GlAS4A19	Programming environments and tools	DS	84	-	-	-	-	-	-	2	-	2	-	Ex	5
	TOTAL			**-**	**2**	**-**	**-**	**-**	**3**	**2**	**2**	**2**	**-**	**-**	**8**
TOTAL				**10**	**5**	**7**	**-**	**-**	**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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DF - Fundamentals course; DS – Specialty course; DC – Complementary course

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

CURRICULUM
Academic year 2027-2028
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 1	DF	56	2	-	2	-	Ex	4	-	-	-	-	-	-
GlAS5O02	Advanced programming methods	DS	84	2	-	2	-	Ex	5	-	-	-	-	-	-
GlAF5O03	Computer Security	DF	84	2	-	2	-	Ex	5	-	-	-	-	-	-
GlAS6O04	Software engineering	DS	84	-	-	-	-	-	-	2	-	2	-	Ex	5
GlAF5O05	Artificial Intelligence 2	DF	84	-	-	-	-	-	-	2	-	2	-	Ex	5
GlAS6O06	Advanced programming techniques	DS	84	-	-	-	-	-	-	2	-	2	-	Ex	5
GlAS6O07	Bachelor’s Thesis Preparation	DS	56	-	-	-	-	-	-	-	-	6	-	V	5
	TOTAL			**6**	**-**	**6**	**-**	**-**	**14**	**6**	**-**	**12**	**-**	**-**	**20**
ELECTIVE COURSES															
	Pachet 1														
GlAC5A08	Scientific and professional writing and communication	DC	70	2	-	1	-	V	4	-	-	-	-	-	-
GlAC5A09	Business concepts in IT	DC	70	2	-	1	-	V	4	-	-	-	-	-	-
	Pachet 2														
GlAS5A10	Operational Research	DS	56	2	-	2	-	Ex	4	-	-	-	-	-	-
GlAS5A11	Logical programming	DS	56	2	-	2	-	Ex	4	-	-	-	-	-	-
	Pachet 3														
GlAF5A12	Formal languages and compilers	DF	56	2	-	2	-	Ex	4	-	-	-	-	-	-
GlAF5A13	Automatic computability and complexity	DF	56	2		2		Ex	4						
	Pachet 4														
GlAS5A14	Machine learning	DS	70	2	-	1	-	V	4	-	-	-	-	-	-
GlAS5A15	Man-Computer Interfaces	DS	70	2	-	1	-	V	4	-	-	-	-	-	-
	Pachet 5														
GlAS6A16	Cryptography	DS	84	-	-	-	-	-	-	2	-	2	-	Ex	5
GlAS6A17	Parallel, concurrent and distributed programming	DS	84	-	-	-	-	-	-	2	-	2	-	Ex	5
	Pachet 6														
GlAS6A18	Optimization Techniques	DS	84	-	-	-	-	-	-	2	-	2	-	Ex	5
GlAS6A19	Modeling and simulation	DS	84	-	-	-	-	-	-	2	-	2	-	Ex	5
	TOTAL			**8**	**-**	**6**	**-**	**-**	**16**	**4**	**-**	**4**	**-**	**-**	**10**
TOTAL				**14**	**-**	**12**	**-**	**-**	**30**	**10**	**-**	**16**	**-**	**-**	**30**
FACULTATIVE COURSES															
GlAS5F20	Entrepreneurship – economic and financial aspects	DS	56	1	1	-	-	V	3	-	-	-	-	-	-
GlAC6F21	Volunteering	DC	56	-	-	-	-	-	-	-	2	-	-	V	3
GlAC6F22	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**
Associate Professor, PhD Teodor-Florin CILAN	**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